# 2025 Strategic Leaders Global Summit

## Artificial Intelligence and Emerging Technologies to Support Student Success

CGS Council of Graduate Schools

INRS Institut national de la recherche scientifique

These papers were presented at the 2025 Strategic Leaders Global Summit on Graduate Education convened by the Council of Graduate Schools and hosted by the Institut National de la Recherche Scientifique (INRS) in Quebec City, Canada. The 2025 Summit explored artificial intelligence and emerging technologies to support student success. Presentation of these papers was followed by a group discussion during which a set of principles and an action agenda were drafted. These principles, action agenda, and papers represent best practices in how to deploy artificial intelligence, with a special emphasis on generative artificial intelligence (genAI), to improve graduate education in a global context.

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# 2025 Global Summit Principles and Action Agenda

The 2025 Strategic Leaders Global Summit on Graduate Education convened at the Institute national de la recherche scientifique (INRS) in Quebec City, Canada on September 28-30, 2025, to discuss the pressing issue of artificial intelligence (AI) and emerging technologies to support student success. Graduate education leaders from fifteen countries agreed on a set of principles and an action agenda for managing AI to create and sustain innovative graduate education and research grounded in student-centered values that advance the social good.

While this document forwards a set of general principles, it should be viewed as a living document considering the rapid technological advances in AI at the current moment. To align these principles with changes in AI, this document is complemented by a list of principles and resources from around the world that will be updated to accommodate changing technological developments, higher education requirements, and student needs. For the purposes of this document, attendees are primarily referring to generative artificial intelligence (gen AI), which creates original content from patterns of preexisting text, audio, code, and images. When used responsibly, artificial intelligence has the potential to accelerate innovation, advance knowledge, and improve lives. Though it is a transformative technology, university leaders should aim to situate its use within existing practices of knowledge creation and good scientific scholarship.

## Principles:

**Humanity.** The recommended use of artificial intelligence should advance human values like intelligence, dignity, and agency, and not be a replacement for human scholarship.

**Autonomy.** AI tools should be used with discernment, not deference. While there should be guidelines for acceptable use, the decision to use artificial intelligence, and to what extent, should rest with individuals.

**Integrity.** As the social importance and power of AI has grown rapidly and its effects have widely been noted, it is essential that institutions articulate and reaffirm a well-founded ethical framework and a set of shared values that can guide the morally responsible and beneficial use and application of AI. Such a framework represents the legacy of a solid and renewed commitment to scholarly integrity.

**Equity and Fairness.** Artificial intelligence technologies should be used to promote equity and fairness. Care should be taken to ensure that AI use does not exacerbate existing inequities within graduate education and research.

**Transparency.** It should be clear to all stakeholders if and to what extent artificial intelligence is being used. AI use should be disclosed whenever possible, and the rationale, capabilities, and limitations of AI models should be clearly communicated.

**Literacy**. A basic understanding of AI, its possibilities and limitations, is the foundation of responsible use. Institutions should create guidance and offer training to promote AI literacy across the university, including students, faculty, and staff.

**Responsibility and Accountability.** Users are responsible for how AI is used and should be held accountable for the positive and negative outcomes of its use.

**Intentionality.** Given the impact of artificial intelligence on the environment and its potential negative effects on human cognition, AI use should be used in a limited and intentional way, in line with specific pedagogical goals or research plans.

**Privacy.** Faculty, students, and researchers should respect user privacy and be good stewards of user data. Special caution should be exercised when handling sensitive data, particularly in clinical programs.

**Criticality.** While AI tools have incredible potential and should not be viewed with fear, users should not suspend critical judgment when using AI.

**Intrepidity.** Artificial intelligence is a powerful tool that should be used with confidence to advance human knowledge and scientific innovation. Be brave in harnessing the potential of AI.

## Action Agenda:

### For Institutions

The role of institutions in creating and implementing guidance around artificial intelligence is vital in standardizing policies across campus and aligning AI policies to a university's broader goals and mission. Institutions also play a vital role in convening stakeholders from across campus to promote ethical AI use and identifying (and in some cases selecting) preferred AI tools for student, faculty, and administrative use that reflect institutional values and guidelines.

- Reaffirm the institution's core mission and values around graduate education. Work to align new and emerging AI tools with those pre-existing values and norms.
- Universities should work to promote equitable access to AI tools. This includes access within the university community and to those outside of the university who may benefit from access.
- Create and support committees on artificial intelligence. Ensure that plans are in place to communicate committee findings effectively across the university.
- Develop guidelines for varied stakeholders on acceptable AI use. Those guidelines should be clear, tied to specific actions, and flexible enough to be updated as technology evolves.
- Provide training on AI for students, faculty, and staff. AI literacy is the cornerstone of acceptable use. These trainings should be required and cover a range of topics, including ethics, guidance on how AI systems work, and lessons on specific models.
- Create and share surveys on AI use. Grounding committee work and policies in data will make guidance evidence-based and give it credibility with varied stakeholders.

- Community involvement is paramount in developing guidelines. Everyone should have a voice in creating and shaping AI policies. It is particularly important to involve students, since they may be the most educated AI users on campus.
- Have a robust legal framework for AI use in graduate research. Using AI may have legal implications for intellectual property and risk management. Everyone who uses AI should be aware of the legal implications of AI use in their research and the consequences of unsanctioned use.
- Create communications materials and educational opportunities to ensure that graduate students understand AI policies and guidelines. Institutions may want to create compacts or other agreements for graduate students to acknowledge that they understand and will abide by university policies on AI use.
- Identify, audit, and mitigate bias in AI tools by promoting the acceptable use of public AI platforms that are transparent and take concrete steps to address bias when it is identified. Work with LLM providers to reduce bias in their products when possible.
- Guidelines and policies should point users towards preferred use and not only condemn negative use. Productive guidelines will be proactive in guiding users towards preferred models, highlighting areas where AI may be most successfully applied, and creating accessible avenues where questions can be asked in a non-judgmental atmosphere.
- When possible, universities should work to create their own secure data systems, including large-language models. Information security and transparency are strongest when systems are controlled by publicly accountable institutions.

### For Faculty

Faculty members play a central role in designing artificial intelligence policies – through participation in committees and providing feedback to administrators – and in transmitting policies to graduate students. Faculty may also be involved in research and knowledge creation using AI and must make sure that their use of AI is in compliance with university, publisher, and disciplinary guidelines.

- Be open to using AI in your teaching and research. While AI tools are not appropriate in all contexts, blanket bans on AI use can hinder innovation and lead to nondisclosure of AI use (often called “shadow use”), which can harm students and institutions.
- Consider the ethical implications of your AI use. Ensure that your use of AI is consistent with advancing the social good and creating a student-centered education environment. Be particularly mindful of potential biases in AI algorithms when using them for sensitive tasks like manipulating personal data, student assessment, or evaluating applications.
- Stay informed about university guidelines regarding AI use. If you are engaged in research, be particularly attentive to AI guidelines around intellectual property and risk management.
- Learn about disciplinary standards and guidelines for AI use. Share that information with your graduate students.

- Review assessment practices to ensure that they promote transparent and thoughtful engagement with AI. Design disclosure policies that support transparent AI use and model responsible AI use to graduate students.
- Listen. Many students are at the forefront of AI adoption. They may have valuable insights to share on how to use AI that can advance research or promote more responsible AI use.
- Model responsible AI use to your students. Use AI in the manner prescribed by your university's and discipline's guidelines and recommendations. Stay informed about new developments in AI to model best practices in AI literacy.
- Use AI tools to challenge disciplinary boundaries and push the frontiers of human knowledge. Artificial intelligence has tremendous potential to open new areas of knowledge creation, which will broaden the horizons for research and knowledge production.
- Collaborate across units to implement AI guidelines and policies. Information technology and library services are two partners who can offer additional support to align AI technologies with pedagogical and research goals.

### For Graduate Students

Graduate students have a responsibility to understand and comply with university artificial intelligence use policies. Graduate students should also be involved in the creation and maintenance of AI policies to ensure that policies reflect the graduate student's multiple responsibilities – as student, researcher, and instructor – and goals after graduation.

- Be curious and proactive about AI literacy. Learn about best practices for AI use in your field, program, and institution, as well as how specific models work.
- Be engaged in the process of AI policy creation at your institution. Universities can only include student voices in the process of creating guidelines if students actively participate.
- Be present. Attend training sessions and seminars on the use of AI at your institution.
- Be thoughtful about your use of AI and its impact on your wellbeing. Remain engaged with your academic support network, including your advisor, teaching assistants, peers, and other administrators and avoid using AI as a replacement for human interactions and relationships.
- Be accountable. Responsibility for AI use ultimately rests with the user, and the user should be accountable for the benefits and repercussions of AI use.
- Be a good citizen. Look for ways that artificial intelligence can be leveraged to advance the social good, support communities, close access gaps, and improve lives.
- Be a responsible steward of data. Respect user data and know how models use data for training and other purposes. Do not put user data into models without clear privacy guidelines or whose data privacy policies are not aligned with your university's guidelines, policies, and procedures.

# Introduction: Seizing the Opportunity to Deploy Artificial Intelligence and Emerging Technologies to Improve Graduate Education

**Chevelle Newsome**

**President, Council of Graduate Schools (USA)**

The Council of Graduate Schools is honored to co-host the Seventeenth Annual Strategic Leaders Summit on Graduate Education with the Institut national de la recherche scientifique (INRS), the Université du Québec, and the Fonds de recherche du Québec at INRS in Quebec City, Canada. We are grateful to our partners at INRS in Quebec City for welcoming us to this vibrant community of scholarship and innovation, I extend my sincere appreciation to Philippe-Edwin Belanger for his leadership in organizing this event and  for the gracious hospitality extended to all participants.

Canadian universities have long been central to the mission of the Council of Graduate Schools and we are especially pleased to convene this year's Global Summit with our Canadian friends, neighbors, and colleagues. I would also like to recognize our sponsor for this year's event, Educational Testing Service (ETS), whose steadfast commitment to graduate education worldwide makes gatherings such as this possible. Finally, I offer a special word of thanks to Chrystal Molnar for her vision and dedication in championing the Global Summit and ensuring its continued role as a catalyst for the exchange of best practices in international graduate education.

Seemingly overnight, generative artificial intelligence (AI) has fundamentally challenged almost every aspect of graduate education. It has changed the ways that we teach our graduate students, since many students will now use the technology to assist in research and writing. It has compelled us to rethink academic integrity: what counts as your own research in an era of AI assistants? When does AI use move from a support tool to a replacement for original work? It has challenged our thinking about career pathways and durable skills. The graduate degree as a springboard to secure, stable, well-compensated white-collar careers now seems uncertain as this new technology threatens to replace white collar workers even in thriving fields like computer science.

This rapid change can feel overwhelming or even frightening. However, the emergence of AI in graduate education represents not merely a challenge to manage, but a transformative opportunity that demands strategic, evidence-based implementation. Drawing on emerging research, institutional case studies, and international comparative analysis, this convening provides us with the opportunity to propose a framework for harnessing AI's potential while addressing its inherent risks in graduate education contexts.

The concerns surrounding AI integration are numerous and many of them have been described in the Summit papers produced by delegates at this convening. The most pressing worries center on questions of academic integrity and scholarly rigor. A 2024 Wiley survey found that 82% of American undergraduate students believed that AI made

it easier to cheat than in 2023 with instructors agreeing that cheating was on the rise.[1] Beyond academic integrity lies a more fundamental concern about cognitive development. A 2025 study by Michael Gerlich at SBS Swiss Business School found that cognitive offloading enabled by AI resulted in a negative correlation between AI use and critical thinking skills, a finding echoed in several other recent studies.[2]

The social dimensions of AI integration present additional challenges. The ease and omnipresence of generative AI tools may make students less likely to seek help from their instructors or support from peers, which may increase feelings of isolation and loneliness in graduate programs. This concern is particularly acute for international students, who may rely on AI to translate and for writing assistance in ways that further distance them from peer and faculty relationships.

At the same time, however, AI has demonstrated the ability to transform graduate education for the better in multiple contexts. As Salman Khan noted in his recent work, generative AI tools have the potential to be the sort of all-purpose learning technology that was until recently only found in science fiction.[3] International examples provide compelling evidence of this potential. One way AI can impact graduate education is through the creation of hyper-specific learning pathways that account for personalized student needs, goals, and abilities through the creation of customized agenda, syllabi, and assignments. While some doctoral programs already take this individualized approach, AI tools will make it scalable to larger student populations in master's, certificate, or microcredential graduate programs. Customized learning pathways may make students feel like their degree is more relevant to their career goals or improve student engagement. Responsiveness is another avenue by which AI can support student success. Chatbots and AI-assistants can provide in-time answers to pressing student questions. Quicker response times will allow students to work on their own schedule and may provide additional flexibility for learners with competing job, childcare, or other commitments.

For AI to deliver on its promises, clear and transparent policies around acceptable use will be required. Universities across the United States and internationally have been developing AI policies, though significant disagreement remains about whether graduate students should be allowed to use generative AI at all and, if so, how that use should be referenced in assessments and published work. Analysis of current approaches in the U.S. reveals three primary models:

- **Permissive Model:** Institutions like Duke University, the University of Rochester, and the University of North Carolina at Chapel Hill, have given faculty and program directors broad latitude to set their own policies with cheating defined only as unauthorized use of generative AI.[4]

[1] Wiley (2024). The latest insights into academic integrity: Instructor & student experiences, attitudes, and the impact of AI. https://newsroom.wiley.com/press-releases/press-release-details/2024/AI-Has-Hurt-Academic-Integrity-in-College-Courses-but-Can-Also-Enhance-Learning-Say-Instructors-Students/default.aspx

[2] Gerlich, M. (2025). *AI tools in society: Impacts on cognitive offloading and the future of critical thinking*. Societies 15 (1), 6: https://doi.org/10.3390/soc15010006. A useful digest of recent research can be found in an article by Christine Anne Royce and Valerie Bennett on the National Science Teaching Association (NSTA) blog: https://www.nsta.org/blog/think-or-not-think-impact-ai-critical-thinking-skills.

[3] Khan, S. (2024). *Brave new words: How AI will revolutionize education (and why that's a good thing)*. New York City: Viking.

[4] See Duke's guidelines as well as information on how faculty should draft their own AI policies for their courses: Artificial Intelligence Policies: Guidelines and Considerations - Duke Learning Innovation & Lifetime Education.

- **Restrictive Model:** Others, like the University of Chicago Law School, have treated using generative AI as plagiarism on assignments unless explicitly condoned by the instructor.[1] Finding a balance between constructing university or even program specific policies that take into account the particular needs of enrolled students and more universal guidance that transcends specific programs will be needed to help students on their graduate education pathway.
- **Graduated Model:** Emerging approaches, exemplified by institutions like MIT and Stanford, implement differentiated policies based on program level, course objectives and assessment types.

Finding a balance between program specific policies that account for particular student needs and universal guidance that transcends programs will be essential for supporting students on their graduate pathway.

Graduate education is in a unique position in the world of higher education in that its students will be valuable knowledge-producers of artificial intelligence technologies as part of their education. As a recent Gray DI brief notes, master's education has led the way in AI degree conferrals in the US with a 35% average annual growth rate between 2018 and 2024 and new enrollments increasing 56% annually from 2019 to 2024.[2] Master's and doctoral degree holders will be the advanced workers needed to improve generative AI technologies and their work will be vital in both academic scholarship on these topics and industry production of AI tools. These students are not just using AI, they are making it.

While AI and emerging technologies present challenges that resist simple solutions and require our ongoing adaptive management, they offer incredible opportunities to transform graduate education by making it more customizable and accessible. Simultaneously, they are threatening to degrade critical thinking skills, complicate assessment of student learning, and disrupt traditional pathways into the workforce. Our role as graduate leaders is to balance the competing priorities of advancing the global innovation ecosystem and ensure that our students are prepared to work in a rapidly shifting global economy. This requires moving beyond binary thinking about AI as either beneficial or harmful, toward nuanced understanding of conditional benefits and contextual factors that influence success.

The goal is not simply to adopt artificial intelligence and emerging technologies but to thoughtfully integrate them in ways that enhance our fundamental mission: ensuring that in graduate education, every voice, every path, every graduate matters. I look forward to our discussion.

## Overview of Panels

During this year's Summit, we will examine the ways in which AI and emerging technologies can be valuable tools in supporting student success. To examine this topic more deeply, this year's Summit is organized into six thematic panels and a final concluding session during which we will collectively develop a series of principles and an action agenda. Panel topics this year include national, regional, and global perspectives on AI and emerging technologies; creating polices around academic

[1] 4.9 Law School Policy on Generative AI | University of Chicago Law School.

[2] Bilson, M. (2025). The AI education boom: Masters lead the charge, community colleges join the fray. *Gray Data*: https://www.graydi.us/blog/graydata/the-ai-education-boom-masters-lead-the-charge-community-colleges-join-the-fray?utm_source=chatgpt.com. Interestingly, this growth has not be reflected in doctorate completions, which had a slight dip in 2024 according to Gray.

integrity and acceptable use of AI; the ethics of AI deployment in graduate education; using AI as a tool to teach graduate students new knowledge and skills; supporting graduate students as knowledge producers of AI; and using AI and emerging technologies to help solve global grand challenges and wicked problems.

## Final Session and Next Steps

During the final session of the Global Summit, we will collaborate to create a set of principles and an action agenda to assist in our efforts to transform our discussions into policies and actions. These principles will reflect the varied perspectives of the group as well as capture the ideas, commitments, and experiences that unite us. CGS will publish the proceedings of the Summit, including your papers and a final document of key findings, on the CGS website. We will share this information with our member universities and with the broader graduate education community in the United States. We hope that you will do the same with your networks.

I look forward to learning from our conversations over the next few days. Using AI and other emerging technologies have international significance and can change the ways that we support our students as they become the next generation of global leaders. Our collective wisdom and commitment to evidence-based implementation will be essential for realizing AI's transformative potential while preserving the human elements that make graduate education meaningful.

# Panel I: Institutional, National, and Regional Uses of AI and Emerging Technologies to Support Student Success

# Institutional, National, and Regional Uses of AI and Emerging Technologies to Support Student Success in Australia

**Chris R. Abbiss**

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Artificial Intelligence (AI) based tools are not new and have been used to support research for several years. This includes technologies that drive search engines, spellcheck, speech to text, image recognition and numerous data analytics, visualisation, integration tools. Indeed, the use of AI within research has been instrumental in advancing our knowledge and understanding across a wide range of disciplines, with researchers continuously discovering new and promising avenues to apply AI. Yet, over recent years there has been a rapid expansion in the development and adoption of AI technologies. This expansion has been heavily influenced by the emergence of generative AI (Gen AI) technologies, particularly large language models, which have accelerated both the access and use of AI within research. These changes allow for novel and exciting applications of AI, but also requires careful consideration for its productive and ethical adoption.

Within the Australian higher education sector, an obvious immediate response to the emergence of Gen AI technologies has been the protection of academic, ethical and research integrity and standards. Many institutions have now established AI-focused guidelines, frameworks, or policies that align with external frameworks, as well as, institutional positioning and purpose. Importantly, Australian institutions are increasingly considering the potential broader social and environmental impacts of Gen AI[1] and their alignment with institutional vision and values. In 2024, Australia's Higher Education regulating body (TESQA) requested that all higher education providers report on how they are responding to the emergence of Gen AI. This, and other work, has facilitated the development, collation and sharing of numerous guidelines and resources nationally that support the ethical and productive adoption of AI in teaching, research[2],[3] and research training[4].

In late 2024, the Australian Council of Graduate Research (ACGR) established good practice guidelines that support Gen AI use in Graduate Research5. These guidelines outline recommendations for institutions relating to governance, training and development, curriculum design, and assessment and examination. As expected, advice on training and development has extended beyond the focus on candidates to include

[1] Commonwealth of Australia (2024) Select Committee on Adopting Artificial Intelligence (AI). Retrieved from www.aph.gov.au/Parliamentary_Buisness/Committees/Senate/Adopting_Artificial_Intelligence_AI/AdoptingAI/Report/Members

[2] Tertiary Education Quality and Standards Agency (2025) Gen AI knowledge hub. Retrieved from www.teqsa.gov.au/guides-resources/higher-education-good-practice-hub/gen-ai-knowledge-hub

[3] Universities Australia (n.d.) Artificial Intelligence in Research. Retrieved from https://universitiesaustralia.edu.au/policy-submissions/research-innovations/artificial-intelligence-in-research/

[4] Tertiary Education Quality and Standards Agency (2025) Gen AI strategies for research training: Emerging practice. Retrieved from www.teqsa.gov.au/sites/default/files/2025-06/Gen-AI-strategies-research-training-emerging-practice-toolkit.pdf

supervisors and others involved in the graduate research journey. Related to this, several institutions in Australia have provided clear guidance to examiners that disallow the use of Gen AI technologies in the examination process. The ACGR guidelines also provide recommendations for institutions to consider advice provided to individuals prior to enrolment (i.e. during course or scholarship applications). When considering researcher development, Gen AI technologies are now being directly to generate training materials for candidates and supervisors, including the development of podcasts explaining ethics, risk or other HDR processes.

Importantly, changes within the Australian higher education sector have advanced beyond assessment reform aimed solely at preventing academic misconduct, towards curriculum redesign that ensures Gen AI can be adopted to support student development and success. In graduate research programs this must include the development of both general and specific digital literacy skills relevant to the discipline and candidates' future careers. Given the varied career pathways of research graduates, supervisors play a critical role to play in identification, development and assessment of digital literacy needs and skills. To address this, numerous recommendations have been put forward to ensure early and ongoing formal communication between candidates and supervisors regarding the use of Gen AI in their research[1],[2]. Institutions are integrating such recommendations within inductions, learning and development plans, and progression reviews.

Given the emergence of Gen AI has largely originated from large language models, an important application of such technologies has clearly been in the assistance of writing and research communication. However, AI use expands well beyond this is now being applied to support numerous other aspects of the research endeavour including personalised and rapid learning support, brainstorming and critical thinking, synthetic data generation, data analysis and interpretation. Given the complexity of Gen AI and its application to research training, it is critically important that candidates and supervisors are guided on transparency, accountability and appropriate acknowledgment. While these are fundamental principles of research, and advice is provided in thesis preparation guidelines across the sector, Gen AI has introduced a need for greater training and education on these topics.

[1] Ibid.

[2] Australian Council of Graduate Research (2024) Generative Artificial Intelligence Use in Graduate Research Training. Retrieved from www.acgr.edu.au/wp-content/uploads/2025/01/ACGR-Good-Practice-Guidelines-for-Generative-Artificial-Intelligence-Use-in-Graduate-Research-Training.pdf

# The Impact of New Technologies and Artificial Intelligence (AI) on Graduate Student Success: The Quebec Context and the Experience of INRS

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## The Quebec Context

In Quebec, the integration of new technologies and artificial intelligence (AI) in higher education generates both strong enthusiasm and heightened vigilance. Universities must respond to a dual imperative: encouraging the adoption of innovative tools to enhance learning and research, while safeguarding the core values of academic integrity and scientific rigour.

In 2024, the Government of Quebec established the *National Consultation Body on Artificial Intelligence in Higher Education*, whose work led to the publication of two complementary reference documents in August 2025.

The first, *Deployment and Integration of Artificial Intelligence in Higher Education – Reference Framework from the Work of the National Consultation Body on AI in Higher Education*, outlines a vision for AI integration in higher education centred on democratization in order to promote critical, responsible, and ethical usage, while respecting institutional autonomy and academic freedom. Five guiding principles (Accessibility and Complementarity; Equity and Sustainability; Humanism and Agency; Oversight and Responsibility; Transparency, Traceability, and Explainability) and five orientations (Use of AI with respect for academic integrity; Co-development of AI literacy; Adoption of exemplary practices for ethical use; Democratization of access; Exploration of AI's potential in research and teaching) guide this integration.

The second document, *Responsible Integration of Artificial Intelligence in Higher Education Institutions: Benchmarks and Best Practices – Practical Guide 2025*, provides institutions with a practical approach supported by concrete examples to help them establish AI governance. It covers the foundations of effective and responsible governance (regulatory framework, guiding principles, risks and impacts, benchmarks), emphasizes the need for community consultation and engagement in the process, and considers each institution's unique circumstances (size, challenges, etc.). The document also highlights the importance of developing AI literacy and skills for the entire academic community.

In a global context where AI tools are advancing rapidly, the Quebec university network is working to develop frameworks that foster responsible usage. This collaborative

approach involves institutional bodies, teaching and learning support services, research units, and academic libraries.

The Université du Québec, of which the Institut national de la recherche scientifique (INRS) is a member, has recently initiated consultations to adopt a statement of principles on the responsible use of AI in teaching and research activities. This initiative reflects the commitment to reconcile pedagogical innovation, research ethics, and the protection of student and community rights.

## INRS: A Unique Institution Serving Society

Founded in 1969, INRS holds a distinctive place in the Quebec higher education landscape. Exclusively dedicated to graduate training and scientific research, it emphasizes interdisciplinarity, innovation, and excellence as it trains a new generation of highly qualified researchers capable of addressing major societal challenges.

INRS pedagogy is based on research-based learning: every student is directly integrated into a supervised research project, often in partnership with government, community, or industry stakeholders. This close connection between training and research amplifies the impact of new technologies on student success: they are not only learning tools, but also levers for knowledge production.

## Regulating the Use of AI: An Integrated Approach

Aware of both the challenges and opportunities of AI, INRS, through its Graduate Studies and Research Services, has developed a set of guidelines to help regulate the use of AI tools at the graduate level.

These guidelines, created in collaboration with the Specialized Documentation and Information Service (SDIS), are based on four core principles:

- **Transparency:** Any use of an AI tool in an assignment, thesis, dissertation, or publication must be clearly disclosed and distinguished from the author's own intellectual contribution.
- **Prior authorization:** The conditions of AI use must be validated in advance with the research supervisor or course instructor.
- **Responsibility and critical thinking:** The user remains accountable for AI-generated content, which must be evaluated according to reliability, relevance, and objectivity, while ensuring the continued development of academic skills.
- **Data protection and intellectual property:** Personal, confidential, or unpublished data must not be shared with AI tools without explicit approval. In all outputs—AI-generated or not—sources must be cited properly to avoid plagiarism or copyright infringement.

These principles are embedded in institutional policies, notably in the Regulation on Graduate Studies, which has been revised to explicitly include AI in its provisions on academic integrity.

## Supporting Student Success in the Age of AI

At INRS, AI is seen as a tool that can enrich the learning experience and strengthen research skills, provided its use is thoughtful and well-managed. To support students and faculty, several initiatives are underway:

- Revision of course outline templates to specify the degree of AI use permitted (icons: prohibited, limited, authorized).
- Development of an optional AI use declaration form.
- Creation of online educational resources and specialized training in partnership with SDIS.

This approach aims to prepare students not only to use AI in their studies, but also to understand its ethical, legal, and social implications in their future scientific careers.

## Conclusion

In a constantly evolving academic environment shaped by the rapid emergence of new technologies, INRS and the Quebec university network are committed to placing academic integrity and ethics at the core of innovation. The adoption of clear and adaptive guidelines for AI usage is a key lever for fostering student success, protecting the value of degrees, and strengthening public trust in scientific research.

AI is therefore not just a technology to be mastered: it is a catalyst that, when responsibly regulated, can help train a generation of researchers capable of fully harnessing its potential for the benefit of society.

# Promoting and Supporting the Ethical Use of AI in Graduate Education—A UK Perspective

**Owen Gower**

**Director, UK Council for Graduate Education (United Kingdom)**

## 1. The UK Context

Artificial Intelligence (AI) is an umbrella term encompassing a spectrum of technologies—from autonomous systems operating within closed environments, such as robotics, to specialised machine learning applications designed for narrowly defined tasks, and natural language processing tools that facilitate the interpretation of human speech and text. While each of these uses introduce their own ethical complexities, particularly around data privacy and accountability, a different AI technology - "general-purpose" or generative AI (GenAI) - has caused the most concern within doctoral education in the UK. GenAI's capacity to produce seemingly novel content has raised pressing questions about research integrity, authorship, and the nature of originality.

The largescale emergence of GenAI in the UK in 2023 led to a review doctoral policies, particularly in relation to plagiarism and copy-editing support. Some initial reactions from UK institutions were understandably precautionary – ruling against the use of GenAI in any doctoral outputs. These institutional responses expressed the view that the ability of AI tools to produce coherent, human-like text might mean that doctoral researchers would submit work that was not their own, thus undermining academic integrity and the value of original scholarship. This fear is perhaps not unfounded: a recent small scale survey (n=75) reported that 12% of respondents had included AI-generated text in their doctoral writing without having declared that they had done so.

Nevertheless, an increasing acceptance that the 'cat is out of the bag' has led to a more nuanced response among doctoral providers. Institutional guidelines now offer clear examples of uses of GenAI which would and would not constitute academic integrity violations. Guidance to doctoral researchers now often include positive use-cases, such as assisting with ideation exercises, and overcoming language barriers. Alongside this, there are now researcher developer campaigns which set out to explain the limitations and challenges of using GenAI in doctoral research (e.g.: inaccuracies; hallucinations; biases; and prompt sensitivities).

## 2. Developing a responsible approach to AI in Graduate Education

The UK Research Integrity Office (UKRIO) has been instrumental in shaping ethical guidance for AI in research. Although its recent report, Embracing AI with Integrity, does not focus on doctoral education, I suggest that it offers a valuable framework which we can adapt to develop ten principles for the ethical use of AI in doctoral research.

For example:

- **Accountability** – doctoral researchers are directly accountable for the ideas, arguments and evidence they present
- **Autonomy** – doctoral researchers must develop and retain the capacity to make informed decisions about the direction of their research, and justify these decisions.
- **Beneficence** – doctoral researchers must reflect on the putative benefits that AI tools offer and the limits of these benefits. This might mean that AI tools are not appropriate in particular research contexts.
- **Equity** – providers of doctoral education should consider how to ensure equitable access to AI or GenAI technology
- **Integrity** – doctoral researchers must adhere to the highest standards of intellectual honesty, take personal responsibility for their use of AI, and abide by responsible research conduct policies (including data integrity)
- **Non-maleficence** – doctoral researchers must prevent harms from arising from the use of AI in their research. Potential risks include: incorrect or misleading outputs, biases, and hallucinations
- **Privacy** – doctoral researchers must protect research data and not use unsecure AI technologies in relation to confidential, personal, or sensitive information
- **Security** – doctoral researchers must protect data integrity in their use of AI by undertaking careful assessments of vulnerabilities in data systems
- **Transparency** – doctoral researchers must provide full disclosure and thorough documentation about their use of AI, including an evaluation of its performance in assisting their research
- **Trust** – doctoral researchers must ensure that their use of AI does not compromise funding, legal or institutional regulations (e.g. intellectual property law).

These principles are embedded in many of the institutional guidelines I have seen in UK doctoral providers. Nevertheless, a useful outcome of this Global Summit will be the development of a global consensus on a framework of this kind.

## 3. Some unresolved ethical challenges

Despite advances in our regulatory and training environments to support the responsible use of AI in doctoral research, some ethical challenges remain:

**Cognitive offloading** – AI offers tempting administrative efficiencies. There is evidence, however, that the use of AI has a negative impact on critical, deep, reflective thinking. For example, GenAI completes lengthy research ethics applications in seconds, but this may bypass appropriate ethical reflection by the researcher themselves.

**Academic homogeneity** – AI overcomes language barriers, particularly for those working in a second language. However, GenAI is a stochastic parrot – it uses probability assessments, or 'averaging', to guess appropriate responses. This may lead to homogeneity in academic language, which is a cause for concern, particularly if we consider that 'developing one's own voice' is a key outcome of graduate education.

**Supervisory relationships** – in the last UK Research Supervision Survey (2024) 42% of

respondents said that 'more time' would enhance their supervisory practice. GenAI may save supervisory labour. Some doctoral researchers already report that "using GenAI is easier than asking my supervisor for support" or that "ChatGPT [offers] a private, judgement-free platform" (p.94). GenAI may therefore enhance supervisory relationships by freeing up supervisory time spent on ideation exercises, or indeed building doctoral researcher confidence. But the covert use of GenAI may adversely affect the supervisory relationship by leading to "presumed knowledge and imperfect understandings" (p.306)

**Supporting Neurodivergence** – AI potentially offers neurodivergent doctoral researchers new, more accessible ways of processing information and data, and developing academic writing. However, this kind of AI support might also crowd out the development of more inclusive doctoral pedagogies, and stifle innovation in the way we organise doctoral programmes.

**Doctoral assessment** – In addition to the obvious threats of using GenAI to produce writing in the thesis, GenAI may also affect the oral defence. In the UK, the oral defence of the thesis (Viva) is a key component of the doctoral assessment. Reasonable adjustments to the viva, for example, holding it online or offering questions in advance, may make this aspect of doctoral assessment more vulnerable to illegitimate support from GenAI. On the other hand, reasonable adjustments to the viva must be permitted.

**Environmental impact** – By the end of 2023, hyperscale datacentres used 2bn litres of water a day. AI energy consumption is set to grow 4 times faster by 2030 than any other type of energy usage. Our use of AI in research must be weighed against its environment impact.

# The Rise of General-Purpose Artificial Intelligence and Its Adoption, Perception and Management at the Doctoral Level at European Universities

**Simon Marti**

**Head of EUA Council for Doctoral Education, European University Association (Europe)**

Universities and doctoral candidates are facing disruptive technological change: Only few innovations affected higher education and research so broadly and profoundly as the fast development of artificial intelligence (AI). However, there is only limited research available on the adoption, use, perception, and management of AI at the doctoral level in Europe. Research so far is limited to case studies, e.g., on the adoption of AI in specific fields.

The 2025 EUA-CDE survey includes a focus on how universities assess the adoption and use of AI by doctoral candidates. Furthermore, it explores how AI is being perceived by doctoral education leaders, how universities manage it and what they do to support doctoral candidates in using AI. The latter is crucial as the doctorate constitutes a key formative period for early career researchers – a period that will shape their future as they advance in their careers in academia and beyond.

The 2025 EUA-CDE survey, conducted in early 2025, includes the perspective of doctoral education leaders from 217 universities across 37 countries of the European Higher Education Area.

## How doctoral candidates are using artificial intelligence

The 2025 EUA-CDE survey asked doctoral education leaders about the adoption of artificial intelligence by doctoral candidates and how AI is primarily being used: The largest group, almost half of the total of respondents, 49% of the universities, indicated that AI is used in an auxiliary way to support doctoral research, while 18% stated that AI plays a role in both conducting research and as auxiliary support. Only very few institutions (1%) reported that AI plays a key role exclusively in conducting doctoral research. The analysis therefore shows that AI is today playing an important role primarily as auxiliary support of doctoral research.

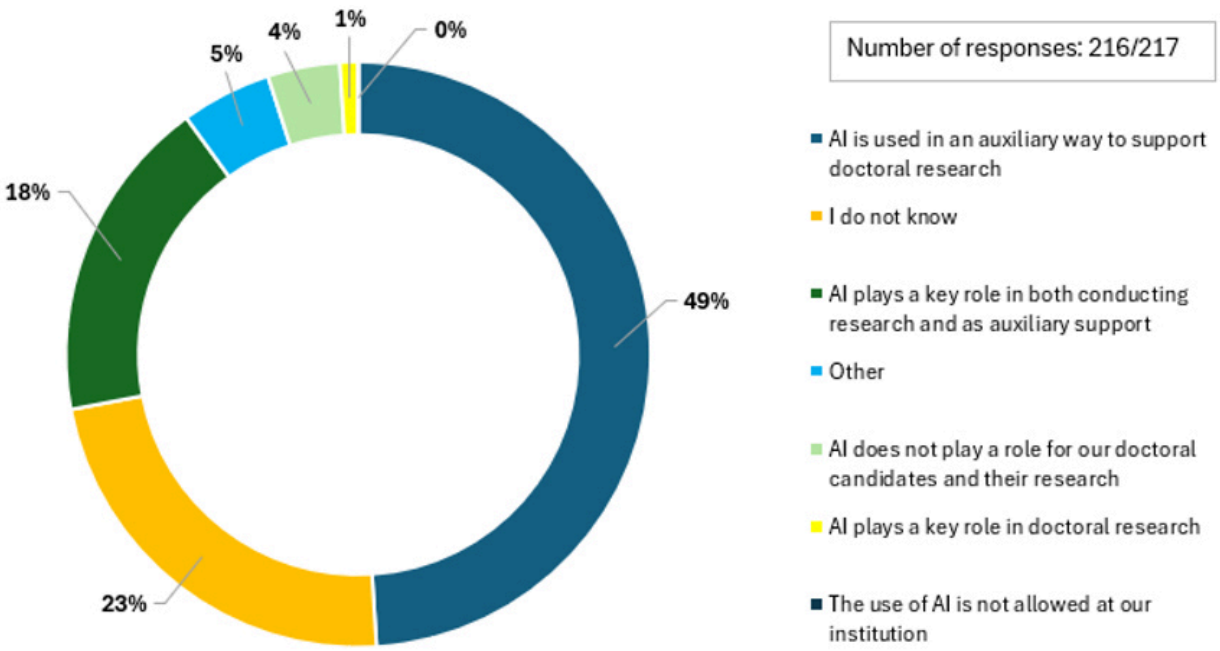


*Figure 1: To what extent are doctoral candidates at your institution using AI for their research?*

Only 4% of the respondents think that AI does not play a role for doctoral candidates and their research. No university reported that the use of artificial intelligence is not allowed at their institution. However, almost a quarter, 23% of universities indicated that they do not know how their doctoral candidates are using AI, a possible indication of why little is currently known about the use of AI at the doctoral level.

## Perception and management of AI at the doctoral level

The estimates on the adoption of AI by doctoral candidates correspond to the perception and management of AI by the institutions as they navigate the rise of general-purpose artificial intelligence. Almost three quarters, 73%, of universities perceive AI as an opportunity for research. More than half, 56%, see it as an opportunity for teaching. Slightly less than half, 47%, think that AI poses a challenge to academic integrity. Although a large groups sees challenges, the adoption of AI is predominantly viewed as an opportunity, especially when it comes to its role in conducting research.

The dynamism and technological acceleration in the development of general-purpose AI that followed after the release of the generative artificial intelligence chatbot ChatGPT in November 2022 becomes visible when we take a look at how universities are reacting to AI at the doctoral level: The largest group, 38% of universities, report that they are currently in the process of establishing new policies and guidelines on AI for the first time. Almost a fifth of the respondents, 19%, is updating existing policies and guidelines. More than one in eight universities – 13% of the respondents – indicate that they have currently no policies or guidelines on the use of AI in place at their institution. An additional 6% of universities specified that their existing policies or guidelines need to be updated. No institution indicated that there is no need for policies and guidelines on AI. These results show impressively what the technological acceleration entails: More than two years after the release of ChatGPT, no university indicated that there is no need for policies and guidelines on AI while only 5% of the respondents think that

their existing policies and guidelines on AI are sufficient. These results give an insight into the scale of the challenges universities in Europe are facing in managing AI at the doctoral level.

## Support for doctoral candidates in the field of AI

The 2025 EUA-CDE survey also measured how universities are supporting doctoral candidates' use of AI. More than a third, 36% of the respondents, indicated that they offer courses on AI to raise awareness or to provide information on new policies and guidelines. Slightly more, 39% of the universities, are providing courses on AI to support research of doctoral candidates by applying AI. Just over a third, 34%, of universities are planning to offer courses in the near future. A smaller group, 7% of respondents are offering other activities, in many cases similar activities, such as conferences, workshops and seminars, curated communities of practice or study programmes. Some respondents indicated that AI is a topic in related courses, such as academic writing or part of a research integrity course. Others indicated that doctoral candidates have to add a declaration on generative AI in their thesis. Less than a tenth, 9%, indicated that they are currently not planning to offer any courses or other activities for doctoral candidates on AI.

*The survey results presented in this article will be part of the second 2025 EUA-CDE survey report, which will be published in January 2026. EUA-CDE's first 2025 survey report was released in June 2025.*

# Human Scholarship in the Age of AI:

The Future of Graduate Education

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September 2025
2025 Strategic Leaders Global Summit
Quebec City, QC

## The New Reality of Graduate Education

Artificial Intelligence and other emerging technologies are changing some of the defining characteristics of the 20th century model of graduate education.

Graduate programs have historically been built on the assumption that humans perform most of the cognitive, analytic, and creative labour of research and teaching. That assumption is eroding or becoming increasingly irrelevant in the age of AI.

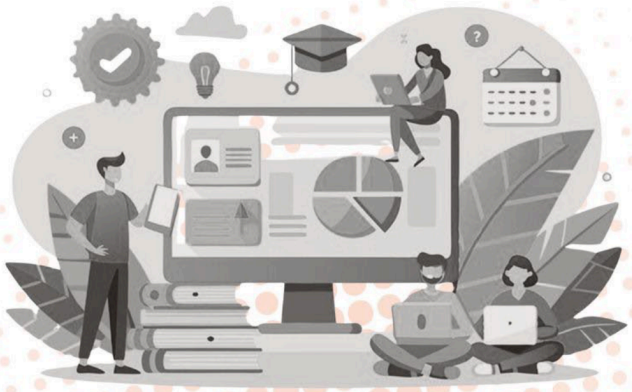
The challenge is not how to "keep AI out" of graduate education, but to design policies and practices that allow graduate students to live with AI in ways that preserve academic excellence, safeguard academic integrity, and strengthen human scholarship

# How AI and Emerging Technologies Are Reshaping Graduate Education

1. Graduate Teaching
   - Personalized Learning
   - Enhanced/Timely Feedback
   - Inclusive Education

2. Graduate Research
   - Acceleration of Knowledge Discovery
   - Methodological Innovation
   - Cross-Disciplinary Engagement

3. Scholarly Collaboration
   - Virtual Research Environments
   - Publication/Editorial Support



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# The Negatives:

Risks and Concerns without the Moral Panic

Erosion of Foundational Research Skills

Intellectual Homogenization

Superficial Scholarship

Although the presence of AI does not inherently diminish academic integrity, uncritical adoption carries significant risks to human scholarship.

4

# Principles for Living with AI in Graduate Education

Drawing from MIT's human scholarship framework, our goal should be not to replicate human cognition but to elevate it in the following few distinctive ways:

- Amplify, not Replace, Human Insight
- Transparent Use
- Critical AI Literacy
- Ethical Co-Creation

5

# A Policy Framework for Graduate Schools:

## AI for Equity and Human Scholarship

Institutions should prioritize AI tools that reduce barriers for underrepresented and disadvantaged students, leveragingtechnology for broader participation in research and learning.

1. Curriculum Redesign
2. Research Integrity Guidelines
3. Accessibility and Inclusion
4. Supporting Supervisors
5. Data and Tool Governance

6

The defining challenge for graduate education in the age of AI is not the preservation of the past but the shaping of a new scholarly future. AI, if thoughtfully integrated, can extend the reach of human scholarship, not diminish it.

# CONCLUSION

Building the AI-Ready Human Scholar

Graduate schools must now commit to producing AI-fluent human scholars, researchers who combine the computational power of machines with the interpretive, ethical, and creative capacities that remain uniquely human.

7

# Challenges and Strategic Approaches for Supporting Graduate Success in the Age of Artificial Intelligence

**Ren Youqen**

**Chairman of the Council, Shandong University (China)**

**Abstract:** This paper examines both the emerging opportunities and critical challenges posed by the growing integration of artificial intelligence (AI) into education and scientific research. While AI holds transformative potential, it also brings to the forefront structural disparities across disciplinary knowledge systems, institutional constraints on interdisciplinary innovation, and complex ethical dilemmas. In response to these multifaceted issues, the paper offers a set of targeted strategic recommendations across three key dimensions: educational leadership, frontline pedagogy, and graduate student development.

**Keywords:** artificial intelligence, graduate success, digital divide, educational equity, academic evaluation reform

## 1. Challenges Faced by AI-Empowered Education

The integration of artificial intelligence into graduate education is not merely a matter of technological adoption; it involves deeply embedded structural, systemic, and ethical challenges that require a comprehensive and coordinated response.

### 1.1 Structural Disparities Across Disciplinary Knowledge Systems

Disciplinary differences in knowledge structures significantly influence the effectiveness of AI applications across various academic fields.

**Structured vs. Unstructured Knowledge:** STEM disciplines—characterized by well-defined concepts and coherent logical frameworks—are naturally more compatible with AI tools such as adaptive learning platforms and virtual laboratories. In contrast, disciplines within the humanities and social sciences often emphasize context-sensitive, value-laden, and interpretive knowledge, which presents challenges to standard AI applications and frequently involves complex ethical considerations.

**Redefining Educational Objectives and Pedagogical Approaches:** Such disciplinary divergence necessitates a critical rethinking of educational priorities. The pedagogical focus should transition from outcome-based evaluations (e.g., paper publications) to process-oriented learning, emphasizing skills such as argument construction, critical analysis, and ethical reasoning.

### 1.2 Institutional Bottlenecks to Interdisciplinary Innovation

The continued dominance of single-discipline academic structures poses significant barriers to both talent cultivation and the generation of breakthrough innovations.

**Rigid Evaluation Systems:** At many universities, evaluation frameworks remain embedded within traditional disciplinary boundaries. Consequently, they often fail to recognize the innovative value of interdisciplinary research, thereby constraining academic creativity and hindering interdisciplinary collaboration.

**Lack of Evaluation Theories and Methods:** There is an absence of well-developed theoretical foundations and scientifically grounded methodologies for evaluating interdisciplinary outcomes. Furthermore, the lack of standardized operational criteria tailored to the complexity and uniqueness of cross-disciplinary work continues to hinder the development of fair and meaningful assessment frameworks.

### 1.3 Over-reliance on AI

Excessive dependence on AI tools risks undermining essential cognitive abilities and poses significant challenges to academic integrity.

**Decline in Critical Thinking and Innovation:** When students become accustomed to relying on AI-generated solutions, their motivation for independent inquiry, deep reflection, and original thinking tends to diminish. This over-reliance weakens their proactive problem-solving skills and hampers the development of higher-order cognitive competencies.

**Systemic Threats to Academic Integrity:** AI technologies have drastically lowered the barriers to plagiarism and academic dishonesty, creating unprecedented challenges for maintaining academic standards. Although many institutions have introduced updated academic integrity policies, reforms in assessment and accountability mechanisms remain significantly behind the pace of AI's rapid advancement.

### 1.4 Inequality in Global AI Education Resources

Without deliberate and equitable intervention, the proliferation of AI tools may deepen existing educational disparities and further entrench the global "digital divide."

**Three-Tiered Digital Divide:** This divide manifests in three key dimensions: (1) access to reliable internet connectivity, (2) disparities in digital literacy and the ability to effectively use technology, and (3) unequal access to advanced AI models, high-performance computing infrastructure, and comprehensive AI literacy education.

**Multidimensional Inequality:** Globally, AI-related investment, talent, and technological infrastructure remain heavily concentrated in a few countries and regions. Domestically, resource imbalances persist across urban and rural settings, among regions, and between schools. Well-funded institutions are often able to invest in cutting-edge AI educational services, while under-resourced schools are left increasingly marginalized. Moreover, students' socioeconomic backgrounds significantly influence their capacity to access, understand, and benefit from AI technologies.

## 2. Strategic Recommendations

Amid both opportunity and uncertainty, the ability to navigate AI-related risks and uphold principles of ethical governance will become a core competency for future educators and learners. In response, this paper offers the following multi-level strategic recommendations.

### 2.1 Recommendations for Educational Leaders

**Promote Institution-Wide Curriculum Reform:** Educational leaders should reassess foundational educational objectives in light of the transformations brought by artificial intelligence. They should accelerate the comprehensive redesign of curricula across all

disciplines and create forward-looking programs that enable students to engage collaboratively with AI in solving complex, real-world problems.

**Invest Substantially in Faculty Development:** They should deliver high-quality, continuous professional development opportunities that empower educators to integrate AI technologies into instructional design, refine their pedagogical strategies, and implement adaptive, AI-informed assessment frameworks.

**Develop a Learner-Centered Resource Allocation Model:** Leaders should utilize institutional big data to establish a data-driven platform for decision-making that aligns with the diverse learning needs of graduate students. While ensuring fairness, they should design support systems that are responsive to varying learner profiles and resource disparities.

### 2.2 Recommendations for Frontline Educators

**Shift the Pedagogical Focus from "Outcome" to "Process":** Educators should prioritize open-ended, project-based, and inquiry-driven learning tasks. Evaluation criteria should shift away from final products such as exams or assignments, and instead emphasize students' cognitive processes, including critical thinking, collaborative exploration, and reflective practice throughout the learning journey.

**Foster Critical Thinking through AI-Enhanced Pedagogy:** AI can be used as a valuable tool to cultivate students' critical thinking abilities. For example, students might generate an initial draft with AI assistance and then critically evaluate its accuracy, coherence, and logic—fact-checking, challenging assumptions, and identifying weaknesses. This iterative "dialogue" with AI strengthens higher-order thinking skills.

**Promote the Intelligent Transformation of the Research Paradigm:** Encourage the deep integration of AI across all phases of scientific research. By leveraging human-machine collaboration, educators and students can explore uncharted areas and expand the scope and impact of academic inquiry. A notable example is Shandong University's "AI 1+8" model, which builds upon foundational AI technologies and is supported by eight interdisciplinary research sub-centers.

**Innovate Student Assessment Methods:** Explore alternative evaluation models suited to the AI era, including classroom presentations, group debates, and real-world problem-solving scenarios. These approaches provide more authentic and comprehensive assessments of students' core competencies and applied knowledge.

### 2.3 Recommendations for Graduate Students

**Cultivate Metacognitive Awareness and Take Ownership of Learning:** Graduate students should develop the capacity to strategically engage with AI in their academic pursuits. This includes proactively planning learning trajectories, setting meaningful goals, and using AI tools to identify and address personal knowledge gaps—rather than passively relying on them to complete academic tasks.

**Embrace Human–Machine Collaboration and Define Unique Human Value:** Students should focus on developing core competencies that remain beyond the reach of AI—such as ethical reasoning, creativity, empathy, and cultural sensitivity. The goal is to achieve a synergistic integration of human intelligence and machine capability.

**Maintain Critical Vigilance:** Skepticism toward AI-generated content is essential. Students should practice cross-verifying sources, detect potential biases, and identify factual or logical errors. Over time, this critical mindset should be internalized as a fundamental academic and professional literacy.

## Conclusion

The transformation of education in the era of artificial intelligence is not a mere upgrade—it is a profound, systemic shift that affects every aspect of how we teach, learn, and generate knowledge. Navigating this new landscape demands foresight, adaptability, and ethical responsibility. By embracing the possibilities of AI while remaining critically aware of its limitations, we can ensure that artificial intelligence serves not as a substitute for human insight, but as a powerful catalyst lighting the path to meaningful, inclusive, and sustainable graduate success.

# Panel II: Using AI as a Tool to Teach Graduate Students New Knowledge and Skills

# Empowering Graduate Education in Africa through Context-Aware and Agentic AI: A Tunisian Perspective

**Riadh Abdelfattah**

**Professor at SUP'COM, University of Carthage (Tunesia)**

The adoption of Artificial Intelligence (AI) technologies is a global phenomenon that affects all sectors, including education. Countries in Africa, particularly Tunisia and other parts of the Maghreb, still struggle with issues such as a lack of updated teaching materials and learning resources, a shortage of specialized faculty, a high student-to instructor ratio, limited teaching and research collaborations with other countries, and not sufficient regional and international research network collaborations. The abovementioned challenges are a barrier at a time when advanced scientific and technical expertise is deemed essential for national development.

Empowerment is only possible through education, especially for the youth, and serves as a catalyst for any meaningful transformation, including digital transformation. For that reason, the use of AI in the teaching and learning process at higher learning institutions is not only appropriate but critical as well (Miao et al., 2021). In this case, agentic AI, which is designed to empower users and enable them to function independently and responsibly, can be very useful. The concept of agentic AI is far more than automating content delivery or personalizing learning. It can foster autonomy for the users and equip them with the essentials of understanding the possibilities and challenges of AI. However, for Agentic AI to be effective, the technology must adapt to the specific context of the Global South, including the regional languages, and curriculum frameworks of the education systems as well as the students' and institutions' realities.

In this presentation, I will examine the contribution of context-aware and agentic AI to:

- The provision of impactful, localized learning experiences for African postgraduate students.
- Empowering students with interdisciplinary, diverse, and ethical skills.
- Evolving AI-native graduates who will be capable of designing sustainable, resource-efficient, and socially responsible AI solutions in a profoundly cursory manner.
- Helping Tunisia and neighboring countries to become AI-centric innovators in education, rather than passive recipients of internationally developed resources.

## AI for Culturally Relevant Multilingual Education

The rich linguistic and cultural diversity of North and Sub-Saharan Africa is coupled with a unique educational landscape. At the same time, a large part of advanced educational content, especially STEM, is available only in English, creating a barrier for those who

are more proficient in French, Arabic, or even regional languages. Real-time translators, voice-to-text aides, and multilingual chatbots are some of the tools powered by AI that can widen the scope of global scientific literature for learners across the world. Even the locally trained or fine-tuned Large Language Models (LLMs) can help generate tailored regional and thematic teaching materials, that considers students' personal preferences and historical interactions, that intellects of the region need. This makes education much more inclusive and engaging and, in the process, empowers students by cultivating a sense of attachment to the learning environment.

## Microlearning, Agentic AI, and Research Skills Development

An African short-coming graduate programs offer is the absence acute lack of training for advanced data analysis, critical thinking, scientific writing, and methodology research (Oladipo & Adeyemi, 2021). However, agentic AI has the potential to empower students to take control of their learning and change this gap into an opportunity. AI-enabled microlearning tools have the potential of accomplishing this by offering short, self-paced modules relevant to the learner's field of study and knowledge level, to provide assistance with hypothesis formation, literature review, coding, and even data visualization. AI should serve the purpose of answering students' questions, and instead focus on guiding them on how to ask the right questions (Aruleba et al., 2023). This fosters independence, intellectual rigor, and fluency across multiple disciplines. These are the foundational elements of modern scientific inquiry and innovation.

## Training Responsible AI Users and Developers

Africa must educate its students to be AI-native citizens not merely passive consumers, but knowledgeable creators and stewards of AI systems, as it makes investments in digital transformation (Begazo et al., 2023). In order to produce such graduates, a thorough understanding of AI's operation, effects on the environment (such as energy and water consumption), and social ramifications must be ingrained. Modules on ethical prompt engineering, responsible model use, and sustainable AI development must be incorporated into educational programs. By mimicking real-world design problems, agentic AI tools can aid in this goal by assisting students in examining the trade-offs between fairness, computational cost, and accuracy. In Africa, where resource optimization is crucial for survival and sovereignty rather than efficiency, this is crucial.

## AI-Augmented Mentorship and Innovation Ecosystems

In many African universities, supervisory capacity is severely limited by faculty members supervising excessively large numbers of graduate students, creating crushing bottlenecks to the advancement of research and innovation. In their research and innovation journey, artificial intelligence can help us overcome this bottleneck of limited supervision capacity by allowing supervisors to scale their supervision without compromising quality. Intelligent dashboards, research-planning assistants, and agentic, AI driven collaborative resource platforms can also help supervisors and students track progress, organize feedback, and locate domain specific tools. But supervision is not the only contribution AI can make to strengthen regional innovation ecosystems. AI can also start to accelerate forms of integration that connect students with industry partners, research laboratories and new innovation hubs. Tunisia has a robust ICT infrastructure and is developing a new ICT workforce in AI skills, so they are in an ideal position to pioneer these types of collaborative support and, in fact, sets out a replicable template for even more widespread and scalable, AI enhanced supervised

and supported graduate mentorship across Africa. Doing these things would not be impossible with support. Some ways to make this vision a reality are:

- Build national AI strategies for higher education presence that take into consideration linguistic, cultural, and infrastructure strategies while also addressing inclusion;
- Set up open AI hubs inside universities that ensure equitable access to AI models, data, and computation access;
- Develop interdisciplinary AI programs that include the domains of agriculture, health, climate, and social innovation;
- Associate AI to ideas of agentic learning and create new learnings through program design, faculty development, and attention to AI ethics.

## Conclusion

The challenges African countries face are not carbon copies of others elsewhere but rather deeply contextual and in constant flux. These require solutions set in a local context by AI-literate graduates who are familiar with their world, their tools, and the responsibility that comes with both.

By adopting context-sensitive and agentic AI in graduate education, Tunisia and other regional countries can enable the future generation of innovators and researchers who are not only capable of harnessing AI but can shape its future for social benefit, sustainability, and inclusive progress.

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# An Orientation Guide for AI Use at Tulane University

**Michael Cunningham**

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## Background on Tulane University

Tulane is a private research-intensive university located in New Orleans, LA, USA. The location of the university highly impacts research ideas, programs, and activities. As one of the leading research university in the region, Tulane has significant research opportunities in the local, regional, national and international geographic areas. We were founded as The Medical College of Louisiana in 1834 to train New Orleans doctors in the fight against yellow fever and cholera, Tulane has a long history at the forefront of groundbreaking research. We use a motto, “Of New Orleans, For the World” to convey the university’s sentiments. Tulane has a rich legacy, and yet its story is still being written. Ours is a passionate, tight-knit community where our differences make us stronger, and our culture inspires us to celebrate life. Tulanians lead with confidence, humility — and spirit.

## History of Graduate Education at Tulane

Graduate education has always been an important component of Tulane’s core identity. In fact, the university was founded as a public institution named the Medical College of Louisiana in 1834. One of the founding purposes of the university was to serve the expanding region of New Orleans and Gulf Region. At its founding, the New Orleans’ region had a surge in yellow fever beginning in 1817. The Medical College of Louisiana brought together top scientists to address these challenges. In 1847, the Law School was opened, which made the university a “comprehensive” institution and it was renamed as the University of Louisiana. Tulane became a private university in 1884 when the public University of Louisiana was reorganized and named in honor of benefactor Paul Tulane. This reorganization allowed undergraduate male students to be admitted. This reorganization allowed undergraduate male students to be admitted. Females were first admitted in 1886 when H. Sophie Newcomb College for Women was established as a part of Tulane University. The following year a graduate division was established in 1885 to oversee a growing number of graduate programs. A formal graduate school was established in 1925.

The Office of Graduate and Postdoctoral Studies (OGPS) opened to serve the functions of the former Graduate School in 2006. The purpose of OGPS is to serve and support all masters, doctoral, and postdoctoral scholars in the School of Liberal Arts, School of Science and Engineering, School of Medicine’ Biomedical Sciences as well as Ph.D. students in the School of Public Health and Tropical Medicine and the A.B. Freeman School of Business. OGPS advances graduate education and enhances graduate training programmatic oversight, policy development, and the implementation of career

and academic workshops. OGPS is housed under the Office of Academic Affairs and Provost and is overseen by the Associate Provost for Graduate Studies and Research. The office includes three full-time staff members (e.g., Assistant Director, Sr. Academic and Career Advisor, & Administrative Program Coordinator.

## New Student Graduate Orientation

Recognizing the importance of artificial intelligence (AI) and the need to provide students with information about best practices for using AI in graduate school, OGPS developed guidelines. We covered several topics (e.g., Ethical Use, a Quick start list, 4 guiding principles, and example scenarios). The topics are presented in this order. We also recommended that students check with the instructor for specific guidelines for AI use. Additionally, the university has been working on AI guidelines for the university, which was not completed by the timing of New Graduate Student Orientation.

## Ethical Use Tips

The first tip is to be transparent about your usage. Always disclose meaningful AI contributions. This is done by disclosing to the instructor how you used AI to complete an assignment. The second tip is to be accountable. Students are responsible for verifying accuracy and ethical compliance. Similar to any work completed in graduate school, the student is responsible for all work submitted and conducted in respective programs. The third tip is to protect the privacy of published information or another person's original ideas and information. For example, never upload private, sensitive, or proprietary data to public AI tools. This point is especially important when dealing with private information in your research program that is protected by your Institutional Review Board's (IRB) authorization. The fourth tip is to be critical of the information generated by AI tool. For example, AI can hallucinate facts or generate biased content. Double-check everything you include in your work. Finally, you have to own your work. AI is a helper, not a substitute. Your final product should reflect your understanding, voice, and reasoning.

## Quick-Start Checklist (Dos and Don'ts)

There are several points to consider when using AI tools. (1) Use AI for brainstorming, explaining tough ideas, or polishing draft wording. (2) Check every fact, citation, code snippet, or translation an AI gives you. (3) Add a short disclosure and citations whenever AI meaningfully shapes your submission. (4) Use Tulane-approved tools or turn off "chat-history & training" in public models.

There are several things to avoid when using AI tools. (1) Do not paste exam questions or entire assignments into AI during closed-book tests. (2) Do not submit raw AI output as "your" work. (3) Do not hide your AI use or claim it as wholly original. (4) Do not upload confidential, HIPAA/FERPA, or unpublished research data.

Along with the quick start checklist, there are quick rules of thumb. For example, use AI only for tasks you would comfortably ask a classmate, roommate, or friend to help with: brainstorming ideas, advising on structure, sound-boarding concepts, or proofreading work you already drafted. It is NOT ethical to ask a friend, or an AI, to write your paper, run your analysis, or complete research on your behalf.

## Tulane's Four Golden Rules for AI Use

1. **Integrity:** Your submission must reflect your understanding. AI help is like classmate help, allowed only when permitted and never to the point of doing the work for you.
2. **Transparency:** Always say how AI helped. A two-line disclosure is enough.
3. **Accountability:** You own any errors, hallucinated citations, or plagiarism an AI produces.
4. **Privacy & Data Security:** Never paste sensitive or proprietary data into public models.

## AI Use Scenarios

- **Scenario**: You use ChatGPT to brainstorm topics for a reflection paper.
  - Status: Allowed (with Disclosure)
  - Why: Brainstorming is permitted, but disclosure is required.
- **Scenario:** You paste experimental data into AI to write your lab report.
  - Status: Prohibited
  - Why: Delegating core analytical work to AI is equivalent to plagiarism.
- **Scenario**: You use AI for grammar checks on your essay.
  - Status: Needs Clarification
  - Why: Basic grammar checking is incidental; advanced rewriting is substantive. Ask your instructor.

## Substantive vs. Incidental Use

The final section is on substantive- and incident use of AI in graduate studies. Students must disclose if AI was used in fixing a bug in code, generating an essay outline, rephrasing sentences for clarity, and translating a foreign phrase. No disclosure is needed when using AI to do the following: explaining a complex theory, asking for study questions, basic grammar checking and simple vocabulary lookup.

# AI, Graduate Education, and the Future of Air Transport and Tourism: A Research-Formation Approach to Quality, Adaptability, and Recognition

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**Abstract:** Artificial intelligence (AI) is transforming higher education and foregrounds critical questions about human agency and the mission of universities. This article approaches these dynamics through the Master in International Management of Air Transport and Tourism (MITAT), the only international degree of its kind in France. Positioned as the second year (M2) of a Master's programme and taught entirely in English, MITAT attracts students from diverse disciplinary backgrounds and cultivates both multidisciplinarity and multicultural perspectives. Its curriculum articulates a triple competence in project management, air transport management, and tourism management, reinforced by professional immersion. The research-formation framework interprets graduate education as a system in which structures, environments, and actors converge to define quality, adaptability, and recognition. Within this setting, design-based simulations developed in MITAT illustrate how AI can act as a scaffold that supports learning while avoiding the proxy function that undermines judgement. A multi-level perspective - micro, meso, macro, and meta - clarifies how students, instructors, systemic contexts, and epistemological finalities interrelate. The analysis indicates that, when embedded responsibly, AI can enrich graduate education without undermining its foundations. MITAT therefore offers a model for aligning innovation with human-centred learning in complex international sectors.

**Keywords:** Artificial intelligence; graduate education; air transport; tourism management; research-formation; human agency; design-based research.

## Introduction

Artificial intelligence and emerging technologies are reshaping higher education, yet their integration is far from neutral. They need to be approached as epistemological and methodological challenges that redefine the very mission of universities. This article draws on the Master in International Management of Air Transport and Tourism (MITAT), the first and only international degree in France devoted to this field. Conceived and led as a research-formation programme, MITAT exemplifies how graduate education can be framed as a dynamic system in which structures, environments, and actors interact to shape the finalities of quality, adaptability, and recognition. It also

serves as a living laboratory for exploring how artificial intelligence may be embedded responsibly while safeguarding human agency.

## From sectoral context to educational needs

Air transport and tourism form a particularly revealing case. Tourism is defined by the United Nations World Tourism Organization (UNWTO, 2010) as the activities of people who travel to and stay outside their usual environment for less than one year, for leisure, business, or other purposes. Under this definition, every passenger in an aircraft takes part in tourism—whether for business, leisure, or visiting friends and relatives (VFR). Transport and tourism are thus structurally interdependent. Historically, the International Civil Aviation Organization (ICAO, 2019) estimated that more than half of international tourists travelled by air. More recently, IATA (2025) reported that global passenger traffic in 2024, measured in revenue passenger kilometres (RPK), rose by 10.4% compared with 2023 and surpassed pre-pandemic levels (2019) by 3.8%. Available seat kilometres (ASK) increased by 8.7%, and the average load factor reached a record 83.5%. Air transport is not merely an infrastructure; it constitutes the backbone of international tourism.

The air transport sector is marked by extended innovation cycles. Developing new propulsion systems, certifying sustainable fuels, or upgrading safety protocols may take ten to thirty years (Aerospace Technology Institute, 2018; European Commission, 2021). Tourism, by contrast, evolves more rapidly, driven by socio-cultural trends, overtourism, crises such as pandemics, and digital transformations including smart tourism. Graduate education must therefore equip students to navigate long-term technological trajectories while adapting to short-term shocks. Against this backdrop, MITAT offers a concrete response through a distinctive model of international graduate education.

## MITAT as a model

MITAT is a two-year French Master's degree (bac+5 level) in international management of air transport and tourism. While the first year introduces students to core foundations, the second year (M2) is distinctive: taught entirely in English, it finalises the graduate cycle by preparing students for international careers in aviation and tourism. The analysis developed in this article focuses specifically on the second year, which serves as the cornerstone of MITAT's international and interdisciplinary orientation.

The programme is notable for its openness: it attracts students from diverse disciplinary backgrounds who have completed their first four years of higher education in France or abroad. This multidisciplinarity and multicultural composition position MITAT as an original model, aligned with international graduate education rather than exclusively with the French system. Its curriculum fosters a comprehensive triple competence in project management, air transport management, and tourism management, articulated through academic modules and professional immersion.

Beyond its structure, MITAT has generated tangible results. In 2023, the employability rate reached 95% within six months of graduation (Observatoire de la Vie Étudiante, 2023). Graduates secure positions in airlines, airports, tourism boards, consulting firms, financial institutions, and international organisations, confirming the professional relevance of the programme. These outcomes also underscore the strength of MITAT's partnerships with industry actors, ensuring that research, teaching, and practice remain interconnected. In this sense, MITAT operates both as a degree programme and as a living laboratory for innovation in graduate education. To understand how such innovation can be analysed, the research-integrated training framework provides a

conceptual lens.

## A research-based graduate education framework

The research-integrated education model (Napoli, 2017) conceives graduate education as the articulation of three interrelated poles. Structures encompass academic systems, regulatory frameworks, and institutional governance. Environments refer to socio-economic and political ecosystems, often examined through PESTEL. Actors involve students, faculty, professionals, and international organisations. Their dynamic interplay shapes the finalities of education: quality assurance, adaptability and technicity, and both internal and external recognition. This conceptualisation is captured schematically in Figure 1, where structures, environments, and actors interact dynamically to frame educational outcomes.

## Research-based graduate education Framework

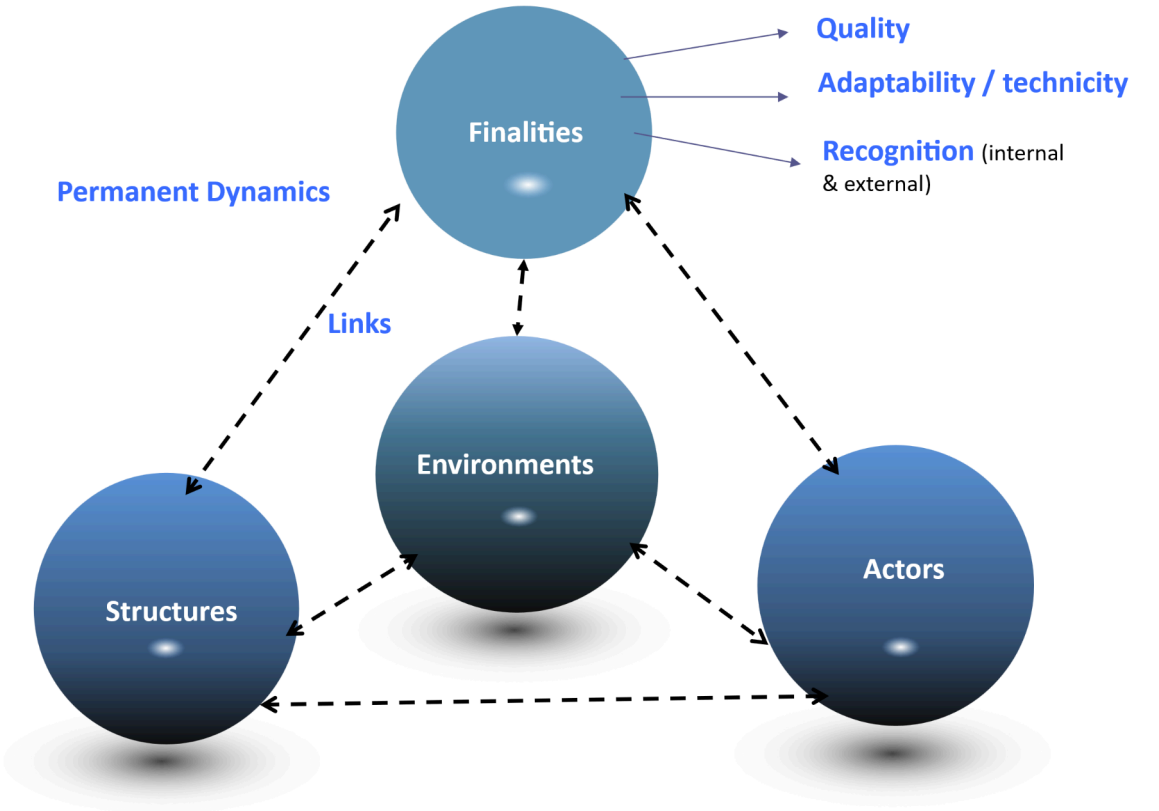


Figure 1. Research-based graduate education framework for graduate education: interaction among structures, environments, and actors defines the finalities of quality, adaptability, and recognition (Napoli, 2017).

This model frames graduate education as a dynamic system rather than a static curriculum. Finalities evolve as structures, environments, and actors interact. From an epistemological standpoint, this perspective aligns with the plural paradigms of management research: positivist, interpretivist, and critical (Guba & Lincoln, 1994). Positivist perspectives draw on quantitative modelling, from revenue management to demand elasticity. Interpretivist approaches mobilise qualitative case studies to explore resilience, customer experience, or intercultural communication (Yin, 2014). Critical perspectives probe sustainability, CSR, and equity in tourism and aviation. Mixed methods and methodological triangulation (Creswell & Plano Clark, 2017) foster convergence among these paradigms. AI must therefore be examined not only as a technical instrument but as a phenomenon that intersects with all three paradigms.

This raises a central question: under what conditions can AI support learning without undermining judgement? The distinction between scaffold and proxy provides a useful analytical key.

## AI between scaffold and proxy

Within this framework, the distinction between AI as scaffold and AI as proxy is decisive. As a scaffold, AI offers temporary support: it structures drafts, models scenarios, or accelerates analysis. As a proxy, it replaces the learner, fostering dependency and weakening judgement. Graduate education must preserve the scaffold function while resisting proxy substitution. This principle is consistent with research in applied linguistics, where learning is understood as active strategy development (Hutchinson & Waters, 1987) and communication is valued for intelligibility and negotiation rather than rigid conformity (Seidlhofer, 2011). AI, like language, should mediate learning rather than replace it. This principle has been operationalised in MITAT through design-based cases that allow students and faculty to test, observe, and refine practices.

## Design-based cases as laboratories

In MITAT, AI has been trialled through carefully designed design-based cases. These are not proxies for learning but scaffolds that enrich it. Three examples illustrate this approach. At the micro level, the Revenue Management Prompt-Lab asked students to design a three-bucket fare mix and overbooking policy for a Toulouse–Athens leisure route, then stress-test it against a demand shock. Deliverables included a one-page memo, a data-to-verify list, and an oral defence. At the meso level, the World Heritage Site Carrying Capacity case required teams to map stakeholders, establish visitor capacity rules, and propose low-impact revenue strategies such as timed entry and guided tours. A short bias-check note made assumptions explicit. At the macro level, the Carbon Challenge case required students to calculate the emissions of an internship trip and design a plan to reduce them by at least 30% under budget and time constraints.

The pedagogical impact of these cases extends beyond their immediate outputs. Students reported greater confidence in oral defence, stronger critical thinking in peer reviews, and sharper awareness of bias in data interpretation. For faculty, these cases provided a means to observe how learners negotiate uncertainty, test assumptions, and validate reasoning in real time. Such results illustrate how design-based cases can operate simultaneously as teaching tools and as research instruments, bridging classroom practice with scholarly inquiry.

Yet to move beyond experimentation, prospective methods are required to anticipate future challenges and build consensus on governance.

## Towards prospective approaches

The human-in-the-loop design accelerated iteration and freed class time for analysis, debate, and spoken justification. Making prompts, assumptions, and checks explicit rendered reasoning auditable. Observed gains included improved decision quality, stronger peer review, and more confident oral performance. Risks included hallucinated regulatory details, culturally narrow stakeholder maps, and over-reliance if verification rituals were weak. Effective mitigation remained human-led: constraint-rich task design, explicit bias checklists, cross-team review, and grading practices that rewarded catching and correcting AI errors.

This orientation reflects a broader methodology: human-led design-based research. Instructors designed tasks, trialled them in class, analysed artefacts and performance, and then revised them. Low-cost instrumentation included browser-based drafting tools, instructor-authored simulators, and a carbon-budget challenge aligned with recognised aviation calculators. Integrity policies ensured transparency: students disclosed prompts, provided data-to-verify lists, and respected prohibitions on fabricated data or undisclosed AI. No personal data were entered; institution-managed APIs preserved anonymity. Internal quality assurance classified the experiments as low-risk educational innovations using anonymised data.

The future of this line of research lies in prospective methods. The Delphi technique offers a way to consult experts, students, and stakeholders to identify convergences of opinion on how AI should be deployed in air transport and tourism education. By iterating surveys and refining consensus, Delphi enables a long-term perspective on the skills, ethics, and governance frameworks that must shape graduate education. Beyond consensus, it can also reveal persistent divergences, clarifying the tensions that influence educational governance.

These forward-looking approaches are reinforced through PESTEL analysis. Political factors include ICAO and IATA regulations. Economic factors involve yield management, airline alliances, and ACMI (Aircraft, Crew, Maintenance, and Insurance) contracts. Social aspects involve accessibility and inclusion, as well as the risks of overtourism. Technological innovations such as predictive maintenance, biometrics, and blockchain are transforming operations in both aviation and tourism. Environmental dimensions involve decarbonisation, sustainable fuels, and climate adaptation. Legal aspects involve data protection and compliance with the General Data Protection Regulation (GDPR) and ISO norms. Integrating these six dimensions into MITAT's curriculum ensures that students are trained not only to acquire disciplinary knowledge but also to situate it within broader systemic transformations. When combined, these orientations can be understood within a multi-level human-centred framework.

## A multi-level human-centred framework

The multi-level human-centred framework frames graduate education as a dynamic system. At the micro level, students build expertise through individual tasks and peer interaction, with oral defence and peer review ensuring accountability. At the meso level, instructors and curricula adapt through iterative processes informed by design-based research. At the macro level, systemic contexts are examined through PESTEL, which highlights political, economic, technological, environmental, and legal constraints. At the meta level, the finalities of quality, adaptability, and recognition remain constant, though

their expression shifts according to the interaction of structures, environments, and actors. This four-level articulation positions graduate education as a living system and demonstrates how innovation, including AI, can reinforce rather than erode its epistemological foundations. Seen from a historical perspective, such tensions between innovation and anxiety are not new.

## Historical perspective on technological change

History demonstrates that progress often provokes fear. The rise of the internet in the early 2000s was met with suspicion in both research and pedagogy, and similar anxieties now surround artificial intelligence. Yet adaptability in the responsible use of tools has long been integral to the mission of higher education. Without such adaptability, universities risk failing in their duty to prepare experts capable of navigating uncertainty. The challenge is not to accept technology uncritically but to engage with it critically, ensuring that it remains human-led.

## Conclusion

his analysis argues that a multi-level, human-centred framework positions graduate education as a living system. History demonstrates that every technological shift has triggered anxiety, from the internet at the turn of the 2000s to today's artificial intelligence. Such fears are not new, yet higher education has continually progressed by critically engaging with emerging tools rather than rejecting them outright. Adaptability, exercised with responsibility, continues to be the condition for safeguarding human expertise.

MITAT embodies this balance. It makes clear that innovation and human agency can coexist when research, pedagogy, and professional practice are interwoven. By combining a research-formation framework with design-based cases and prospective foresight, the programme exemplifies how graduate education is able to remain academically rigorous while addressing the complex realities of global sectors such as aviation and tourism. The lesson is clear: higher education must embrace dynamism, not as a threat, but as the very condition for preparing graduates to act with expertise and discernment in a changing world.

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# AI-Supported Writing and Academic Communication in Graduate Education

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Writing and academic communication are at the heart of graduate education. Whether in the form of research proposals, thesis chapters, or peer-reviewed publications, academic communication is both a skill and a rite of passage. In recent years, AI-powered tools have emerged as a powerful support system in this process, providing graduate students with real-time assistance for language, structure, clarity, and coherence. However, it also challenges our understanding of authorship, originality, and the pedagogical purpose of graduate writing.

Graduate students can use AI tools for writing to support their work, rather than relying on feedback from faculty, writing centers, or peer reviewers. Tools like Grammarly offer grammar correction and tone adjustment. ChatGPT and Claude.ai can generate structured outlines, paraphrase dense texts, or suggest citations. Other platforms, such as Elicit, help refine research questions or produce draft literature reviews. These tools are especially helpful in the early stages of academic writing, where students often struggle to organize ideas and structure the different sections of their research paper.

One of the most transformative aspects of AI-supported writing is its potential to level the linguistic playing field for non-native graduate students. Non-native speakers can find academic writing challenging, not just in terms of grammar, but also in expressing complex ideas with precision and confidence. Students access these tools to revise drafts, clarify arguments, and adopt discipline-specific lingo. This significantly reduces the cognitive load for students who are otherwise fluent in their disciplines but not in the language of instruction. Lin and Wang (2025) explored the use of Generative AI in thesis writing and found that differences in students' writing abilities influence their need for external assistance. Results showed that students with weaker writing abilities require more external technological assistance, resulting in a higher technology fit and increased willingness to use Generative AI to support their thesis writing.

While the benefits of AI-supported writing are substantial, they are accompanied by significant limitations and concerns. One of the most pressing is the risk of dependency. When students rely too heavily on AI-generated suggestions, they may fail to develop the thinking and writing skills that graduate education is intended to cultivate. Graduate writing is where students learn to synthesize, to argue, and to situate themselves within disciplinary conversations. One recent study from MIT, as reported by Chow (June 2025), demonstrates this risk. In the experiment, the researchers found that the study group, which only used ChatGPT for writing an essay, lacked originality and overall performed worse on several criteria than the group that used no writing tools (the brain-only group).

There is also the issue of authorship and originality. Across academic disciplines, there

is an increasing debate over what constitutes authorship in the era of AI-assisted writing. Of course, AI tools cannot meet the requirements for authorship as they cannot take responsibility for the submitted work. As non-legal entities, they cannot assert the presence or absence of conflicts of interest nor manage copyright and license agreements. Only human authors are fully responsible for the content of their manuscripts, even the parts produced by an AI tool, and are liable for any breach of publication ethics.

The scholarly community is beginning to converge around disclosure as the minimum requirement. Elsevier and Wiley's policies aim to provide greater transparency and guidance to authors. Both publishers' policies have ethical considerations at their core. Both stress that authorship responsibilities and tasks can only be attributed to and performed by humans, ensuring that AI serves merely as a tool to aid the writing process rather than replace human authorship. They emphasize the importance of ethical behavior, requiring the disclosure of AI tools used. But these policies, while necessary, are not sufficient. They do not fully address issues with co-creation, nor with the blurred boundary between assistance and authorship.

One organization in the UAE, the Dubai Future Foundation, proposes a continuous spectrum ranging from "human-led" to "machine-led" authorship, utilizing visual icons to signal attribution. Whether such frameworks gain traction in academia remains to be seen, but they point to a growing need for clarity.

Policy is one layer. Pedagogy is another. Academic writing must remain a responsibility of faculty, not AI algorithms. Faculty must guide students in making informed and principled choices. They should help students develop an understanding of authorship, originality, and intellectual responsibility. They must create spaces for open discussion and help students reflect critically on their writing practices. Faculty have always played a significant role in helping students find their academic and scholarly style. They need to continue without being overshadowed by Generative AI.

In her blog on teaching and learning, Sarah Eaton (2023) introduces six tenets for writing in the age of artificial intelligence: 1) Hybrid human-AI writing will become normal, 2) Human creativity is enhanced, 3) Language barriers disappear, 4) Humans can relinquish control but not responsibility, 5) Attribution remains important, and 6) Historical definitions of plagiarism no longer apply. These principles provide a helpful framework for both students and institutions seeking to navigate the blurred lines between assistance and authorship.

Ultimately, we need to remember that the focus of graduate education is on the process of learning, with less emphasis on the final polished product. We need to encourage the use of reflective practices through discussion about knowledge and the development of individual technical skills.

AI has a place. It can support clarity, reduce inequities, and accelerate productivity. But if it replaces rather than supplements the cognitive labor of writing, we risk weakening the very formation of scholars. The challenge for graduate education is not whether to use AI, but how to design curricula that integrate it without undermining intellectual growth.

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# AI Literacy in Postsecondary Education—Challenges, Requirements, and Institutions

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**Abstract:** Recent breakthroughs in artificial intelligence are reshaping university education. To leverage these tools without undermining equity, institutions must strengthen digital competence and embed an AI literacy shared by all stakeholders. After outlining multi-level barriers (access, skills, benefits), we explain how digital competence is evolving, then define AI literacy through five dimensions derived from a systematic literature review. We identify the institutional levers required for its development and present the LAVIA living lab as a concrete pathway for generating knowledge, building training programs, and fostering responsible, inclusive, human-centred adoption of intelligent systems across disciplines.

**Keywords:** AI literacy; digital competence; living lab

***Note.*** *Originally authored in French, this text was translated and subsequently adapted into English with the assistance of generative AI (OpenAI).*

## 1. AI Challenges in Postsecondary Education

The rise of generative AI (GenAI), large language models (LLMs), and deep-learning-based predictive systems is simultaneously transforming pedagogy, assessment, and academic governance. AI personalizes learning paths, generates contextualized content, and delivers real-time adaptive feedback; paradoxically, it also introduces reliability risks linked to hallucinations, amplifies algorithmic bias, weakens data protection, and raises questions about academic integrity and the potential erosion of core human competencies. To reconcile innovation with equity, we propose governance frameworks that weave AI into institutional policies, support faculty in devising AI-relevant assessments, and guide students in developing an ethical stance toward algorithmic technologies.

## 2. Transformation of Digital Competence

Initially defined as the ability to select and use digital tools efficiently (MEQ, 2019), digital competence must now encompass an understanding of AI principles, data-driven critical thinking and reflective collaboration with artificial agents. These shifts challenge existing curricula at all levels. The new scope calls for flexible credentials attesting mastery of core AI concepts, pedagogical support initiatives that embed AI within diverse disciplinary contexts and institutional mechanisms capable of linking responsible AI use to broader twenty-first-century skills such as creative problem-solving and interdisciplinary communication.

## 4. Digital divides: How AI Affects an Already Divided System

The “digital divide” comprises disparities across three interdependent levels: (1) inequalities in access to appropriate devices and reliable, high-quality connectivity; (2) inequalities in skills and in the intensity and quality of actual use; and (3) inequalities in the social benefits derived from digital technologies. The INRS (2024) report underscores that this layered view replaces a simplistic “connected/not-connected” binary and frames inclusion as a continuum spanning access, inclusive design, mediation, and digital education. AI is reshaping all three levels. At the first level, access extends beyond connectivity to include exposure to a range of models, free and paid, with varying capabilities, costs, and jurisdictional constraints (e.g., training data provenance, hosting regimes, data-protection frameworks). At the second level, AI raises the competence threshold: the task is no longer merely to use tools but to reason with AI systems, understanding model behaviour, interrogating outputs, verifying sources, and managing uncertainty and bias, capacities commonly grouped under AI literacy. At the third level, benefits risk clustering among already advantaged populations, creating uneven gains in learning and employability. Consequently, higher education institutions should adopt guiding principles and safeguards that ensure meaningful access, informed judgement, and real conversion of AI use into educational and social benefit for students and staff alike.

## 4. AI Literacy: Definition and Dimensions

We define AI literacy as the integrated set of knowledge, skills, and ethical dispositions that enable individuals to evaluate, use, and co-create intelligent systems responsibly and in context. Analysis of thirty-one international frameworks reveals five central dimensions: (1) technical understanding of models and data; (2) ethical, legal, and societal considerations; (3) critical thinking toward algorithmic outputs; (4) strategic and creative use of AI tools in authentic situation; and (5) human agency, which safeguards intellectual autonomy and individual responsibility in all interactions with automated systems.

## 5. Challenges and Levers for Developing AI Literacy

**Technical Understanding.** Ignorance of how AI works leads to both over- and underestimation of its capabilities. Introductory, discipline-tailored courses that unpack core concepts (data, models, training, evaluation, error modes) help learners build accurate mental models and foster interpretability; preliminary survey data from the Université de Montréal indicate this is the least-developed dimension among participants.

**Ethics and Regulation.** Algorithmic bias, legal non-compliance, and privacy breaches threaten institutional legitimacy. Sustained Responsible-AI workshops, paired with empowered ethics committees and clear escalation pathways, cultivate a culture of compliance, transparency, and critical vigilance.

**Critical Thinking.** Blind acceptance of generated outputs undermines analytical rigour. Case-based teaching and reflective prompt-engineering modules should require systematic source verification, data triangulation, uncertainty articulation, and coherence checks of AI-produced answers.

**Pedagogical Integration.** Without a clear pedagogical framework, AI can fuel shortcutting, cheating, and disengagement. Revising assessment policies to privilege process evidence, deploying AI-augmented learning analytics with privacy safeguards,

and designing authentic tasks that position AI as a cognitive partner, rather than a substitute, strengthen motivation and academic integrity.

**Agency and Digital Well-being.** Excessive outsourcing of cognition to AI risks dependency, attentional overload, and erosion of core human skills. Embedding digital self-regulation strategies, explicitly teaching model limitations and failure patterns, and exposing learners to debiasing mechanisms preserve autonomy and wellbeing.

## 6. LAVIA: A Living Lab for Transformation

The Higher Education Learning Innovation Living Lab (LAVIA) functions as a co-innovation platform where researchers, practitioners, and industry partners design, test, and evaluate learning solutions. Ongoing projects include pilots of intelligent tutoring systems and the deployment of learning dashboards within authentic course settings to support timely, transparent feedback. We must involved stakeholders early and monitoring systems continuously, from authentic problem definition and data curation through post-deployment, so institutional AI initiatives remain aligned with curricular goals, meet accessibility standards, advance equity, and adapt as needs evolve.

## Conclusion

By expanding digital competence, institutionalizing robust AI literacy, and operationalizing the LAVIA living lab, the Université de Montréal charts a credible track toward an augmented, ethical, and inclusive university. We advocate a multidimensional action plan: (1) adopt evidence-based governance that balances innovation with safeguards; (2) invest in sustained faculty development to normalize AI-enhanced pedagogy and ensure curriculum alignment; (3) establish longitudinal research networks to monitor learning outcomes and equity impacts; and (4) create interoperable data infrastructures that underpin transparent, student-centred analytics, so that AI demonstrably advances inclusion and learning.

# Reform and Practice of Postgraduate Education Models in the Intelligence Era

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**Abstract:** Against the backdrop of the deep integration of artificial intelligence and education, postgraduate education faces unprecedented opportunities and challenges. Wuhan University of Technology (WUT) actively responds to the national "AI Plus" initiative, systematically promoting the reform of postgraduate education models. This paper elaborates on the innovative practices of WUT in aspects such as training objectives, processes, evaluation, and governance from three dimensions: a new stage, new standards, and new pathways, aiming to provide a referential paradigm for postgraduate education reform in the intelligent era.

**Keywords:** Postgraduate Education; Digital Intelligence Empowerment; Talent Development Model; Reform

## 1. New Stage: Foreseeing Change and Embracing New Missions in Postgraduate Education

### 1.1 Implementing the "AI Plus" Initiative, Identifying New Directions for a Powerful Education System

In August 2025, the State Council issued the Opinions on Deepening the Implementation of the "AI Plus" Initiative, requiring the acceleration of six key actions including "AI Plus" Science and Technology, and promoting the extensive and deep integration of AI with all industries and fields of the economy and society. The core of these six actions lies in talent, and the key support for talent lies in building a powerful education system.

### 1.2 Charting the Blueprint for Smart Education, Defining New Goals for Educational Digitization

The 2025 World Digital Conference was held in Wuhan, where the China Smart Education White Paper was released, proposing 2025 as the inaugural year of smart education. It emphasized building and effectively utilizing the National Smart Education Platform. Simultaneously, a series of standards including the Management Measures for Educational Informatization Standardization Work were released, providing conceptual, platform, and standard leadership for global smart education.

### 1.3 Implementing the Digital Leap Project, Grasping New Tasks in Postgraduate Education Reform

China's Postgraduate Education Digital Iteration Leap Project has been listed as a key task for 2025 by the Department of Postgraduate Education of the Ministry of Education. This initiative is supported by the construction of a vertical large model for postgraduate education and three major platforms (the Smart Education Platform, Digital Intelligence Service Platform, and Digital Map Platform), aiming to enhance both the quality and efficiency of postgraduate education in teaching, learning, research,

management, and internationalization.

## 2. New Standards: Actively Adapting and Constructing a New Ability-Oriented System

### 2.1 New Standards for Training Objectives: Fundamental Shift from Knowledge-Based to Ability-Based

In May 2022, the university convened its first conference on high-quality talent cultivation, enrollment, and employment, releasing the "5·30" Action Plan. This established new standard training objectives focused on cultivating high-level application-oriented talents with an emphasis on abilities. Seizing this opportunity, the university formulated ability standards, professional standards, curriculum standards, and faculty standards for postgraduate training, creating a comprehensive standard system for its postgraduate education work.

### 2.2 New Standards for the Training Process: Pilot Reform of the Whole-Process Cultivation of Outstanding Engineers

WUT has long cultivated large numbers of Outstanding Engineers for the nation through the development of first-class student intake, first-class faculty, first-class resources, first-class models, and first-class quality. First-class student intake includes initiatives such as innovative training vehicles and implementing dynamic streaming mechanisms. First-class resources involve building university-enterprise project banks and engineering technology centers. First-class models include restructuring the curriculum system and rebuilding the evaluation system. Based on these practical achievements, the university was approved to establish a National Outstanding Engineer College in 2024.

### 2.3 New Standards for Training Outcomes: Pioneering the Development of Ability Certificates Serving Three Stakeholders

To serve student development, academic schools, and employers, the university organized 15 functional departments to collaborate on developing and issuing customized comprehensive ability certificates to 5,413 graduates of the class of 2025. The certificate evaluation index system consists of 37 items of personal basic data and 50 items of ability evaluation data, focusing on assessing postgraduates' basic abilities (moral character, professional foundation, and physical/mental state), higher-order thinking (academic level, innovative spirit, and collaborative skills), and future literacy (knowledge transfer, digital thinking, and human-machine collaboration).

## 3. New Pathways: Proactively Seeking Change and Exploring New Paradigms for Postgraduate Education

### 3.1 New Educational Environment: Building a More Open University

The university continuously expands its physical space through university-university integration, university-enterprise integration, university-local government integration, and international integration with renowned domestic universities, leading industry enterprises, local governments, and world-class international universities and research institutes. Through digital technology, resources such as network, energy, and finance across different campuses and off-campus research institutes are integrated across the entire domain, creating a twin digital space foundation, thereby continuously expanding online resources. Furthermore, by means such as inter-university faculty appointments and mutual credit recognition, a new educational ecology featuring online and offline interconnectivity has been built, resulting in a metaverse university characterized

primarily by a "borderless" education model.

### 3.2 New Training Models: Diverse and Collaborative New Models

Actively serving the urgent need for innovative talent cultivation in China's three pillar industries (building materials/construction, transportation, automotive) and strategic emerging industries (new materials, new energy), the university has explored and formed a "3+3+1" diversified postgraduate training model. This includes three effective models for industry-education integration in professional degree education (Bridge-Carrier Type, Structured Order-Based Type, Platform Integration Type) and three effective models for science-education integration in academic degree education (Team Collaboration Type, University-Research Institute Joint Type, International Collaboration Type). A pilot reform of a Chinese-style postgraduate training model emphasizing research capability, intended to lead global postgraduate training reforms, is underway.

### 3.3 New Governance System: Digital Intelligence Governance System

Since 2021, the university has pioneered the development and iterative upgrading of a full-process quality assurance dashboard for postgraduate education based on whole-domain data perception, promoting the reform of a digital intelligence governance model for postgraduate education. Institutional designs include three-dimensional penetration of the monitoring system, multi-dimensional modeling of quality profiles, and intelligent enhancement of decision support. Practical explorations include re-engineering enrollment governance processes, enhancing the efficiency of cultivation governance, implementing precise measures for ability cultivation governance, and systematic innovation in degree quality assurance governance. For instance, regarding postgraduate professional practice, the dashboard enables real-time connection with over 560 off-campus practice bases and the real-time transmission and dynamic monitoring of data such as participating students, practice location, duration, status, and evaluation. The response time for identifying anomalies in practice situations has been reduced from the original manual management's one week to within one hour under the current digital intelligence management.

Through the reform of the digital intelligence governance model for postgraduate education, the quality of postgraduate education at the university has been systematically and comprehensively enhanced. The proportion of doctoral students publishing high-level academic papers increased from 95.41% in 2020 to 99.36% in 2024. The number of provincial/ministerial level and above innovation and entrepreneurship competition awards won by postgraduates increased from 24 in 2020 to 144 in 2024; the university ranked 5th nationally in the 2024 postgraduate innovation and entrepreneurship contribution list. The one-time employment rate for postgraduates remains above 95%.

# Panel III: Supporting Graduate Students as Knowledge Producers of AI and Emerging Technologies

# AI as an Educational Tool at the Federal University of Rio Grande do Sul (UFRGS)/ Brazil: Current Projects

**Benito Bisso Schmidt**

**Dean for International Relations, Federal University of Rio Grande do Sul**

The Federal University of Rio Grande do Sul (UFRGS) is located in the capital of Brazil's southernmost state, Porto Alegre. The institution currently has 2,970 professors, 2,584 technical-administrative staff, 31,413 undergraduate students, and 13,586 graduate students (master's and doctoral). It offers 97 undergraduate programs (89 in-person and 8 distance-learning) and 148 graduate programs across diverse fields of knowledge.

In the Shanghai Ranking (ARWU – Academic Ranking of World Universities, 2025), UFRGS, together with the Federal University of Santa Catarina (UFSC), occupies 6th place among Brazilian universities, ranking globally in the 601–700 range. In the Latin American context (THE – Times Higher Education, 2024), it ranks 7th, tied with the Monterrey Institute of Technology (Mexico). Among Brazilian federal universities, it holds the top position.

This presentation seeks to showcase projects at UFRGS that employ Artificial Intelligence (AI) as an educational tool. To gather information, an institutional inquiry was circulated among professors and technical-administrative staff, requesting data on coordination, department, funding, project title, summary, and web resources.

So far, information has been collected on eight research and outreach projects, coordinated by ten professors (one in partnership with a master's student). Additional data may still be incorporated, as the deadline for submissions was set for September 15. The presentation includes general information on these projects, while detailed descriptions and coordinator contacts can be provided to interested parties.

As Costa Jr. et al. (2023, p. 246) emphasize:

"Artificial intelligence is gaining more and more space in various sectors of society, including education. In higher education, it has been used as a support tool to improve the efficiency and effectiveness of teaching, personalize learning, expand access to knowledge and reduce costs. Its use can help make the learning process more dynamic, through the adherence to intelligent tutoring systems that can help students learn faster and more efficiently. However, as with any technology, the implementation of artificial intelligence in higher education also presents challenges and limitations, such as the need for teacher training, ethical and legal issues, technological dependence, and other technical and financial aspects. Artificial intelligence can be a valuable tool that has the potential to significantly transform higher education, but its success depends on careful consideration of its benefits and challenges, as well as the development of policies and practices that promote responsible and ethical use of the technology."

From the sample collected, it is possible to state that, at UFRGS, AI has been employed as an educational tool in diverse fields of knowledge: Educational Design and Distance Education, Botany Teaching, Mathematics Education, Music Education, Visual Arts Teaching, Performance, and particularly in Pedagogy, with research aimed at improving learning in basic education.

Examples include:

- Artificial Intelligence in Educational and Instructional Design: Convergences, Differences, and Perspectives in Distance Education (Paulete Schwetz, School of Architecture).
- The Use of Artificial Intelligence Platforms for Teaching Botany in Brazil: Challenges and Potentialities (Maria Cecilia Chiara Moço, Graduate Program in Botany, with Ruan Kelvin Mascarenhas de Oliveira, master's student).
- Mathematics Education with Artificial Intelligence: A Phenomenon to be Investigated for an Ancestral Future (Maurício Rosa, Graduate Program in Mathematics Education).
- Conceptual Blending, Live Art and Artificial Intelligence: Performance, Prosody and Poiesis and IoMusT and IoT Systems for Music Research (Fernando Gualda, Department of Music).
- Smartografias (Alberto Marinho Ribas Semeler, Department of Visual Arts).
- Learning Trajectories in the Implementation of Computing in the Curriculum of a Municipal School System and Individualized Trajectories in Moodle with Adaptive and Meaningful Learning (Raquel Salcedo Gomes, Interdisciplinary Center for Studies in New Technologies in Education).
- Hello, AI! – startup project dedicated to AI literacy in accessible and multimodal formats (Cristiano Lima Hackmann).
- Artificial Intelligence: From Models to Competencies (Patricia Behar, Department of Basic Studies, School of Education).

These initiatives demonstrate that AI has been a subject of reflection by faculty and students from various academic areas at UFRGS. The projects integrate theoretical debate, practical experimentation, and ethical and political considerations, seeking to enhance teaching and learning processes across disciplines. Opportunities for collaboration with international partners are expected to expand these experiences further.

## References:

COSTA JR., João Fernando et al. Artificial intelligence as a support tool in higher education. REBENA - Revista Brasileira de Ensino e Aprendizagem, v. 6, p. 246–269, 2023. Available at: https://rebena.emnuvens.com.br/revista/index

# AI in Doctoral Research

**Hans-Joachim Bungartz**
**TUM Graduate Dean, Technical University of Munich (Germany)**

## Doctoral research as the backbone of university research

The role of doctoral candidates for a university cannot be overestimated. Their work, their creativity, and their commitment are crucial – be it in research, teaching, innovation and entrepreneurship, or international relations. This is particularly true for Germany and the STEM fields, where doctoral candidates typically are employees with research, teaching, and organizational duties. Hence, when we are looking at how AI transforms research – be it as a tool, as the object of investigation, or as the outcome of research – the doctoral perspective is crucial.

## The three paradigms of research

In many scientific domains, the concept of the three paradigms of research is widespread. The two classical ways to do research have always been experiments and theoretical studies. This is obvious in fields such as physics, where “experimental physics” and “theoretical physics” are established sub-fields, but it can be found almost everywhere. The “computational revolution” complemented these two with a third one, the computational – or computer-aided or computation-aided – way. Computational tools and methods make it possible to combine experimental data with theories and to put them in the same context. This third paradigm came up first as simulation science in a deductive appearance: Researchers start from models from theory and use them to create data via computations – simulations. Later, data science and AI provided an inductive variant: Researchers use data from various sources to create models, i.e. knowledge. Both directions aim at a reliable “predictive science”, both can be extremely greedy in terms of computational resources needed, and both change the way research is done quite drastically. Thus, there are large similarities between both directions. However, there is one significant difference: While the deductive approach is something for experts only, the inductive approach comes with a kind of promise “take your data, derive expert knowledge, and, thus, become an expert yourself”. The latter entails that the scenario “non-experts use a complex technology” is more the rule than the exception, which underlines the need for training offers. Currently, primarily this tempting inductive direction – AI – is in the focus of interest, when usage, potentials, and risks of computational technologies are discussed.

## Roles of AI in research

The first possible role of AI in research is that of a tool. And as always with a new tool, there is need for both technical and ethical training: How do I use it appropriately? What can it deliver, and what not? And what concerns have to be taken into account? The second role of AI in research is that of an object of research: How can we improve the tool? How can its functionality be extended – and nevertheless ethical aspects and privacy be taken into account? And what will the next-generation tool look like? AI takes

on a third role when tools are embedded into scientific workflows in a domain, which means that a domain AI becomes the outcome of research. Making researchers acquainted with AI in the second or third role through trainings is as important as for the first role, but even more complex, since it requires a deeper dive into the matter. However, it is also more promising, since it does create knowledge with many options for next steps, rather than "only" providing a solution to one research question.

## The TUM perspective

The Technical University of Munich (TUM) is among the leading universities in Germany and Europe with currently more than 52,000 bachelor and master students. The TUM Graduate School (TUM-GS) was founded in 2009 as the general hub for doctoral education university-wide, across all scientific domains. Since 2014, TUM-GS membership of our new doctoral candidates has been mandatory, such that we do have an almost 100% coverage now. Currently, there are more than 10,000 doctoral candidates enrolled, coming from more than 110 different countries (China, Austria, Italy, India, and Iran being the top 5 in numbers). Overall, roughly one third of our doctoral candidates represent another nationality than German. The TUM-GS model of doctoral education comprises five layers: individual research (the core) | subject-specific training | transferable skills training | international research phase | career support. It offers a softly structured doctorate – keeping the focus on the individual research and avoiding proximity to studies, but nevertheless providing a supportive training and quality structure. Concerning AI, TUM pursues a multi-pronged approach to enabling doctoral candidates as conscientious and informed users and producers of AI. This comprises different dimensions and allows reacting to new trends and developments in a very flexible way.

**TUM AI strategy.** Recently, TUM has introduced its first AI Strategy, defining goals until 2030 in all dimensions: education, research and innovation, administration, privacy and ethics. It also comprises a broad spectrum of supportive instruments and measures for researchers – i.e. in particular doctoral candidates – working with or on AI: the Munich Data Science Institute offering research opportunities on foundations and applications of AI as well as competences in data analytics | the TUM Research Data Hub offering access to various data sources as well as competences in research data management and handling | a central AI infrastructure with powerful (GPU) computing, storage, and software solutions.

**Start-up support.** The eleven TUM Venture Labs are special units to support deep-tech entrepreneurial activities via experienced advisors directly where the ideas come up. Two of them are primarily AI-related: Software & AI and Robotics and AI. Overall, in the last four years, 355 TUM start-ups have been accompanied by the Venture Labs, 25% of them being directly in AI, and many more having at least significant AI components in the underlying business idea. Currently, only a minority of them have doctoral candidates as founders. Rather, the majority are still initiatives of bachelor or master students. One reason is the dilemma between the expectations of doctoral supervisors ("Work 200% on your PhD!") and those of entrepreneurial advisors ("Invest 200% of time for your start-up!"), which often entails that doctoral founders give up their doctoral project when focusing on founding a company – or vice versa. Both cases create a potential loss – for the respective doctoral candidate and for the university. Since doctoral projects are often the place where opportunities for deep tech start-ups emerge, we are currently discussing options of an "entrepreneurial doctorate" to resolve this dilemma.

**TUM-GS offers.** Of course, TUM-GS also continuously extends its course portfolio on AI and related topics. Here, the central office focuses on general topics such as “Ethics and AI”, “AI & Prompt Engineering”, ”Wr-AI-te!”, “AI Playground”, or more technical courses on programming, statistics, or data science in the context of R, i.e. on the first role in the sense mentioned above. In contrast to – or complementing – that, formats closer to the second or third roles and, hence, to specific scientific domains are primarily offered by the Graduate Centers in the Schools.

## Conclusion

The topic of implementing supportive measures for doctoral candidates who deal with AI in a more profound sense than just applying state-of-the-art tools is a complex, multi-faceted, and dynamic endeavor. To tackle this in an appropriate and effective way, universities are in the process of developing strategies to cover the different aspects and of deriving and introducing institutional instruments and concrete measures. One major challenge is to keep everything as flexible and dynamic as possible, to allow for quick reactions and adaptations to directly respond to technological progress.

# Artificial Intelligence and Emerging Technologies: Helping Students Climb the Ladder of Academic Success

**William Cornwell**

**Provost, American University in the Emirates (United Arab Emirates)**

## Introduction

As Provost of the American University in the Emirates, I am pleased to join so many distinguished graduate education leaders for a practical conversation on AI. Graduate students already work alongside AI in every stage of their studies, from literature discovery to data analysis, from drafting to defense. Our task is to ensure it builds capacity rather than replaces it.

I frame the challenge with a simple metaphor: AI as a ladder vs. AI as an elevator. Ladders demand effort, judgment, and authorship; elevators move us without work or growth. The responsibility of graduate education is to build ladders.

## Using AI to Enhance Student Learning and Student Services

Generative AI can create the appearance of intellectual and moral excellences—"artificial virtues"—without the formative labor that produces the authentic human trait. The educational implication is that we must distinguish support tools that extend a learner's agency from substitution tools that diminish the learner's capabilities. From that distinction, four conditions follow for the use of student-success-oriented AI in graduate education.

The first is effort-sensitivity. The tool should reward and scale with student effort and mastery. The more thoughtfully a student engages—through clearer prompts, better data preparation, and explicit reasoning—the better the tool performs. If more thoughtful engagement yields better AI assistance, students are climbing ladders. Time on task should not diminish but should shift toward higher-order work (e.g., justification, replication, critique), even when routine steps are accelerated. Next is process transparency. Students should show how they got their results by producing prompts, drafts, code cells, decision logs, and so on. Students should not simply show up in class with a polished artifact. We should grade the process, not only the product. The third is authorship-binding. The student should remain the owner of the reasons for their claims and the choices made during the research process. Graduate students should "own their reasons," that is, be able to defend each choice in methods, analysis, and interpretation. The student must be fully accountable for the final product. Finally, good AI pedagogy requires Socratic engagement. AI should provoke questions, critique, and guided struggle but not provide answers and finished products. The platform should be a conversational partner facilitating critical thought, not a vending machine dispensing student submissions. The AI tool may propose, but the student must dispose.

These four principles keep the center of graduate education, namely, human agency and judgment, intact while harnessing technology for student growth. With that frame, I offer some concrete ways graduate schools can harness AI and emerging technologies to improve students' research skills. First, graduate schools must develop and clearly communicate institutional guidelines for ethical and pedagogically sound AI usage. This involves updating policies to clarify what constitutes misuse, articulate disclosure expectations and emphasize remediation and training for first offenses. It helps if institutions provide students with a simple, one-page explanation about permissible uses of AI. Universities also should provide a standardized system for communicating the permissible uses of AI for a task. For instance, a color-coded system might use green for "AI encouraged with documentation," yellow for "limited, specified AI assistance permitted," or red for "AI prohibited." Professors also can require a short AI usage statement with every submission. University guidelines can require AI model/version/date disclosure and adopt a consistent format for reporting prompts, generated text/images, and code completions. The guiding principle is transparency to ensure that the student is climbing ladders, not taking elevators.

Next, graduate schools should provide guidelines and training for using AI systems to help students with literature reviews, pre-writing, and writing revision. Students can use LLMs in a literature review to identify clusters, debates, and gaps, but they must be able to validate and annotate each claim with primary sources. Professors can require students to give short oral defenses where they explain their process of identifying literature clusters, gaps, and debates. Graduate schools must educate students on the limitations of LLMs, including (a) bias from training data and (b) fabrication of sources and citations. Students also should understand the need for secure and private handling of confidential data, which may require providing them with locally-hosted AI systems. Finally, students must be educated on the severe professional and reputational consequences that come from over-reliance on AI, as has been shown from widely publicized incidents like attorneys citing fabricated case law and authors citing phony sources.

Thirdly, professors must integrate and assess scaffolding in student assignments. This means permitting LLM usage for ideation, outline critique, and micro-edits, but not for the one-shot generation of disciplinary argumentation. Allocating 20–40% of the course grade to process artifacts like prompt notebooks, code walk-through videos, revision histories, and LLM chat logs provides a strong incentive for students to use the tools as ladders and not elevators.

Finally, higher education should promote AI-powered educational technologies for accessible and inclusive learning. Text-to-speech, speech-to-text, video captions, lecture transcripts, multilingual glossaries and glossary overlays, and font and color adjustments used to be boutique services for students with sensory or linguistic limitations, but now universal design can benefit everyone by default. For students with challenges related to time management, attention deficits, and other executive tasks, AI-assisted planning apps can chunk deadlines, schedule focus sprints, and reflect on progress and challenges without surveillance or judgment.

AI also provides opportunities to enhance student services. Universities can provide chat interfaces grounded in institutional policies and program requirements to answer routine queries anytime, escalating to humans as needed. Students stay on path, while advisors spend more time on higher-order mentoring. In addition, ethical early-alert analytics can use predictive signals like course attendance, grades, and advising no-shows to trigger opt-in nudges and advisor outreach. These systems should have transparent criteria for identifying at-risk students: no LLM "black box" risk scores in

isolation. They also engender more trust if they are piloted and modified based on student feedback.

## Conclusion

Graduate education is not primarily a factory for outputs; it is a craft for forming people who own their reasons. AI and emerging technologies can erode that ownership or amplify it. Universities that commit to effort-sensitivity, process transparency, authorship-binding, and Socratic engagement will deploy these remarkable AI tools as ladders for students to climb step by step, with growing competence and confidence, rather than elevators that move them while leaving them unchanged. That is a future worthy of our students and our disciplines, and it is a future we can begin building now. Thank you.

**Disclosure:** I received feedback on earlier versions of this presentation from ChatGPT-5. The LLM identified passages that were wordy, unclear, or had typos.

# Scientific Research on Artificial Intelligence in the Graduate Programs at Cinvestav

**Wilfrido Gómez-Flores and Martha Espinosa-Cantellano**

**Department of Infectomics and Molecular Pathogenesis, Cinvestav (Mexico)**

The Center for Research and Advanced Studies (Cinvestav) is a Mexican public institution created in 1961 by presidential decree, and it belongs to the Ministry of Education. Since then, it has grown into one of the most important centers of scientific research and graduate education in the country. We have 10 campuses located across Mexico, and we offer 68 academic programs. Through the years, these programs have granted master's and doctoral degrees to more than 17,500 students. dedicated to scientific and technological research.

One of the distinguishing features of Cinvestav is the way artificial intelligence is integrated into some of our research and graduate training. AI at Cinvestav is not an isolated specialty. Instead, it is part of many academic programs, where it is applied across disciplines, often as the core of students' research projects. In these projects, graduate students are not just learning tools, but are generating knowledge, methods, and applications that respond to contemporary challenges. This effort promotes innovation and supports academia, industry, and government. In this context, a brief overview of several projects to develop AI-based solutions to problems across disciplines such as biological and health sciences, engineering and technology, and education in different departments at Cinvestav is provided.

## 1. Tamaulipas Campus

The Tamaulipas Campus of Cinvestav offers a graduate program in engineering and computational technologies, where researchers collaborate with students in developing various AI-related projects.

Recent research has focused on security and privacy methods for data mining as a service, particularly addressing the challenges associated with executing data mining tasks, such as clustering and classification, on sensitive datasets in untrusted cloud environments. This research establishes a practical and scalable foundation for secure and privacy-conscious Data Management as a Service (DMaaS) in the era of Big Data (S. Reyes-Palacios et al. 2025).

In another study, deep neural networks have been utilized to monitor resource consumption in cloud computing. This research focuses on managing resources and maintaining service quality in the face of varying workloads. The objective is to improve decision-making related to resource configuration, enhance performance, reduce costs, and ensure continuous service even as demand increases (J. A. Barron-Lugo et al.

2023).

A project in health sciences aims to predict chronic diseases related to metabolic syndrome, such as type 2 diabetes, hypertension, and cardiovascular disease, to support personalized and preventive medicine (H. Galeana-Zapién et al. 2024).

Additionally, AI-based techniques have been developed for computer-aided diagnosis of breast and lung cancer using medical images. These advancements provide effective solutions for improving the automatic classification of tumors, potentially reducing variability in interpretations by radiologists and thereby enhancing the accuracy of medical diagnoses (W. Gómez-Flores et al. 2024).

## 2. Department of Computer Science

Recent investigations have focused on developing advanced AI techniques to enhance sustainable food, energy, and water systems, as well as to improve intelligent manufacturing and robotics. This research addresses a variety of challenges, including spatio-temporal modeling, management of high dimensional and imbalanced datasets, integration of heterogeneous data, and data reduction and selection (X. Li & Y. Zhu 2024).

Additionally, projects related to high-performance computing aim to develop GPU-based machine learning algorithms for analyzing genetic expression data, which often exceeds the processing capacity of traditional computational architectures due to its large scale (A. A. Serrano-Rubio et al. 2021). In the area of artificial neural networks, some studies have introduced training algorithms and hardware implementations for innovative architectures, such as Spiking Neural Networks for image classification and Echo State Networks for time series prediction (L. G. de la Fraga et al. 2023).

## 3. Department of Genetic Engineering

In the Department of Genetic Engineering, artificial intelligence is used across biological, genomic, and epidemiological fields to promote biodiversity conservation, public health, and biotechnology (Aviña-Padilla et al. 2025). Deep learning models and supervised classifiers are used for de novo taxonomic assignment, genome assembly improvement, and predicting antibiotic resistance genes (ARGs) from metagenomic data—effectively tackling important public health issues in Mexico.

AI is also applied to omics and functional genomics by using mathematical descriptors and embeddings based on biological models to analyze unannotated sequences in non-model genomes of medical interest. The AI framework also extends to epidemiological modeling, utilizing complex mobility networks to study disease spread and resilience in urban areas (Flores-Garrido et al. 2024, Castelán Sánchez et al. 2023).

## 4. Other Departments of Cinvestav

In the Biochemical and Instrumental Analysis Laboratory within the Department of Advanced Genomics, machine learning techniques are employed to analyze mass spectrometry data. Additionally, software tools using the Julia programming language have been developed, focusing on high performance computing for effective mass spectrometry data processing (I. Rosas-Román et al. 2024).

In the Department of Educational Research, the impact of AI tutoring systems on traditional education has been studied. The objective is to examine concerns such as skill loss, educational inequality, and academic honesty while exploring ways to balance technology with the core mission of fostering critical thinking and benefiting society (A.

Maldonado-Maldonado 2025).

To conclude, Cinvestav's AI research within its graduate programs has significantly contributed to training scientists and technologists for Mexico and beyond. Through the creativity and dedication of our graduate students, AI is being applied to solve pressing problems, while at the same time expanding the frontiers of knowledge. By supporting them, we are not only preparing the next generation of experts — we are empowering pioneers who will shape the future of science and technology in our country and around the world.

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# From Policing to Purpose: Supporting Graduate Students as Knowledge Producers of AI and Emerging Technologies

**Mary Farmer-Kaiser**

**Dean of the Graduate School and Professor of History, University of Louisiana at Lafayette (USA)**

In the Spring of 2024, the Graduate School at the University of Louisiana at Lafayette hosted a series of graduate program leadership meetings on harnessing AI for advancement in graduate education. It was the first campus-wide conversation and, for many graduate programs we learned, the first consideration of the topic. Like others, our university had, until then, largely centered AI discussions at the undergraduate level and engaged it through a lens policing its use. EAB was but one entity of many around that time to conclude that, "to the extent that AI has been a hot topic on college campuses, it has mostly been due to concerns over academic integrity."[1]

As I listened to our grad education leaders during those April 2024 meetings, I saw this firsthand. Nearly all shared that AI guidance did not exist in their graduate programs. When asked to respond in real time to the question "What's happening in your department?" all but one respondent selected, by a difference of one, either "individual faculty are developing policies that vary by class/level" or "nothing is happening yet." Only one graduate coordinator reported that formal guidance had been added to their graduate student handbook—and they were the lone respondent to also indicate that the program was actively sharing guidance from disciplinary professional organizations, journals, or federal funding agencies.

Responses to our open-ended questions revealed a community not yet thinking about AI in our space, and certainly not from a vantage point of seeing graduate students as AI creators, innovators, or knowledge producers. "No specific discussions yet," one graduate coordinator wrote plainly. "Another similarly admitted, "To be honest, I don't think we, as a department, have discussed this topic in terms of graduate education. I will raise it with the faculty." Yet another confirmed, "We are not having conversations about this yet in our department." A fragmented approach to AI conversations was evident: "Most things [are] left up to individual instructors and lab PIs."

These conversations centered graduate students solely as consumers of AI, and concerns about ethics and misuse dominated. "Academic integrity, not creating original work," was the greatest area of concern shared by one leader. "Allowable vs not allowable use," wrote another. Yet another put it more frankly, "Lots of faculty in my

[1] "AI for Graduate and Adult Education Enrollment Leaders: Immediate and Future Implications of the New Artificial Intelligence," EAB Insight Paper, 2023. Available online at https://pages.eab.com/AI-grad-enrollment-report.html.

department are super freaked out about misuse and 'catching' folks misusing. I think it would be ideal if were all thinking of creative ways to use AI." At last, some glimmers—some conversations eased into considerations of AI as a tool for research innovation, improved writing, and enhancement of grad students' ability to analyze data. Alas, in April 2024 and the year that followed, these glimmers were outliers in an overall culture of caution. The development of guidance, vision, and an infrastructure has been slow.

Still, there have been some key developments. Encouraged by the provost, our Deans Council adopted a general set of guidelines on generative AI use in the classroom in 2024-2025.[1] Providing a framework for faculty, this guidance encourages syllabus statements that make clear for students the standards of AI use in each course and asks faculty to articulate both responsible usage and penalties. It has been our online learning team, however, that has led campus conversations that have gained the most momentum. Their Faculty Learning Communities, Innovative Teaching and Learning Community, Tech Talks, and AI Tools & Use webpage have provided the space for faculty to grow, to explore, and to lead AI initiatives. In partnership with the University of Louisiana System, they offered an Empowering AI Literacy Microcredential, with versions for both students and faculty, pilot program in Summer 2024 that has now been rolled out to all nine UL System institutions.[2] Yet, these promising moves did not engage graduate education as a distinct space for AI advancement. When graduate education has been considered, it has most often been in the context of preparing future faculty, not present-tense innovation.

We've begun to change that. In Spring 2025, the Graduate School introduced guidelines for generative AI use in graduate research.[3] In doing so, we benefitted much from learning with and from colleagues at institutions including Brown, Georgia Tech, NC State, Texas State, Alabama, UAB, UNC Chapel Hill, New Hampshire, Toronto, and Virginia Tech. The work being done at these institutions is shaping what AI means for graduate education—and has helped us position and understand graduate students not solely as consumers of AI (and AI guidance) but also as AI creators, innovators, and knowledge producers.

We have taken care to identify and highlight AI innovators for our graduate program leadership to both inspire supporters and influence skeptics. From our first conversations in Spring 2024, the Schmidt Sciences IA initiatives have been especially useful for framing a broader conversation. Its overarching goals—to AI to accelerate ground-breaking research, elevate high-risk but underfunded work, and work across traditional academic boundaries—do much to move discussion from concerns about academic integrity to opportunities for innovation and advancement. Its work—from the 2022 postdoctoral fellowship program that funded 160 fellows across nine universities around the world focused across five focus areas (AI & Advanced Computing, Astrophysics & Space, Bioscience, Climate, and Science Systems) to its AI2050 initiative

[1] UL Lafayette Guidance on Generative Artificial Intelligence in the Classroom is available online at https://academicaffairs.louisiana.edu/about-us/policies-procedures-guidelines-and-forms/guidelines/guidance-generative-artificial.

[2] Learn more about the work of our distance learning team as well as the UL System micro credential at https://louisiana.edu/distancelearning/technology/ai-tools-use and https://www.ulsystem.edu/content-experts/.

[3] UL Lafayette Graduate School Guidelines for the Use of Generative Artificial Intelligence in Graduate Education Research is available online at https://louisiana.edu/graduateschool/graduate-school-generative-artificial-intelligence-gai-guidelines.

and its Humanities and AI Virtual Institute—show well how AI is being engaged across all disciplines. And its working list of "Hard Problems in AI" and priority research areas inspires research topics for graduate faculty and graduate students alike.[1]

And yet we remain committed to thinking about concern and risk. We continue to operate within an overall culture of caution when it comes to AI use at UL Lafayette. We are also thinking deeply about how best to shape graduate spaces increasingly influenced by AI use—with graduate students operating both as consumers and as creators, innovators, and knowledge producers. Just this month, a Harvard Business Review article, "The Hidden Penalty of Using AI at Work," warns that even effective use of AI in an AI-friendly space carries risk. The particular research it highlights reveals that female engineers and engineers over 40 were consistently rated lower when they disclosed using AI—even when their work was higher quality and even when its use was heavily invested in and encouraged by the leadership team. "The penalty hits hardest where competence is already questioned," they argue, concluding: "Our research shows that women using AI face nearly twice the reputation damage as men. Older workers in youth-dominated fields face similar bias. The irony is that those who most need AI's equalizing power can least afford to use it." To overcome what they identify as the competence penalty paradox, the authors argue that organizations must (1) identify penalty hotspots, (2) convert influential skeptics, and (3) redesign evaluation systems that may trigger penalties for AI use and disclosure for some but not all.[2]

These recommendations for organizations resonate for me as I think about our AI journey at UL Lafayette. We have worked to identify where fear of AI is strongest. We engage skeptics who shape departmental and program culture. And, while we've been thinking hard about how our assessment frameworks must shift to accommodate AI usage, disclosure, and ethical application, we need to think more about how both shadow AI usage and potential competence penalties can be mitigated in these frameworks.

The call to redesign evaluation systems is particularly complex and important for graduate education. As scholars, we are trained to cite, build upon, and disclose use of others' ideas and work. We think not only about results but also about methodology and process. Transparency is foundational to responsible scholarship. Yet, if AI disclosure can carry penalties for some—feeding suspicion rather than evidence of mastery of a strategic tool—what does that mean for our evaluation systems? The tension between scholarly norms and concerns around disclosure cannot be ignored. If we want graduate students to develop, use, and advance AI and other emerging technologies ethically and responsibly, we must create spaces that recognize its role as a scholarly skill to be mastered rather than a shortcut to be hidden, or worse, penalized.

The need to pivot our conversations about AI continue, and they will continue to do so. Discussions about AI on our campuses have been dominated too long by how we police

[1] See, in general, https://www.schmidtsciences.org/about/, and, for example, "Schmidt Futures Announces UC San Diego as Partner of $148M Global Initiative to Accelerate AI Use in Postdoctoral Research," https://qi.ucsd.edu/schmidt-futures-announces-uc-san-diego-as-partner-of-148m-global-initiative-to-accelerate-ai-use-in-postdoctoral-research/; "Pioneering New AI-Humanities Initiative Will Decode Human Culture and History," 8 April 2025, https://www.schmidtsciences.org/pioneering-new-ai-humanities-initiative-will-decode-human-culture-and-history/; AI2050 Initiative "Working List of Hard Problems in AI" and AI Security Institute Priority Research Areas, at https://ai2050.schmidtsciences.org/hard-problems/ and https://alignmentproject.aisi.gov.uk/research-agenda.

[2] Oguz A. Acar, Phyliss Jia Gai, Yanping Tu and Jiayi Hou, "Research: The Hidden Penalty of Using AI at Work," Harvard Business Review, 1 August 2025. See also, Phyliss Jia Gai, Jiayi Hou, and Yanping Tu, "Competence Penalty is a Barrier to the Adoption of New Technology," SSRN, 11 May 2025, available online at SSRN: https://ssrn.com/abstract=5255039 or http://dx.doi.org/10.2139/ssrn.5255039.

it, operating with a laser focus on academic integrity concerns and “catching” misuse rather than how we enable its ethical and responsible use. Graduate students are scholars and knowledge producers, and it is our responsibility to equip them with the fluency, ethical grounding, and foundation to grow and to lead in this space. After all, the question is not whether graduate students will use AI, but whether we as institutions and faculty will empower them to use it well, to use it openly, and to use it to create the knowledge and advance the work that we have long relied upon graduate education to do.

# Panel IV: Promoting and Supporting the Ethical Use of AI in Graduate Education—Creating University Policies

# Promoting and Supporting the Ethical Use of AI in Graduate Education—A Case from Concordia University

**Effrosyni Diamantoudi (assisted by OpenAI)**

**Dean of Graduate Studies and Interim Provost, Concordia University (Canada)**

Artificial intelligence (AI)—and especially generative AI—has quickly become part of graduate study and research. When approached intentionally, AI can expand access, accelerate inquiry, and sharpen critical thinking; when left ungoverned, it can erode academic integrity, entrench bias, and obscure accountability. In what follows I outline practical ways graduate programs can promote and support ethical AI use, and how Concordia University has operationalized some of these ideas through policy guidance, course design, and graduate-facing supports.

Ethical AI practice begins with clarity: What is allowed? What must be disclosed? What remains prohibited? Programs should provide (a) syllabus-ready language that calibrates expectations; (b) learner- and instructor-facing tools for transparency; and (c) policies that tie AI use to existing integrity frameworks.

Concordia's Centre for Teaching and Learning (CTL) offers a model. Its Guidelines for teaching with generative AI give instructors concrete, cut-and-paste statements for permissible, limited, or prohibited use—explicitly linking misuse to Concordia's Academic Code of Conduct. The guidelines also discourage reliance on "AI detectors," noting their unreliability, and instead promote transparent course policies that empower ethical use. This is a balanced stance: it recognizes benefits, guards against harm, and emphasizes agency and disclosure over surveillance.

To make disclosure routine, Concordia supplies two short templates: an Educator Transparency Statement (how the instructor will use GenAI in curriculum, assessment, and feedback) and a Learner Transparency Statement (how the student plans to use GenAI, with mid-term and end-of-term reflections on risks and limitations). These instruments convert vague "be ethical" advice into an auditable practice of planning, self-assessment, and reflection—habits central to graduate-level professionalism.

Graduate students need more than tool tips; they need conceptual fluency: where models get their power, how bias and privacy risks arise, and how to evaluate outputs. Effective programs weave this into research methods, writing workshops, and disciplinary seminars rather than treating AI as an add-on.

Assessment drives behavior. If an assignment can be completed by a generic chatbot with minimal thinking, the problem is pedagogical as much as ethical. Programs should therefore:

- Make process visible (e.g., require research logs, prompts and iterations, model

cards for tools used, or oral defenses).

- Reward the use of AI as a thinking partner when it is declared, critiqued, and improved upon, rather than hidden.
- Emphasize authentic tasks: data critique in the student's domain, design rationales, replication with new constraints, and cross-modal deliverables that foreground judgment.

Ethical AI use improves when institutions support the ecosystem: teaching assistants who grade fairly, librarians who advise on data practices, and faculty who can articulate nuanced policies. Concordia's open Teaching and learning guide for teaching assistants includes a chapter on academic integrity and GenAI: it explains potential misuse, clarifies roles, and points TAs to CTL guidance—ensuring the people closest to assessment have a common vocabulary and playbook.

Such capacity-building is not only internal. By engaging local and global communities—through continuing education, public talks, and collaborations—universities can keep curricula current and democratize AI literacy.

Instructors and learners at Concordia can adopt paired transparency statements at course launch, commit to mid-semester updates, and reflect at term's end. This normalizes disclosure, gives instructors visibility into student practice, and encourages metacognition about when, how, and whether to use AI. It's a simple, scalable mechanism with high ethical yield.

Ctl-led sessions like *From disruption to design* and *Clarifying the code* provide instructors with strategies for assignment design and concrete syllabus language. When instructors are supported to write context-specific policies and redesign assessments, students receive consistent, ethical signals across courses.

By situating GenAI within the Academic Code of Conduct and advising against unreliable detection tools, Concordia models a values-first approach: define misconduct clearly, teach disclosure, and evaluate work, not probability scores.

Document and share exemplars (e.g., thesis chapters with disclosed AI assistance and critical evaluation of outputs), building a repository that normalizes ethical practice across disciplines.

Graduate education's mission is to develop independent scholars and practitioners who can reason with powerful tools—responsibly. The Concordia examples show that ethical AI use is not a single policy or a ban; it is a coherent system of expectations (codes and guidelines), practices (transparency statements, process-rich assessment), instruction (responsible-AI courses and workshops), and support (TA guides and faculty development). Institutions that emulate this ecosystem will not merely "manage" AI; they will cultivate graduates who can harness it critically, creatively, and ethically.

# Emerging Technologies in Mexican Postgraduate Institutions: Ethical Use and Generational Challenges

**Eduardo Gómez-Ramírez**

**Vice-rector of Research, La Salle University Mexico. Consejo Mexicano de Estudios de Posgrado (COMEPO), Mexican Council of Postgraduate Studies**

COMEPO is a national organization that brings together approximately 50 higher education institutions in Mexico, including 36 public and 14 private universities.

Through a brief survey, we identified the most common applications of emerging technologies in Mexican postgraduate institutions. The results are as follows:

- **Artificial Intelligence (AI)**
  - *Applications:* Personalized learning pathways and tutoring systems; AI-assisted research (e.g., data analysis, literature review, grammar enhancement); thesis development; and industrial problem-solving.
- **Learning Analytics**
  - *Applications:* Monitoring student progress and engagement; informing curriculum design and academic advising.
- **Extended and Haptic Reality**
  - *Applications:* Simulations for complex scientific or medical training; virtual labs and immersive learning environments; integration with AI and robotics to address industrial challenges; gamified learning and virtual assistant integration.
- **Virtual Assistants**
  - *Applications:* Academic support (e.g., answering FAQs, scheduling); research assistance; administrative automation; integration into mobile learning platforms and mixed reality environments.
- **Gamification**
  - *Applications:* Enhancing motivation and engagement through game-like elements; structuring research tasks and collaborative projects; enriching the student experience when combined with mobile learning and extended reality.

- **Robotics**
  - *Applications:* Engineering and automation research; interdisciplinary projects combining AI, robotics, and Industry 4.0; industrial problem-solving; student skill development.
- **3D Printing**
  - *Applications:* Rapid prototyping in design, engineering, and biomedical fields.
- **Blockchain**
  - *Applications:* Secure credentialing and academic records; ensuring research data integrity; protecting intellectual property.

In addition, and following our recent 38 National Congress of Postgraduate Studies, held on September 28th-30th, COMEPO members identified key principles for the ethical use of AI in education:

- **Transparency**
  - Clearly inform students and educators when and how AI is used. Explain its purpose, basic functioning, and limitations.
- **Privacy and Data Protection**
  - Comply with data protection laws (e.g., GDPR, Mexico's Federal Law on Protection of Personal Data). Avoid unnecessary data collection and ensure secure storage.
- **Fairness and Non-Discrimination**
  - Prevent algorithmic bias based on gender, ethnicity, or socioeconomic status. Promote equitable access to AI technologies.
- **Accountability**
  - Define responsibility for decisions made by AI systems. Ensure human oversight in critical decisions (e.g., automated grading).
- **Informed Consent**
  - Obtain explicit user consent before implementing AI tools. Allow students to opt out of certain technologies.
- **Educational Quality**
  - Use AI to enhance—not replace—the pedagogical role of educators. Support personalized learning, streamline administration, and enrich academic experiences. Regularly assess AI's impact on learning outcomes and skill development.
- **Digital and Ethical Literacy**
  - Educate students and teachers on responsible AI use. Integrate technology ethics into curricula.

- **Continuous Monitoring and Evaluation**
  - Audit AI tools for ethical performance. Adapt policies as technologies and educational contexts evolve.

An additional key consideration, is the range of generational challenges associated with the adoption of AI in educational contexts:

- **Digital Skills Gap**
  - Older educators may lack familiarity with AI tools, while younger students are more tech-savvy but may lack ethical awareness.
- **Differing Views on the Role of Educators**
  - Older generations view teachers as primary knowledge sources; younger generations expect autonomy and digital access.
- **Resistance to Change**
  - Some educators fear dehumanization or loss of control. Younger generations adopt new technologies more readily.
- **Ethics and Responsibility**
  - Older generations often have structured ethical frameworks. Younger generations may lack training in technology ethics.
- **Expectations for Personalization**
  - Today's students expect personalized learning experiences, while previous generations are accustomed to standardized models.
- **Teacher Training**
  - There is an urgent need for intergenerational training on AI integration. Training should address technical, pedagogical, and ethical dimensions.
- **Institutional Governance**
  - Policies must reflect generational differences and promote inclusive AI adoption. Institutions should foster dialogue and co-develop strategies.

## Final Reflections

The true challenge may not lie in AI or emerging technologies themselves. Rather, it is our collective responsibility to ensure that education, science, and innovation contribute to building a more just and inclusive society.

The best way to address these challenges is by fostering a more humanistic society—one that embraces systemic, interdisciplinary, and transdisciplinary approaches to problem-solving.

# Ethical AI in Graduate Education: Policies, Practices, and Culture

**Mary Newsome**

**Assistant Dean, Graduate Studies, Qatar University (Qatar)**

Artificial intelligence (AI) is integral to every aspect of graduate education. Increasingly, AI is influencing research, teaching and learning, admissions as well as administration. These advances offer efficiency, personalization, and insight but also raise ethical concerns. In research, AI accelerates data analysis, literature synthesis, and experimental design, yet unacknowledged reliance on AI tools risks plagiarism and compromised research quality. Responsible use requires transparency about AI involvement, adherence to institutional policies, and the development of AI literacy to ensure that students remain active evaluators of outputs rather than passive consumers. Similarly, teaching and learning benefits from adaptive platforms that personalize content and provide real-time feedback. However, faculty use of AI in teaching should complement, not replace, human judgment. Likewise, assessment is relying increasingly on automated grading and plagiarism detection. AI-driven grading systems can enhance scalability and consistency but must be validated for fairness and alignment with pedagogical goals. Regarding admissions processess and administrative tasks such as scheduling and student support, the integration of AI and predictive analytics can streamline application review, identify promising candidates more efficiently, and unify and monitor student support services. However, such systems risk embedding algorithmic bias and reducing transparency in decision-making. Ensuring fairness and protecting privacy demand careful policy design and oversight. Responsible adoption requires leveraging AI's potential while mitigating risks through ethical safeguards, human oversight, and continuous evaluation. Ethical use requires clear disclosure of AI's role in the process, regular audits to detect and correct bias, and the preservation of human oversight. Globally, frameworks such as UNESCO's Recommendation on the Ethics of Artificial Intelligence (2021) and the OECD's Principles on AI (2019) emphasize transparency, fairness, accountability, and human agency. Academic consortia are also developing discipline-specific guidance, reinforcing the principle that AI in graduate education should augment rather than replace human decision-making.

## Developing Ethical AI Policies

Effective ethical AI policies must address both immediate concerns and the need for adaptability as technologies evolve. Furthermore, effective ethical AI policies are transparent, have accountability, and are inclusive. Transparency requires that institutions publish accessible guidelines explaining how AI is used in admissions, grading, and other academic processes, ensuring that this information is understandable to all stakeholders. Accountability is maintained by preserving human oversight in AI-assisted decisions and establishing clear procedures for appeals. Inclusivity ensures that AI systems reflect the diverse needs of the university community and do not marginalize underrepresented groups. Effective policy balances innovation with academic integrity by setting clear expectations for the attribution of AI

contributions, developing acceptable-use policies for both students and faculty, and reinforcing integrity through training and dialogue. Likewise, protecting intellectual property and privacy requires defining ownership of AI-assisted work, securing research materials against unauthorized use, and complying with applicable data protection regulations. Institutions such as the University of Sydney, with its Generative AI in Teaching and Learning guidelines, and Stanford University, with its AI Principles, provide examples of effective practice. These initiatives demonstrate the value of iterative policy development, pilot testing before full-scale implementation, and ongoing monitoring to address emerging challenges. Nonetheless, these examples have also revealed shortcomings. To illustrate, University of Syndey's "Generative AI in Teaching and Learning" guidelines, which ban the use of AI in in-person exams but encourage it in open assessments, have led to student resistance and academic integrity concerns that the normalization of AI use undermines academic standards, erodes critical thinking, and weakens learning rigor. Such guidelines can also lead to inconsistency and confusion across departments making it difficult for students to discern what is permissible. Similarly, Standford's "AI Principles" have been criticized for their inability to translate into tangible, enforceable standards. What we do know, however, is that policy creation benefits from the collaboration of faculty, administration, IT specialists, legal experts, and students, to ensure that ethical frameworks are both comprehensive and widely supported.

Beyond developing ethical AI policy, the success of such policies depends on how effectively they are communicated and embraced by the academic community. Faculty training programs embedded in professional development cycles, for example, can equip instructors with a working knowledge of institutional policies, international ethical standards, and practical strategies for classroom integration. Likewise, graduate student orientations and workshops can be utilized to provide early exposure to acceptable AI use, attribution norms, and privacy protections. And, online resource hubs can serve as central repositories of policies, examples, and tutorials, offering easy access to updated materials. Furthermore, universities and academic organizations can develop and/or support AI literacy campaigns—featuring events, guest lectures, and informational media—to normalize ethical conversations across the campus and within the academic community. In short, sustainable adoption requires collaboration rather than enforcement. Faculty, students, and administrators who are involved in shaping policy are more likely to take ownership of it. Institutions should foster this engagement through open forums, policy review committees, and recognition programs that reward exemplary ethical AI practices. Such approaches frame AI ethics not merely as a compliance requirement but as a shared commitment to academic integrity, fairness, and innovation.

What is addressed here is only a first step toward ensuring responsible AI use. For lasting impact, ethical principles must be embedded into the culture of the institution. A mindset of responsible innovation should be nurtured, framing ethics as a driver of trustworthy and impactful research and teaching. Although not a small task, this can be reinforced through mentorship, interdisciplinary collaboration, and the recognition of research (from faculty and graduate students) that demonstrates both technical innovation and ethical rigor. Additionally, ethics of AI use can be woven into research methods courses, discipline-specific seminars, and interdisciplinary workshops, using real-world case studies to connect abstract principles with practical decision-making among other approaches. Ultimately, a strong ethical AI culture requires mechanisms for continuous learning and improvement. By fostering a proactive, inclusive, and adaptable approach, graduate education can ensure that AI serves as a tool for equitable, transparent, and academically rigorous advancement.

# Ethical Use of Generative AI in Masters' and Doctoral Thesis: Université Laval's Guidelines

**Annie Pilote**

**Dean, Faculty of Graduate and Postdoctoral Studies, Université Laval (Canada)**

The publication of Université Laval's *Guiding Principles on Generative Artificial Intelligence in Teaching and Learning* in 2024 raised questions about its implications for research training and thesis writing. In response, the Faculty of Graduate and Postdoctoral Studies initiated a reflection on the ethical and pedagogical challenges posed by generative artificial intelligence (GenAI) in graduate education. In the fall of 2024, a working group including professors from various faculties and research cultures, as well as representatives from different university bodies was formed. The group was tasked with examining the impact of GenAI on research training quality and skill acquisition, and proposing measures to ensure transparency in its use. Their work began with a thorough review of policies and guidelines from universities in the province of Québec, from Canadian research-intensive universities (U15) and a selection of leading universities around the world, and several academic journals and publishers. The committee's proposal is grounded in principles of responsible research conduct, the framework policy on perseverance and success, and recommendations from the Commission on Ethics in Science and Technology. The result is institutional guidelines presented in a *Toolkit for Responsible Use of Generative AI in Theses and Dissertations*, developed through an iterative and collaborative process, enriched by feedback from various university bodies.

A brief overview of guidelines and practices in Canadian universities will be presented, before introducing Université Laval's guidelines. Nine U15 universities have published guidelines for research master's and doctoral students. These typically address:

- Definition of generative AI
- Importance of maintaining high-level research skills
- Demonstrating originality
- Risks of plagiarism and transparency requirements
- Responsibility for generated content
- Ethical issues related to intellectual property, confidentiality, and inclusion

University of British Columbia (UBC) adds a focus on energy sobriety, promoting responsible AI use to reduce ecological impact. Notable practices include:

- Declaration in the thesis preface, with optional mention in methodology, acknowledgments, or appendix (Alberta)

- Discussion of AI in the “Expectations Checklist” completed within the first two months (Calgary)
- A list of discussion questions for students and supervisors (McMaster)
- Information on ethical, scientific, and academic risks (Montréal, McGill)
- Conditions for AI use: supervisor approval, citation, descriptive statement, and ethics committee authorization (Queens)
- Declaration examples and discussion guides (UBC)

Different means of communication of these principles and guidelines are used by institutions: FAQs (Alberta, Toronto, UBC, Western), downloadable documents (Calgary, McGill, Montréal, Queens), discussion lists (McMaster, UBC).

In Québec, most universities are still developing their frameworks for GenAI in graduate research. Of the 14 institutions listed[1], only a few have published general statements or guiding principles. Université Laval stands out as the first to offer a comprehensive toolkit with implementation planned for January 2026.

Université Laval opts for a concise, accessible, and comprehensive toolkit, with practical examples and pedagogical tools. A dedicated web page consolidates all resources. Our approach is based on a set of guidelines, structured around four objectives: 1) empower students throughout their training; 2) enable supervisors to guide skill acquisition; 3) encourage critical reflection on GenAI’s impact; and 4) provide evaluation committees with clear information to assess originality. Each guideline is supported by practical measures and educational resources.

### 1. Preserve Research Skill Development

GenAI should complement—not replace—core research skills. Students must develop critical thinking, analytical ability, intellectual autonomy, and writing style. Use must be validated by the research supervisor and integrated into a reflective process.

### 2.Verify and Validate Content

AI-generated content may contain errors, biases, or unverifiable information. Students must validate data using reliable sources, correct inaccuracies, and ensure scientific rigor.

### 3. Adhere to Academic Integrity Standards

Use of GenAI must be transparent and honest. Generated content should be quoted, properly referenced, and clearly identified. A logbook is recommended to document usage and support accountability.

### 4. Respect Copyright

Students must avoid submitting protected content to unsecured tools and cite original sources. Respecting copyright is essential to avoid disciplinary infractions like plagiarism.

### 5. Protect Confidentiality and Privacy

Sensitive data must not be submitted to unsecured tools. Université Laval

[1] Concordia, ENAP, ÉTS, HEC, INRS, Polytechnique, Sherbrooke, TÉLUQ, UQAC, UQAM, UQAR, UQAT, UQO, UQTR

recommends platforms that meet confidentiality standards to protect personal data and comply with legal obligations.

**6. Consider Environmental Impact**

GenAI use should be thoughtful and minimal. Students are encouraged to avoid unnecessary queries and favor energy-efficient alternatives, aligning with sustainable development goals.

These guidelines are applied throughout the student's research journey:

- **Start of Research:** 1) a starter kit presenting guidelines and 2) suggested practices and clarification in the collaboration plan regarding appropriate GenAI use, aligned with supervisor preferences, disciplinary norms, or program standards.
- **During Research:** recommendation to keep a logbook for continuous tracking and reflection on skill development. A logbook model is provided to help students keep track of the GenAI usage and offer a space for critical thinking as they go through different steps in the research.
- **End of Research:** mandatory declaration in the preface, completed by appropriate explanations in the thesis body.

The recommendation to use a logbook—or journal de bord—is meant to be more than keeping a tracking sheet. It's a structured reflection tool designed to accompany students throughout their research journey. It helps them document their interactions with generative AI, reflect critically on its contributions, and assess its risks and limitations. We encourage students to use the logbook regularly. It's a personal tool—not shared with supervisors and not used for evaluation. But it can play a vital role in fostering transparency, integrity, and ethical awareness.

The logbook prompts students to record:

- Which GenAI tools they used
- How they used them, in detail
- Why they chose to use them
- What benefits they gained
- What risks they identified
- And what steps they took to mitigate those risks

It also invites broader reflection—on dilemmas, disagreements, and the evolving role of AI in their discipline. Students can use it to support the mandatory declaration in their thesis preface, and to prepare for their oral defense. It's especially helpful in articulating the precautions taken to:

- Verify AI-generated data
- Respect confidentiality and copyright
- Preserve their own research skills
- And maintain transparency throughout

We see this logbook as a cornerstone of ethical practice—a way to build critical thinking, strengthen research ethics, and support informed decision-making.

The mandatory declaration of AI use in all theses and dissertations (whether it has been used or not) will reduce ambiguity for evaluation committee members who are unsure if GenAI has been used and, if so, if it is allowed by the institution. Our framework helps resolve this. It makes clear that any declared use of GenAI has been approved by the supervisor. Evaluators will be asked to assess the thesis with the declared use in mind. Their focus should be on whether the student has clearly demonstrated authorship—and whether they have shown mastery of the research process described. At the doctoral level, we will place greater emphasis on the oral defense. This is where the student must demonstrate, in real time, that they are the rightful author of their work and that they fully understand and can explain their process. At the master's level, where we do not have a formal defense, we will be encouraging programs to include some form of oral presentation before the thesis is submitted for evaluation. This could help ensure that students have the opportunity to demonstrate their ownership and understanding of their work.

In conclusion, Université Laval offers a structured and responsible framework for GenAI use in theses. Grounded in ethics and broad consultation, the toolkit supports students and supervisors in a transparent, rigorous, and sustainable approach. As a complement to these guidelines, we have also reviewed instructions for thesis evaluation. Committee members are now informed that the use of GenAI is not authorized during evaluations to protect student intellectual property and ensure assessment integrity.

This work is only a start and many open questions remain. What happens when things don't go as planned? If a student doesn't follow the agreement with their supervisor, or fails to adequately declare their use of GenAI—how should we respond? In collaborative research practices, how do we protect everyone involved? And how do we find the right balance between educating and punishing for transgressions? Also, how can universities support everyone in acquiring the skills needed to play their respective roles? We know that comfort and ease with these technologies varies widely—among both faculty and students. So how do we ensure that no one is left behind, and that everyone feels equipped to engage responsibly? These are not easy questions, but they are essential ones.

To help guide these conversations, we are developing a series of case studies that will be used in workshops and training sessions for faculty and for graduate students. These case studies will present realistic scenarios and ethical dilemmas and serve as a starting point for collective discussion. Our community need guidance and space to ask questions, to share uncertainties, and to find clarity together. Our goal is to strike the right balance—between structure and flexibility, between accountability and support. And we know that the answers will not come from a single policy or document. They will come from ongoing dialogue, shared reflection, and a commitment to learning together. As GenAI tools evolve rapidly, the Faculty of Graduate and Postdoctoral Studies will continue reflecting on the challenges posed by GenAI in higher education and research. Guidelines will be updated based on technological advances, studies on GenAI's impact on graduate skill development, legal developments in copyright, and other relevant factors.

# Panel V: Promoting and Supporting the Ethical Use of AI in Graduate Education—Ethics Training and Responsible Conduct of Research

# Situating the Ethics of AI in Graduate Education

**Joshua Barker**

**Vice-Provost of Graduate Research and Education and Dean, School of Graduate Studies, University of Toronto (Canada)**

At the University of Toronto (UofT), I expect Fall 2025 will be the moment when the tsunami of generative AI will wash across the landscape of graduate education. With its 21,000 graduate students, the swelling tide has been increasingly apparent in recent months: a wave of academic integrity cases involving the use of ChatGPT in coursework; an MSc student who uploaded human subject data to a public AI platform; questions from a supervisor who was surprised to learn her advisee had used AI to prepare the research plan that formed the basis of her annual PhD committee meeting; the introduction of AI summaries in program internal quality assurance processes; the appearance of AI agents in online meetings with student groups; and my own unsettled feeling when I sense work submitted to me might have been done using undisclosed AI. None of this was unexpected. Indeed, we as an institution and as a sector have spent the last three years preparing for this moment: working groups, task forces, reports, recommendations. But as this inundation begins in earnest, it is a good time to ask: are the tools and approaches we've developed so far up to the task we are now facing? While more needs to be done, my view is that they are a good start. In what follows I explain why this is so with a focus specifically on three documents I was involved in developing that—taken together—can be read as an implied answer to the question of how best to support the ethical use of AI in graduate education.

The first document was created in 2023 (updated in 2024 and 2025) and is titled "Guidance on the Appropriate Use of Generative Artificial Intelligence in Graduate Theses". In many ways, this document still serves as our ethical "north star" as issues arise in areas well beyond the domain of the thesis proper, and it has even helped guide research leaders beyond the university. What are the qualities that make it so helpful? (1) it is anchored in core values: academic quality, research integrity, transparency, accountability; (2) it situates these values with respect to existing laws and academic policies/norms related to citation, transparency about methodology and knowledge provenance, authorship attribution, disclosure, research ethics, privacy, security, and intellectual property; (3) it situates the ethical decision-maker in specific relationships: student and supervisor, student and thesis committee, students and their graduate units, student authors and their readerships, graduate departments and their disciplinary communities; (4) it recognizes disciplinary diversity; (5) it educates about potential sources of ethical, academic, and legal risk; and (6) it is conceived as a "living document," recognizing this is a rapidly evolving landscape and the context will change. In its fundamentals, this document puts the onus on the student for disclosure about AI use in their graduate work and reaffirms that the student is ultimately accountable for what is in their thesis and publications. It charges supervisors, committees, and

graduate departments with establishing clear expectations for students about AI use in graduate research and writing that are consistent with evolving disciplinary norms.

The second document was created in 2024 by an Ontario Council of Graduate Studies working group and is titled “Artificial Intelligence: Guidance for Graduate Research.” This document covers some of the same ground as the one above, but it differs somewhat in purpose and tone: it is designed to educate and facilitate, rather than to set out an institutional position, and the tone is a bit more welcoming of AI’s potential value in graduate research. Most helpfully, the document provides a guide with five “conversation starters” for supervisors and students about the use of AI. These prompts outline a practical framework for ensuring supervisors and students are making themselves aware of the shifting AI landscape, and aligning their understandings and expectations about where AI use is appropriate or not appropriate. In this respect, it deepens and scaffolds the point made in the first document that decisions about the ethical use of AI need to be centred in the supervisor-student relationship, and mutual transparency and disclosure are critical to this task. Notably, the document also takes an unequivocal stand on two programmatic aspects of graduate education important to Ontario quality assurance: degree expectations should not change due to AI; but program learning outcomes should change.

The third document was created in 2025 by a UofT task force on AI, entitled “Toward an AI Ready University.” The task force was composed of multiple working groups in the areas of teaching and learning, research, student services, HR and administration, operations and planning, and technology, data governance, digital trust. It effectively coordinated, aggregated and extended more localized considerations of AI integration that were already cropping up around the university. In this document the university itself is understood as an ethical actor confronting the challenge of striking the right balance between embracing opportunity and mitigating risk, with the goal of maintaining both excellence and trust. To find this balance, the document points to key values in our foundational policies and mandates: we exist to serve the public good, we protect academic freedom, we value collegial governance and scholarly peer review, we educate. The report then surveys its own landscape and recommends steps the university can take in various domains to integrate AI use into its work while continuing to adhere to these values.

Although these three documents were created by different groups with different audiences in mind, it’s evident that their approaches to decision-making about incorporating AI in the university broadly, and graduate research in particular are very similar. Whether the decision-maker they have in mind is the student, the supervisor, the graduate program leader, or the university leader, the advice is largely the same: be guided by foundational principles, recognize every context may be unique, understand your own changing landscape, set shared expectations early, disclose what you are doing, and be prepared to be held accountable for your decisions.

In other words, the implied message in all three documents is that to promote and support the ethical use of AI in graduate research and education at a time when it is flooding through our system, we cannot rely only on rules; we must identify the settings where any decisions about how AI is used will bring the greatest consequences and encourage our community members to establish their own explicit consensus about what is good or bad, safe or risky, acceptable or unacceptable, desirable or undesirable. The preconditions for this are awareness, disclosure and dialogue. The approach is thus something akin to “ordinary” or “situational” ethics.[1]

[1] Lambek, Michael. Ordinary Ethics: Anthropology, Language, and Action. Fordham University Press, 2022. P.1.

It is difficult to see how it could be any other way, at least in the short term while the implications of fast-moving AI are only just taking shape. However, we must be aware that by devolving many of the decisions about incorporating AI use in graduate education to supervising committees and departments/disciplines, we do risk creating a very uneven landscape where students—especially those who work across disciplinary boundaries— might become confused about expectations. We are already hearing from students who are not declaring AI use to their supervisors because they aren't sure how it will be viewed.

We cannot leave students in a situation where a lack of clarity makes them feel fearful of disclosure and possibly ethically compromised. We need to build mutual trust. To do so, it is not enough to release a memo, report or guideline and hope that people pay attention. We must recognize this as a watershed moment and—just as we did during the recent pandemic—make our community understand they need to rise to the moment, and give them the tools to do so. The three tools above are a good start. However, ensuring they are put to use will be critical.

# Promoting and Supporting the Ethical Use of AI in Graduate Education—A Case Study from the American University of Beirut

**Jocelyn DeJong**

**Director of the Graduate Council and Associate Provost, American University of Beirut (Lebanon)**

## Background on AUB

The American University of Beirut (AUB) dates from its founding in 1866 in Lebanon, with a mission to serve the peoples of the Middle East. It is the premier liberal arts institution in the Middle East and North Africa region, and became co-educational in 1922. It now includes seven faculties or schools, all of which provide graduate education, namely: Agricultural and Food Sciences, Arts and Sciences, Engineering and Architecture (Maroun Semaan Faculty), Health Sciences, Medicine, Nursing (Rafic Hariri School), and Business (Suliman S. Olayan School). A teaching-centered research university, AUB has around 800 instructional faculty and a student body of around 9,000 students in total. While based in Lebanon and its degrees are approved by the Ministry of Education and Higher Education in Lebanon, its degrees are also registered in the New York State Department of Education in the US. AUB was granted institutional accreditation in June 2004 by the Commission on Higher Education of the Middle States Association of Colleges and Schools in the United States and this was reaffirmed in 2016. Most individual programs/faculties also have accreditation from relevant US accreditation bodies in their field. In September 2023, the university opened its first twin campus, AUB-Mediterraneo at Pafos in Cyprus to its first students, including in 2 graduate programs.

AUB now offers 64 residential master's programs and 12 doctoral programs, enrolling as of fall 2025 approximately 2000 graduate students. The development of doctoral programs was delayed by the Lebanese civil war, from 1975 – 1990. Its first PhD program was established in 2008 and the number of doctoral programs increased to 12 in 2023, with more in the planning and approval stages. As of fall 2025, AUB had about 150 doctoral students enrolled. The Graduate Council at AUB is the main entity on campus overseeing the quality of graduate recruitment and education and it also serves as a catalyst for promoting positive graduate student experience and academic success.

## AI at AUB

The last decade in Lebanon have been years of overlapping crises, or 'polycrisis'. Thus the focus of the university has been on ensuring academic continuity, and it has been relatively late in initiating activities related to AI. In 2011, after war broke out in neighboring Syria, the country saw a massive influx of Syrian refugee, and now has one

of the highest refugee to population ratios in the world. A revolution took place in October 2019, and economic and political crisis which was associated with the collapse of the local currency. The COVID-19 pandemic that started in 2020 was further compounded by the Beirut blast in August 2020, one of the largest non-military explosions in history. After the Gaza war started in October 2023, the following year saw cross-border Israel-Lebanon hostilities and for two months in fall 2024, full-scale war.

As another contextual backgound, the Lebanese Ministry of Education and Higher Education does not provide regulatory oversight concerning AI, although has recently started discussing including AI in program learning outcomes.

Like many universities worldwide, the American University of Beirut (AUB) community has had extensive discussions about the use of AI in its educational and research activities as an institution – including both its promise and perils. Foremost among the decisions it has made is to establish a School of Computing and Data Sciences. This will be the first new school or faculty created at the university in 70 years, and builds on extensive strengths in this area across Engineering, Computer Sciences, Business, Public Health among other disciplines. Related to graduate education, the new School is proposing to launch as soon as possible a new master's and a new doctoral program in Computing and Data Sciences. Students in this new school will be required to develop substantive linkages with other faculties and the focus is on harnessing computing and data sciences including AI in solving societal problems.

In terms of teaching, most of the focus on ethics and AI at UG level and the Philosophy department, in collaboration with Computer Sciences, has developed a minor in ethics and AI. In addition, AUB offers online courses and programs on AI that are not currently recognized by the Ministry of Education and Higher Education in Lebanon as it does not recognize online degrees.

Already a number of graduate courses specifically address AI and require that graduate students engage with AI. Generally, however, there has been belated attention at the graduate level in terms of teaching and research but this academic year will see considerable emphasis on this.

Institutionally, AUB is also exploring how it can harness AI in improving its services and programs for the improved functioning of the university. This has proceeded less extensively than the development of related academic programs and initiatives.

There have been many positive initiatives at AUB related to AI that are worth outlining:

1) After discussion in the Office of the Provost, and benchmarking of other institutions, it was decided not to have a standard university- wide policy across the university but rather to encourage the exchange of resources and capacity-strengthening initiatives so that faculty and students are more attuned to AI, the opportunities it presents as well as the ethical issues involved with it.

2) The Office of the Provost also hosts informational sessions for faculty on various topics, and decided to host one of these so-called sessions of the "U Forum series" on successful examples of integrating AI into education. At this session, faculty members who ask students intentionally to use AI in their coursework gave examples of their approaches and the type of learning achieved.

3) Some faculties have provided for their faculty members potential syllabus statements on the use AI – with diverse alternatives depending on the faculty members' choice and the nature of the course.

4) The orientation for new graduate students joining fall 2025 includes discussion on the ethical use of AI.

5) Issues of ethical use of AI in research and in peer review of research are also being taken up by a newly established Office of Research and other venues and new guidelines have been developed that are under discussion on AI and research.

6) The university also made an outside-sourced online course on the use of AI in education available to faculty members and many have benefitted from it and revised their teaching approach as a result.

7) The Office of Provost has made efforts to share resources from other universities and initiatives with faculty members. It plans to do more in this area during AY 2025-26 since the war in Lebanon in the fall of 2024 and US government cuts of scholarship programs since January 2025 have distracted attention from the issue.

The as yet 'unfinished business' to take care of in the coming period includes revision of the student code of conduct to take account of the unethical issue of AI in terms of disciplinary processes. While we recognize that all students (and most faculty) are likely to use AI, we feel we need to define a 'red line' about what is and is not acceptable.

# Promoting and Supporting the Ethical Use of AI in Graduate Education

**Peter Hanenberg**

**Vice-Rector for Research and Doctoral Education, Universidade Católica Portuguesa - Steering Committee of the Council for Doctoral Education of the European University Association (EUA-CDE) (Portugal)**

The following short reflections reproduce the results of a working group at the Católica University, Portugal (UCP) which has defined a white paper on ethical use of AI at the University.[1] Because the social importance and power of AI has grown rapidly and its effects have widely been noted, UCP believes it is essential that institutions articulate and reaffirm a well-founded ethical framework and a set of shared values that can guide the morally responsible and beneficial use and application of AI. Such a framework represents the legacy of a solid and renewed commitment to scientific integrity.

To delineate a proper use of AI it seems outmost important to understand the role and scope which AI can assume in education. AI tools are considered as instruments at the service of people, as means that help each person to develop their potential, optimize their time, the quality of their work, and safeguard their rights, autonomy, and human dignity. In this sense, UCP welcomes the introduction of AI and its beneficial effects on its users. Such an understanding of AI as an instrument at the service of people reaffirms the already established rules and orientations towards scientific integrity: AI is a new and powerful tool, but in no way it may override or suspend the norms and principles of human dignity and scientific integrity.

Therefore, UCP has committed itself to promoting an ecosystem of trust and well-being in relation to AI, as well as stimulating individual and collective awareness of its good use and application in the academic and scientific community. It is necessary to create a culture of scientific and academic integrity, safety and confidence around the use and application of AI. Hence, UCP recommends maintaining and reinforcing good integrity practices in its academic and scientific community, reinforced by a view to the principles that cut across documents on ethics and AI:

- Transparency about the use of AI, depending on the type of use. In graduate education, teachers, students and researchers have an obligation to be transparent about their use of generative AI in the production of academic materials, for example in materials used for assessment and academic progression: coursework, essays, presentations, degree theses, dissertations, book chapters, academic research papers, etc.
- Verification of the results generated, paying attention to the correct sources. Teachers, students and researchers are responsible for the materials they produce using AI tools and therefore have an obligation to verify that the information and

[1] The document is co-authored by: António Andrade, Célia Manaia, Henrique Sousa Antunes, Isabel Vasconcelos, Mara de Sousa Freitas, Peter Hanenberg and William Hasselberger.

sources used in their materials are reliable and truthful. AI systems can produce biased, false or even toxic or slanderous content.

- Respect for copyrighted material, personal data and confidential information (including unprotected intellectual property) by not exporting them to platforms managed by external entities (servers and cloud services not licensed by the UCP).
- Responsibility for the correct use of AI (mainly as a tool and for support) and for the results to be published or presented as a graduate student.

To guarantee a transversal presence of the principles, UCP has adopted the following practices:

- valuing and advocating the centrality of the human being in all academic and scientific policies and activities;
- raising awareness among the academic community of integrity issues, including greater visibility of the instruments already in place at the university (Statutes, Code, Ombudsmen, Whistleblowing Channel);
- stimulating a continuous reflection on ways of conveying the value of intellectual honesty and academic integrity to the academic community;
- continuously promoting debate and a critical view of the evolution of AI and its implications, depending on the context, involving the entire academic community;
- training students and lecturers in the appropriate use of AI, ethics and integrity, including new forms of teaching and learning, towards responsible, critical and intelligent use by students and lecturers, giving pointers for its use as a way of stimulating more dynamic and personalized forms of teaching and learning.

There are four essential concepts which guide the ethical use of AI in graduate education at UCP:

**1. Authorship:** Graduate students (as all researchers) must be the authors of their work. A text that is entirely produced by the AI through a simple series of instructions cannot be considered one's own work and does not meet the basic standards of academic and scientific integrity. Legitimate authorship of a work is considered to be attributed only when (1) the student or researcher has contributed substantially to the content and form of the work ("created" it using available tools, possibly including AI), (2) the student or researcher understands and can communicate the significance of the work prepared, (3) the student or researcher can list, describe and communicate the steps and their involvement in preparing and writing the work.

**2. Responsibility:** Mechanical instruments, such as AI tools, have no personal responsibility and therefore cannot be cited (or used) directly as intellectual sources. Their use can only be considered as a tool, not as a source, like statistical packages, search engines, translators, proofreaders and other aids.

**3. Accountability:** The work created is thus a reflection of the author's own intellect and voice, whether or not they use generative AI tools in the research and writing process. Consequently, students and researchers who use generative AI in their work must be transparent about where, how and why they have used AI in it. If they fail to do so, it suggests an excessive and inappropriate use of AI, incompatible with academic and scientific integrity - and potentially a form of plagiarism using AI.

**4. Explainability:** Graduate students as any authors must be able to explain the process

that led to each part and each elaboration of the text presented. Graduate students should, in an appendix to the written work, explain the process that gave rise to the elements or reasoning induced by the AI. If it is not possible to include this explanation in the text itself, an oral discussion of the text is recommended as a complementary element of assessment.

The principles and concepts described in this summary, have been discussed in several fora before establishing a *Charter of Principles on the Use of AI* which is now available for all members of the academic community. The process of its implementation is ongoing, keeping path with the fast technological development as a continuous and necessarily unfinished process of learning.

# The Ethical Use of AI in Graduate Education

**Alexander Hasgall**

**Senior Advisor, European Alliance for Social Sciences and the Humanities (EASSH) (Switzerland)**

The use of AI is becoming an integral part in graduate education. Doctoral candidates and institutions can rely on a wide range of available tools, increasingly integrated into already used programmes like writing software or browsers. AI promises greater efficiency and security, and access to a nearly unlimited amount of knowledge.

In order to ensure its ethical use, graduate education increasingly involves AI ethics related guidelines, trainings, and reflection opportunities to ensure its responsible integration within the work of a graduate institution.

The ethical use of AI in research includes two dimensions. First, it involves the regulation of fundamental elements of scientific work—particularly the prohibition of fabrication, falsification, and plagiarism. Second, it involves a broader ethical reflection to ensure that research does not cause harm to research subjects, the researchers themselves, or society.

## Fostering Research Integrity

In terms of research integrity, the European Code of Conduct for Research Integrity identifies four key principles:

- Reliability in ensuring the quality of research, reflected in its design, methodology, analysis, and use of resources.
- Honesty in developing, undertaking, reviewing, reporting, and communicating research in a transparent, fair, and unbiased way.
- Respect for colleagues, research participants, research subjects, society, ecosystems, cultural heritage, and the environment.
- Accountability for the research process from idea to publication, including its management, supervision, mentoring, and broader societal impacts.

Many of these principles apply to the use of AI. For instance, undeclared copy-pasting of a literature review is dishonest, whether it is done by a human or by AI. However, AI also introduces new and specific ethical questions.

To illustrate this, consider the following example: Is it acceptable to use AI to revise the language or grammar of a dissertation or one of its part? Is there a difference between using ChatGPT and asking a colleague with strong language skills? What about discussing an idea with a colleague versus with an AI trained on millions of texts and

datasets? Doesn't AI immediately gain more authority, transforming AI in a gatekeeper, steering research in specific directions?

## AI ethics skills training

Other questions arise directly in the context of research. When, recently, researchers at a Swiss university used an undeclared chatbot to steer discussions in a Reddit forum (where participants believed they were discussing directly with a human), it led to a major debate on the ethical boundaries of research practices. While regulations can cover clear research ethics and integrity violations, to respond to new questions – like to use of bots – researcher need the skills and understanding of the ethical challenges they entail.

In consequence, training in AI ethics is becoming an integral part of doctoral education. Topics such as algorithmic fairness, transparency, data protection, military and repressive uses of AI, or emotional manipulation by bots all have profound ethical implications and are becoming part of AI skills training.

To support this, many universities have started integrating relevant modules into their doctoral programs or offering dedicated courses on AI ethics. These may include workshops, peer-to-peer formats, or courses on specific topics such as algorithmic bias, AI in medicine or Algorithm and justice – just to name a few. Information and examples of good/bad practices are integrated into guidelines.

Trainings in AI ethics are much more effective and meaningful when doctoral candidates understand the interconnection between technology, culture, and society. Interdisciplinary understanding often needs more than a single course; interdisciplinarity as an integral part of each doctoral and master's program can be expected to become more important in the future, as it is already today.

## The Changing Role of Supervisors

Supervisors play a critical role in supporting doctoral and master's candidates in this complex environment and in ensuring ethics and integrity in this context. The most effective method of evaluating the originality of research questions and arguments—and detecting potential plagiarism—is through personal interaction with the researcher. Only through dialogue can supervisors understand thought processes and uncover ethical dilemmas that software tools cannot detect.

However, many supervisors are like everybody else, unfamiliar with or even overwhelmed by the pace at which new technologies develop and their potential. Training programs on the ethical use of AI should also address specifically supervisors—even those with decades of experience. Such training should address not only the practical uses of AI, but also the reliability and limitations of AI detection tools. They can also support early-stage researchers to use AI positively and even complement the work of a supervisor.

In practice, this process is often hindered by the high publication pressure prevalent in academia. This pressure can negatively impact the quality of supervision and increase the risk of unethical behaviour. There is the potential for an AI-driven publication “explosion" and this raises new questions about research integrity. Transnational initiatives like CoARA and DORA can play here an important vital role by encouraging institutions to value the investment in ethical research and enable researcher the time and space needed for dialogue and reflection.

## The ethical use of AI within institutions

The issue of responsible AI use concerns not only candidates, but also institutions and their practices. The integration of AI into administrative processes—such as applicant selection, career tracking, or behavioural monitoring— raise hope for more efficiency, even the hope to be able to automatically detect potential of a person or research project. But besides questions about their reliability, they introduce serious ethical challenges.

For example, if algorithms are used to determine who may be accepted into a doctoral program or what the quality of a certain text could be, it can go against human judgment and academic values. It also sets a bad precedent for the early-stage researchers themselves, who may wonder why their institution trust an AI more than their own researchers.

This also includes other emerging tools—such as mental health risk prediction based on behavioral data or automated proctoring systems— which may promise benefits but also pose significant ethical risks. Such tools must carefully assess, and clear guidelines can also set clear limits to their use.

Considering the complexity of these issues, it is unlikely that each university can solve these issues on its own. This makes the exchange of practices or broader guidelines even more important. In Europe, the European Living Guidelines for the Responsible Use of AI in Research play this role. They provide suggestions for researchers, institutions, and funders about how to use AI responsibly, without being prescriptive. But this is only the beginning: As the whole research sector like the rest of society is struggling about how to best deal with AI, graduate schools can become an important voice. They bring a unique experience with working together with the new generation of researchers and can share important insights about how to tackle ethical challenges that are arising.

# Ethical Use of AI in Graduate Admissions and Scholarship: Developments at the University of Michigan

**Michael J. Solomon**

**Dean of the Rackham Graduate School, University of Michigan**

**Overview.** The pace of adoption of generative AI (GenAI) for teaching, research, and administration in graduate education has been rapid but uneven. Drivers for adoption include the opportunity of GenAI to accelerate discovery, training, and education, as well as the imperative that career pathways will increasingly demand that graduates demonstrate GenAI fluency. Adoption of GenAI is however complicated by the variable positionality of faculty, students, and staff to these tools. The variability includes differences in skill, interest, and access. Ethical dimensions of the use of GenAI in graduate education include the implications of this variability for equity, as well as the interaction of GenAI use with the efficacy of learning and with research integrity. Here we consider how a graduate school at a research-intensive university (the University of Michigan) has sought to: (1) address the ethical dimensions of AI in graduate admissions by applying the concept of fair use in policy development; (2) discover the disciplinary variability in factors influencing the use of AI in research, so as to catalyze the broad uptake of the fair use of these tools to advance graduate student training and scholarship.

**Institutional Context.** The University of Michigan is a research-intensive institution that enrolls approximately 19,000 graduate and professional students. Slightly more than 9,000 of these students are enrolled in degree programs in the graduate school. These degree programs tend to be research focused; students are either pursuing a Ph.D. or are enrolled in master's degrees that represent pathways to the Ph.D. and research careers in a variety of sectors. The University of Michigan has recently invested heavily in GenAI tools that faculty, students, and staff can use to advance research, teaching, learning, and administration. The tools include access to several large language models, the ability to create tools built from specific datasets, and the option for users to create their own API gateways. This set of capabilities, for example, allow a faculty member to create tools that students can use which are built around the specific content of a course or of a research project. Efforts to support the ethical use of AI tools at the University of Michigan therefore occur in a context in which central resources have been aggressively deployed to support their early adoption by faculty, students, and staff. Such availability of institutional tools has also addressed early concerns about data privacy, especially with respect to FERPA.

**Ethical Use of AI in Graduate Admissions.**[1] During the 2024 academic year, the faculty governance of the graduate school adopted a policy regarding the fair use of GenAI by

[1] Ethriam Brammer, Donna Huprich, and Laura Schram led this policy development, and the Rackham Executive Board approved it. The policy and its implementation is described on Rackham's website.

students in applications to the graduate school. Ethical considerations drove formulation of policy built around the concept of fair use, rather than of prohibition. More specifically, AI tools may be used by applicants in several ways, some of which track closely how an applicant might receive assistance from advisors, friends, or family. That is, applicants to graduate school receive varying amounts of support from such people in applying for admission. The levels of support received, which can range from advice about how to prepare admissions essays to proofreading, can materially affect the application's presentation in ways that more accurately convey the qualifications of candidates to admissions committees. It is reasonable that the support that applicants receive from a GenAI tool ought to be fair use if it mimics the level of support that is already allowable from people. In fact, the availability of these GenAI tools can contribute to leveling the playing field in graduate admissions, since different applicants have unequal access to support from advisors, friends, and family when developing their applications. The policy the graduate school adopted lays out this conception of fair use and provides examples to help applicants understand what fair use is and is not. These examples were generated in consultation with faculty who make admissions decisions. (The examples incidentally apply equally well to fair use from people as from GenAI.) The policy has been well received by graduate programs and their faculty; however, an ongoing challenge with its implementation is how to identify whether GenAI has been unfairly used. Given that GenAI detection tools themselves appear flawed, we currently have no equitable means to judge fair use. We instead rely on an attestation by the applicant.

**Ethical Use of AI in Graduate Student Training and Scholarship.** In the current academic year, we are applying the concept of fair use to the application of GenAI in the dissertation scholarship of doctoral students. This work is motivated by the observation of several trends on campus: (1) faculty adoption of GenAI in their daily work, including in research and scholarship, varies across and within disciplines; (2) Ph.D. students are frequently using GenAI for research activities—uses include coding, notetaking, summarizing, and editing; (3) there are few forums available to learn, exchange promising practices, and reach consensus about fair use of GenAI in graduate student training and scholarship. At the same time, GenAI use and regulation has surfaced as a general issue in research and scholarship, particularly in peer review. Therefore, we are seeking to convene groups of students and faculty to identify emerging trends in GenAI use in dissertation research and scholarship. These groups, which can have either within-discipline or cross-discipline membership, can serve two functions. First, they can generate greater understanding of opportunities to use GenAI in training and scholarship. Second, the discussions of these groups can be distilled to create a general conception of the fair use of GenAI in graduate training and scholarship, therefore serving as a foundation for future policy development.

# Panel VI: Deploying AI and Emerging Technologies to Help Solve Global Grand Challenges and Wicked Problems

# Reclaiming Critical Thinking in the Age of AI: A Case Study from Université Polytechnique Hauts-de-France

**Jonathan Brindle and Céline Faure**

**Director of International Relations, Université Polytechnique Hauts-de-France (France)**

Université Polytechnique Hauts-de-France (UPHF) has launched a set of coordinated initiatives to foster responsible engagement with generative artificial intelligence. These include:
(a) a transversal hybrid course entitled *L'Intelligence artificielle et moi* ("AI and Me"), designed to promote critical AI literacy across disciplines,
(b) the adoption of a university-wide *Charte de l'intelligence artificielle* (AI Charter), supported by pedagogical guidelines to clarify expectations for AI use in learning and teaching, and
(c) a self-paced online course, *Responsible AI*, intended to expand access and autonomy.

These actions are part of the eFor-IA project, co-funded by the Conseil Régional des Hauts-de-France. This paper outlines the pedagogical foundations of these initiatives, as well as their implementation challenges and future directions.

## A transversal course: *L'Intelligence artificielle et moi*

Between January and May 2025, UPHF launched a 36-hour hybrid course, *AI and Me*, enrolling 70 students from a wide range of disciplines. The course did not aim to teach AI tools in a purely instrumental way. Instead, it invited students to interrogate them, exploring their logic, limitations, and the broader societal transformations they imply.

The course was co-taught by fourteen instructors from diverse backgrounds, including faculty, lecturers, support staff, and administrators. This diversity was intentional. It reflected a core pedagogical conviction: understanding AI requires not just technical skill, but collective, cross-disciplinary insight. The curriculum focused on three priorities: critical inquiry, ethical awareness, and dialogue across academic domains.

Assessment was aligned with these goals. Students were not evaluated solely on technical proficiency, but on their ability to detect bias, contextualise AI-generated outputs, and justify their decisions. One of the guiding principles of the course is that generative AI should not simply mirror what students already know, it should help them ask sharper questions.

Post-course surveys suggest the model resonated. Of the 70 students enrolled, 60 completed the course and earned an Open Badge credential. Feedback from 30 respondents yielded an overall satisfaction score of 75 percent across five criteria. Students most frequently cited gains in tool discovery and confidence, while feedback

on ethical reflection and career relevance was more mixed. This suggests a need for longer engagement and a redesign of some activities.

The course will run again from October to December 2025 with 100 students and an expanded teaching team that includes a library specialist. This relaunch marks more than a scale-up, it reflects UPHF's belief that AI literacy must be woven into the university experience. Notably, *AI and Me* has become the most requested transversal course among all "Polytechnique modules" offered at UPHF, a strong sign of its perceived value.

## Institutional anchoring: the AI Charter and pedagogical guidelines

This course is not an isolated initiative. It is part of a broader institutional effort anchored by UPHF's AI Charter. The Charter sets out four guiding principles for AI use in academic contexts: responsibility, critical thinking, transparency, and legal compliance. It asserts that AI should enhance, not replace, human reasoning, and that students and staff alike share responsibility for its use.

To support the implementation of the Charter, the university is developing *balises pédagogiques* (pedagogical guidelines). These are designed to help instructors and students clarify expectations around AI use, including how to cite AI tools, how to distinguish different levels of authorised use in coursework, and how to reflect critically on the role of AI in academic production. They will include practical tools such as syllabus templates and assessment rubrics.

UPHF's approach is inspired by the model developed at Université de Sherbrooke in Canada, which combines structure with flexibility. Like Sherbrooke, UPHF seeks to preserve instructor autonomy while ensuring institutional clarity. The pedagogical guidelines are scheduled for publication in October 2025 and will play a key role in aligning individual teaching practices with shared values and policies.

## Autonomous learning: *Responsible AI*, a self-paced online course

Launched in September 2025, *Responsible AI* is a short, self-paced online course aimed at reaching a wider student audience. The target is 2,000 learners, or roughly 15 percent of UPHF's student body. The course offers approximately three hours of content, divided into short, focused modules. Each sequence includes self-assessment quizzes, hands-on activities, and reflective prompts.

The goal is not simply to train students on tools, but to cultivate habits of judgment, independence, and critical awareness. The course encourages students to ask: When does it make sense to use AI? What are the risks? How do you write a clear and ethical prompt? Can you trust the output? How does AI use intersect with academic integrity, and with the protection of personal data?

Students who complete the course earn an Open Badge credential in responsible AI use. The course is already being used as a resource in several degree programs. It is also meant to be integrated more broadly into the university's curricula in the coming year.

## A distinctive but evolving approach

While UPHF has drawn on international inspiration, especially from Canada and Northern Europe, its model remains distinctive in the French context. These efforts are not peripheral. They have been backed by university leadership and shaped collaboratively by educators, researchers, and professional staff.

The *AI and Me* course is not simply an elective. It is structurally integrated into the academic fabric. The Charter articulates a clear institutional stance, and the forthcoming guidelines aim to make that stance actionable in everyday practice. The self-paced course expands access and supports autonomous learning.

That said, not everything is finalised. The self-paced course is operational, but the broad rollout is still ahead. The 2,000-student target now seems more realistic for June 2025. Likewise, the pedagogical guidelines are being finalised and will require time for full adoption.

Some adjustments are also needed. Student feedback reflects a recurring challenge. For some, content is too simple, for others, too complex. This tension is expected in cross-disciplinary settings. It calls for a dual strategy: simplified pathways for some, deeper resources for others. Another issue is coherence. With fourteen instructors, certain themes such as data protection and intellectual property tend to resurface. A degree of repetition can be helpful, but when not clearly flagged, it risks becoming redundant.

This brings us to a broader issue, also raised at last year's Global Summit: interdisciplinarity. Without careful coordination, it can recreate the very silos it intends to dismantle. In this sense, *AI and Me* remains a work in progress. But perhaps that is an honest place to be.

## Conclusion

Despite its imperfections, UPHF's approach is deliberate and ambitious. The Charter has been voted, published, and made visible. The course is growing. National interest exists. The next step is to turn recognition into long-term collaboration, both in France and internationally.

We move forward with lucidity. Some promises are still under construction, and we are learning as we go. Student feedback reminds us how hard it is to balance simplicity with depth, and diversity with coherence. Yet, if even the largest corporations admit that AI is evolving faster than anyone can fully master, then a medium-sized French public university must respond with intelligence and agility.

Our Charter, our guidelines, and our courses are not finished answers. They are guideposts, markers of a collective journey still being traced.

# Text-Matching Software and GenAI Detection Tools: How to Use Emerging Technologies to Promote Academic Integrity?

**Catherine E. Déri**

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This presentation examines how text-matching software (TMS) have evolved in higher education, particularly in response to the rise of generative artificial intelligence (GenAI). It situates the discussion in the context of academic integrity, emphasizing the pedagogical opportunities of using TMS as formative rather than punitive tools. The objectives are threefold: (1) trace the evolution of TMS before and after the launch of ChatGPT, (2) present findings from an international research partnership on university plagiarism prevention, and (3) propose ways TMS can be reoriented as tools for plagiarism prevention and self-assessment.

## Context and Purpose

The presentation will start by highlighting the challenges that GenAI poses for educators who must evaluate students' work. While machines can provide data for analysis, the ultimate responsibility for evaluative judgment remains with humans (Bearman & Luckin, 2020). TMS, originally introduced as plagiarism-detection tools, are now diversifying into AI-detection systems, but their reliability remains questionable.

## Evolution of TMS

Initially marketed as plagiarism detectors, TMS such as the software Turnitin and Compilatio identify text similarities between large databases and previously submitted assignments (Bretag, 2016). They consist in a form of artificial intelligence using "algorithms that can recognize […] human languages on the basis of very large text-based datasets" (Okerlund et al., 2022). They also exhibit the same "machine learning" capacity as other GenAI tools by "improving their knowledge or performance with experience" (Flach, 2023, p. 3). In the similarities report, if a student has presented the ideas of another author as their own, without proper attribution, the highlighted passage could represent intentional plagiarism (Jeffrey & Dias, 2019). However, not all students have developed the necessary referencing skills, which could lead them to unintentional plagiarism (Jamieson & Howard, 2019). Therefore, it is important for educators to further investigate the results obtained from TMS, as they only indicate a probability that academic misconduct may have occurred.

## GenAI and TMS

The arrival of ChatGPT in 2022 amplified concerns in breaches of academic integrity across all levels of education (McMurtrie, 2023; Moloney et al., 2023). Unlike traditional plagiarism, the work that is generated by GenAI often lacks identifiable sources and raises new issues of accountability, since machines cannot bear responsibility for authorship (COPE, 2023). Early detection attempts, such as the reprogramming of Turnitin and Compilatio to add AI detection plugins, proved unreliable (Ali, 2023), leading to false accusations and lawsuits between students and their institutions (Merod, 2023; Mollenkamp, 2023). At this stage of the current digital revolution, there is still no tool able to accurately detect text generated by GenAI.

## Findings from an International Study

In the course of our international research partnership on university plagiarism prevention (2021–2028), we used a screencasting methodology (Kawaf, 2019) to record writing tasks completed by 60 undergraduate students and 20 professors coming from 20 universities in Canada, the United States, and Europe. The participants produced a written text of 500-600 words on one of two topics (cellular phones in the classroom or social media in our society), for which they presented favorable and unfavorable arguments drawn from 3 to 5 references. In the instructions provided to the participants, it was stated that they should use the same writing strategies and tools, as if they were normally producing a text for their studies or duties. Based on the analysis of the recorded videos, it was determined that 38 students and 8 professors used GenAI tools to search for information to produce their text or review their draft document. Then, we used seven different AI detection tools, that are currently accessible on the web and free of charge, to analyze the written products (Microsoft Word files). The results varied greatly between the reports produced by each tool, in a sense that some tools would indicate a high percentage of text generated by AI, although the participants had not used GenAI tools to produce their text (the opposite is also true). Moreover, in the cases where we know that participants used GenAI tool to complete the writing task, the percentage of text identified as having been generated by AI varying greatly.

## Educational Uses of TMS

Rather than relying solely on detection and sanction, Davis and Carroll (2009) advocate for TMS to be used as formative tools embedded within academic integrity strategies. In this respect, educators can use reports to provide feedback on referencing, paraphrasing, and over-reliance on sources. Reports can guide one-on-one interventions or group workshops, particularly for students studying in a second language or returning to university after long absences. This formative approach could also be considered with GenAI detection tools, once they become more reliable. Of course, this would depend on the tasks that educators allow students to conduct with the assistance of GenAI. For example, Peters (2023) considers that using GenAI for searching for information, establishing a plan, and reviewing parts of a text do not constitute breaches in academic integrity. As long as students are transparent with their usage of such tools, by declaring what they used and how they used them in their assignments. From the student perspective, accessing their own text similarity reports can help them self-assess and revise their work before final submission. However, this requires training for students to adequately interpret reports and address problems constructively, rather than simply developing strategies to lower similarity percentages.

## Conclusion

The rise of GenAI has redefined the plagiarism landscape, challenging detection-based models. While TMS cannot yet reliably detect AI-generated text, they remain valuable for promoting academic integrity. Research findings show that both professors and students use GenAI tools to produce written documents. To move forward, institutions should reframe plagiarism detection tools, as educational resources rather than policing devices, helping students develop referencing, writing, and ethical decision-making skills.

**Keywords:** Artificial intelligence; Text-matching software; Plagiarism prevention; Academic integrity; Higher Education.

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# Social Innovation: The Use of Emerging Technologies in Solving Problems of Economic Inequality

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In my contribution, I would like to address an important yet often overlooked ethical consideration regarding emerging technologies: reflection on which technologies are used, for what purposes, and the consequences thereof. I will contribute to the discussion on deploying AI and emerging technologies to help solve global grand challenges and wicked problems by sharing insights from my own economic sociology research on one of these grand global challenges: economic inequality. Rising economic inequality poses problems for individuals, families, countries and regions lacking opportunities to live decent lives. It also affects the whole of global society, creating problems of insecurity, social divisions, conflicts and different forms of individual and collective violence. Recent research shows that technological change and the use of AI in the global economy could bring improvements, but there is also plenty of evidence that it could deepen the problem of economic inequality. The global rise of digital platform work has transformed how millions of people earn a living. Commercial platforms based on short-term work arrangements (some of which provide universities with AI tools for teaching and research) have concentrated power and profits in the hands of a small group of platform owners, while many workers face uncertain incomes, algorithmic control and limited bargaining power.

We tend to think of AI as a technical innovation and forget that technology and technological innovation are always socially embedded — embedded in the power relations of society. This is why new technologies are often used primarily in the best interests of those in power, at least initially. Technological innovations are often produced to serve the interests of those in power.

One of the main missions of universities is to serve the general greater good and help create a better society for everyone. This is why it is crucial to consider AI as a social innovation.

Our doctoral candidates and early-career researchers are not only users, but also creators and developers of AI. They will shape the knowledge and solutions of the future. It is essential that young scientists develop a critical technical understanding as well as creativity and ethical reflexivity so that they can imagine new, inclusive ways of using technology that consider its social and environmental impact. Universities have a responsibility to foster these capacities by creating a supportive environment in which doctoral and postdoctoral researchers can explore interdisciplinary methods, question existing models and develop bold alternatives that harness innovation for the benefit of society.

I would like to draw attention to the recently adopted Framework Convention on Artificial

Intelligence. This international agreement has been signed by over 50 countries, including EU member states, and sets out legally binding standards for trustworthy, transparent and accountable artificial intelligence. In an interesting reflection on the relevance of this document for European universities, doctoral researcher Katerina Klimoska emphasised that, by embracing the AI Convention, universities can ensure compliance with emerging legal AI frameworks and strengthen their role as responsible leaders in AI development.

One of the Convention's core principles is ensuring that AI technologies respect human dignity, fundamental rights, and individual freedoms. This principle challenges universities to ensure that their AI research and innovation align with these ethical principles.

Consequently, they must incorporate ethical AI guidelines into their curricula, research methodologies, and AI-related projects to ensure that future AI professionals are trained to consider the societal implications of their work.

I will argue that the choice of topics and methodological designs in the research of all early-career researchers, not just future AI professionals, should accommodate these perspectives.

Klimoska highlighted two more important aspects that are crucial for the ethical use and development of AI: interdisciplinary collaboration and balancing innovation with ethical standards.

Universities will need to foster partnerships between engineering and technology departments and social science and humanities departments. This will be challenging as it will require breaking down traditional academic disciplines and developing new collaborative models. It will also be challenging to balance ambition and the pace at which we push the boundaries of what is possible with ethical considerations.

Returning to the issue of economic inequality, consider how emerging technologies could be used to develop a more equitable platform economy. The extensive research already conducted on the platform economy, which is an increasingly important part of the global economic system, provides insights into potential alternatives, including platform cooperativism, where digital platforms are owned and controlled by the workers themselves.

If artificial intelligence is designed with democratic and social goals in mind, it could transform the platform economy, serving broader societal interests and reducing economic inequalities. Redesigning business models for platforms to incorporate artificial intelligence and digital technologies can promote democratic goals, reduce uncertainty and encourage economic justice based on equality and solidarity. This would entail moving away from exploitative platform models and towards structures that distribute benefits more fairly and encourage democratic participation.

Doctoral candidates should be supported in addressing topics and developing methods of analysing the use of artificial intelligence for fair work. For example, they could develop transparent algorithms, i.e. open-source, understandable AI systems that would enable workers and regulators to understand how jobs are assigned or wages are calculated, thereby limiting discrimination and arbitrary practices.

Universities can foster such perspectives by encouraging young researchers to consider the ethical implications and practical opportunities of innovation. By providing interdisciplinary training and encouraging dialogue with stakeholders from outside academia, academic institutions can educate a new generation of scientists who will be able to analyse and shape the future of work and the economy in ways that promote

democracy and social justice.

Human agency is not proven by how we compare to new technologies, but by the ethical principles we use to control them. While we cannot control all the unintended consequences of scientific and technological development, we can ensure that broad ethical considerations of human wellbeing and social good lead the development of technologies at our universities.

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# Harnessing AI in ODeL to Bridge Educational Inequality: A Case Study of South Africa

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## Introduction

The world is facing a series of interlinked global grand challenges, including climate change, poverty, migration, pandemics, and educational inequality. In South Africa – a country marked by persistent socio-economic disparities and a deeply unequal education system (Sithomola, 2021) – these challenges converge in unique and pressing ways. As Fataar et al. (2023) allude, South Africa today is the most unequal country worldwide, where the wealthiest 10% of South Africans receive 65% of national income and own 90% of national wealth. Therefore, the core challenge for university education is to centre a broader social-structural commitment to social justice. As such, one of the most wicked problems remains access to inclusive and future-ready education of quality, especially for students in rural, marginalised, and underserved communities. Amidst this context, the transformative potential of Artificial Intelligence (AI) and emerging technologies, particularly within Open Distance and eLearning (ODeL) environments is becoming increasingly evident (Tabe, Motala & Chiramba, 2025). Harnessing AI in ODeL thus presents immense potential to enhance access to learning through on-demand tutoring, adaptive content delivery, and multilingual support, particularly for underserved learners in South Africa (Singh, 2023). The subsequent paragraphs present some possibilities and risk involved in harnessing AI in ODeL, and recommendations through a broader reflection.

## Possibilities

The rapid expansion of ODeL in South Africa, driven by the COVID-19 pandemic and the Fourth Industrial Revolution (4IR), has created a transformative shift in higher education. The proposed model provides flexible alternatives to traditional campus-based learning and is especially vital in a geographically and economically diverse country. However, persistent challenges such as digital divides, limited infrastructure, and pedagogical unpreparedness continue to hinder equitable access and quality. In this evolving landscape, AI and emerging technologies such as adaptive learning systems, virtual and augmented reality (VR/AR), and data-informed decision-making tools present powerful opportunities to improve teaching quality, student support, and systemic responsiveness (Saini, 2025).

At institutions like the University of Johannesburg (UJ) and the University of South Africa (UNISA), AI-powered platforms are enhancing student engagement through real-time feedback, learning analytics, and differentiated instruction (Schellnack-Kelly & Modiba, 2024; Shireesha & Jeevan, 2024). For students in rural areas such as Limpopo

or the Eastern Cape, this means gaining access to the same level of high-quality, responsive education as learners in urban centres such as Cape Town or Johannesburg. In addition, AI tools like ChatGPT can personalise learning, support academic writing, and assist lecturers with scalable teaching solutions in resource-constrained environments. These tools, according to Singh (2023), encourage critical thinking and innovative assessment practices to move beyond rote learning. By leveraging such tools, educators can better respond to the individual needs of learners while enhancing efficiency and engagement.

AI also plays a crucial role in curriculum development and academic support. Analytics can identify modules that are not performing or with inaccessible content. It allows educators to redesign instructional approaches in real time (Tabe et al., 2025). This fosters Fraser's concept of participatory parity and ensures equal learning opportunities across socio-economic and geographic divides (Keddie, 2020). Furthermore, automating administrative tasks like grading and plagiarism detection reduces academic staff workloads, allowing greater focus on creative, inquiry-driven pedagogy. When integrated with project-based and inquiry-based strategies, AI enhances students' key competencies aligned with the Sustainable Development Goals and the pursuit of socially responsive education such as critical thinking, creativity, and problem-solving.

## Risk Involved

However, leveraging AI for positive change is not without risk. In the South African context where many students rely on mobile data and shared devices, technological advancement can reinforce rather than reduce existing inequalities. For instance, if adaptive platforms rely heavily on high-speed internet or large screen interfaces, students in under-resourced areas may be unintentionally excluded. Additionally, AI-facilitated plagiarism, over-reliance on automation, digital exclusion, and biased algorithmic output pose risks to academic integrity and equitable access (Singh, 2023).

Similarly, Van Norren (2023) raises critical concerns about data privacy, algorithmic bias, and the potential dehumanisation of learning. These challenges highlight the urgent need for robust ethical frameworks and governance models for the deployment of AI in education. Policies must emphasise data sovereignty, transparency, and inclusion to ensure that technological advancements do not exacerbate existing educational inequalities.

Moreover, the effective use of AI demands an enhanced digital and AI literacy among both students and educators. Many academics still lack the pedagogical and technical training to fully exploit AI tools for transformative teaching and learning. As Singh (2023) notes, bridging educational inequality through AI with ODeL in South African institutions require a balanced approach that combines technological innovation with inclusive, context-responsive pedagogical strategies. The aim should be to prioritise the system through the community.

## Recommendations and Broader Reflections

To truly harness the benefits of AI in education, Continuous Professional Development (CPD) for educators is vital (Tabe, 2024). A coordinated national or international strategy with the focus on digital and AI literacy for academics would significantly improve South Africa's readiness for a digitally mediated future. In addition, collaboration between institutions, government bodies, and tech developers is necessary. Locally developed platforms that are sensitive to the South African context and its multiple cultural and infrastructural realities are more likely to succeed than

imported models. Partnerships with AI start-ups, NGOs, and international donors can accelerate innovation while ensuring relevance and scalability.

Finally, as the South African higher education sector embraces AI and ODeL, there is a need to generate fresh critical questions, as emphasised in Fataar et al. (2023). These include interrogating the enduring colonial, modern, and capitalist imaginary of higher education while also addressing persistent inequality and furthering the ongoing search for social justice.

In conclusion, the deployment of AI and emerging technologies in ODeL has the potential not only to advance teaching and learning but also to address one of the most enduring challenges of education in South Africa. With thoughtful design, ethical implementation, and inclusive strategies, AI can transform higher education into a vehicle for social justice, innovation, and global problem-solving. The time is now to reimagine higher education in South Africa, using AI not as a replacement for educators, but as a tool that enhances human potential and ensures that no learner is left behind.

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# ILaaS: Federated Infrastructure for GenAI

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## Introduction

The integration of Generative Artificial Intelligence (GenAI) into graduate education and research presents both risks and opportunities. Among various emerging technologies, GenAI can help solve complex global grand challenges and wicked problems.

This article does not explain how to use GenAI tools. Instead, it focuses on the foundational infrastructure required to support a robust integration strategy. We will discuss the importance of equal access to GenAI tools, illustrated with specific initiatives in France, using a decentralized and federated approach to support open science, transdisciplinary, and transnational collaborations.

## 1. Ensuring Equal Access to GenAI through Mutualization of Infrastructures

The digital divide can exacerbate existing inequalities in higher education, where students from privileged backgrounds have access to cutting-edge tools while others are left behind. To mitigate this issue, institutions should invest in solutions and infrastructures that provide equitable access to GenAI resources.

This includes not only the hardware (computing power) and software (digital tools) but also the training and support needed to effectively use these tools.

The federation ILaaS (Inference LLM as a Service – iloaas.fr) is a prime example of how institutions can collaborate to address this digital divide. ILaaS is a collaborative effort involving five French higher education institutions: the Universities of Lille, Paris 1 Panthéon-Sorbonne, Reims Champagne-Ardenne, Rennes, and the engineering school CentraleSupélec (Paris-Saclay University). Supported by the Ministry of Higher Education and Research, ILaaS provides a federated infrastructure for AI services, ensuring that all participating institutions benefit from shared resources.

ILaaS uses a decentralized approach, with servers hosted in ministry-labeled regional data centers in Lille, Paris, Reims, and Rennes, connected through an API (“Aristote-dispatcher”) developed by CentraleSupélec. This strategy provides “just enough” technology to serve most use cases, following local-first and privacy-first principles: local requests from University A users are processed by University A servers; if those servers are busy, requests are securely routed to available servers from another university in the federation. No server retains user data after processing.

By mutualizing IT resources in a secure way among higher education and research institutions, ILaaS improves trust and resilience, reduces costs and environmental impact, optimizes energy consumption, and ensures data security and sovereignty. This

approach not only makes AI more accessible but also promotes a culture of sharing and innovation, providing robust, ethical, and sustainable AI services.

## 2. Local Decentralized and Federated GenAI Infrastructure for Open Science

Open science promotes transparency, reproducibility, and collaboration, which are essential for addressing global challenges. Centralized digital monopolies can undermine open science principles, leading to vendor lock-in and volatile costs that compromise institutional strategies.

To mitigate risks associated with GenAI tools, we launched an experimental initiative, RAGaRenn, in March 2024. This project demonstrates the value of a local open-source infrastructure built collaboratively with users. RAGaRenn provides a local web platform for experimenting with open-source GenAI models in a secure, controlled environment. The platform uses open-source components (vLLM, Ollama, Open Web UI) and is hosted in a regional datacenter, ensuring transparency, reproducibility, and trust.

RAGaRenn contributes to the ILaaS federation by sharing its idle computing power with other institutions. Complementary actions include developing a charter for GenAI use, hosting collaborative workshops, and organizing scientific exchange days. These efforts highlight the importance of collective governance for GenAI, where multiple stakeholders within ILaaS participate in decision-making about how GenAI is developed and used.

## 3. Open Strategies to Support Transdisciplinary and Transnational Collaborations

Open-source GenAI gained momentum when Meta released the weights of Llama 2 in July 2023. Since then, companies such as Mistral (France) and DeepSeek (China) have released their own model weights, further promoting open-source GenAI. Notably, in August 2025, OpenAI released gpt-oss, marking a shift from their proprietary model strategy.

Opening model development and usage is crucial for incorporating diverse perspectives and building collective efforts to address global challenges, including the ethical and social implications of AI. Open-source GenAI ensures that development aligns with societal values and norms while building public trust.

Many universities worldwide already embrace decentralized infrastructures, such as eduroam, which provides federated Wi-Fi access: a user from University A can securely access the internet at University B’s campus anywhere in the world. This shared network fosters mobility, communication, and collaboration—key elements for advancing knowledge and innovation.

By adopting open, secure, and transparent AI strategies, institutions can strengthen transdisciplinary and transnational collaborations essential for addressing global challenges. Even partial sharing of strategies and resources between institutions represents a critical step toward responsible GenAI integration.

## Conclusion

The integration of GenAI into graduate education and research presents both opportunities and challenges. By promoting equal access, adopting decentralized and federated infrastructures, and supporting open science, institutions can harness the

potential of GenAI while upholding equity, transparency, and sustainability.

Initiatives such as ILaaS and RAGaRenn demonstrate proof-of-concept strategies for inclusive, collaborative, and ethical AI development. Through participatory governance and shared infrastructure, these initiatives offer a pathway for ensuring that GenAI serves the public good and aligns with societal values.

# Biographical Sketches

## Organizers

**Chevelle Newsome** is the President of the Council of Graduate Schools. Before coming to CGS, she served as the Dean of Graduate Studies at California State, Sacramento. From 2008-2025, Dr. Newsome worked to advance academic excellence and support academic achievement across Sacramento State's more than 50 programs to ensure graduate education is accessible, student-centered and focused on successful outcomes. In Dr. Newsome's role at Sacramento State, she was a Founding Director of the Sacramento State McNair Scholars Program and served as Interim Dean for undergraduate education. She received her doctorate in Communications from the University of Oklahoma.

From 2002 to 2012, **Philippe-Edwin Bélanger** served at Fonds de recherche du Québec - Nature et technologies, overseeing the organization's scholarship programs and France-Québec partnership. He has been appointed director of graduate studies and student success at Institut national de la recherche scientifique (INRS) in 2012. As director, he is responsible for academic program management, administrative support for graduate students and postdoctoral fellows, the registrar's office, student services and financial support. Since September 2023, he is also director of INRS International Office. Trained in political science and public administration, Mr. Bélanger has conducted study on the impact of Québec's family policy.

As a member of Conseil supérieur de l'éducation du Québec's commission on university education and research from 2008 to 2011, he contributed to Pour une vision actualisée des formations aux cycles supérieurs, an advisory opinion presented to Québec's Minister of Higher Education highlighting various concerns, and issues associated with graduate studies.

A very active member of Québec and Canadian professional associations, Philippe-Edwin Bélanger was president of Association des administratrices et des administrateurs de recherche universitaire du Québec (Québec Association of University Research Administrators) in 2013. During that time, he defended the importance of maintaining public investment in university research. Between 2014 and 2018, he has been president of Association des doyens des études supérieures au Québec (Québec Association of Deans of Graduate Studies). As president, he planned, in collaboration with Québec Ministry of Higher Education, Research Funds of Québec, and Francophone Association for the Advancement of Knowledge, the first Québec survey on Ph.D. competencies for the purposes of enhancing programs, improving the professional integration of graduates, and highlighting the contribution of doctoral students to the development of society. He served as Treasurer of the Canadian Association for Graduate Studies (CAGS) from 2017 to 2019, before becoming its President for a two-year term beginning in 2022. In September 2021, he was honored with the prestigious Career Achievement Award from the University of Quebec in recognition of his significant contributions to the advancement of higher education.

## Attendees

Professor **Chris Abbiss** is the Dean of Graduate Research and a Professor of Exercise Physiology and Edith Cowan University (ECU). In his role he is responsible for the planning, governance and delivery of ECUs Higher Degree by Research programs. He is also currently on the executive of the Australian Council of Graduate Research, the peak body supporting graduate research in Australia's higher education sector. From 2018 to 2021 he was Associate Dean of Research in the School of Medical and Health Sciences (ECU). His research focuses on applied human physiology and exercise performance and involves extensive collaboration with numerous state, national and international industry organisations.

**Riadh Abdelfattah** received an Engineering degree from the Telecommunication Engineering School of Tunis, Tunis, Tunisia, in 1995, the Master Degree (DEA) and the Ph.D. degree in electrical engineering from the "Ecole NationaleIngénieurs de Tunis," Tunis, Tunisia, in 1995 and 2000 respectively, and "le Diplôme de l'HabilitationUniversitaire" from SUP'COM from the University of Carthage in Tunisia, Carthage, Tunisia, in 2008.,Since December 15, 2017, he has been the Vice President with the University of Carthage and a Professor with the Higher School of Communications for engineers (SUP'COM), University of Carthage. He also is currently an Associate Researcher with the Department ITI, IMT-Atlantique, Brest, France. Between 2000 and 2002 he was a Postdoctoral Researcher at the EcoleNationale des Télécommunications, Paris, France, consecutively with the Department TSI and then with the Department of COMELEC. His main research interests include interferometric radar imagining, multitemporal and multiscale image analysis, desertification, flooding and soil salinity mapping from remote sensed data, and SAR-nanosatellite development. Dr. Abdelfattah is a member of the Executive Committee of the IEEE Tunisia Section (2013–2015). He is an elected member at the scientific council of the Agence Universitaire de la Francophonie (2016–2018) and a member of the "Commission Régionale des Experts" of AUF. He was an elected member (2011–2017) with the University Council of Carthage. He is co-chairing the M2GARSS (Mediterranean and MENA Geoscience and Remote Sensing Symposium) symposium to be held in Tunis in March 2020. He is a founding member of the Research Unit in Satellite Imagery and its Applications (2004– 2011), and a founding member of the Communication, Signal and Image Laboratory in November 2011 at SUP'COM. He has authored and co-authored more than 70 journal papers, conference papers and book chapters

Professor **Joshua Barker** is Vice-Provost, Graduate Research and Education, and Dean of the School of Graduate Studies at the University of Toronto. His previous roles have included Vice-Dean of Graduate Education & Program Reviews in the Faculty of Arts & Science, Director of the Asian Institute at the Munk School of Global Affairs and Public Policy, and Acting Chair of the Department of Anthropology. Barker's research areas include urban anthropology, science and technology studies, and political anthropology. His research focuses on Indonesia, where he has conducted ethnographic field research on a range of groups, including: the police and civilian guards; information technology engineers and entrepreneurs; and city-level journalists. His most recent book is State of Fear: Policing a Postcolonial City (Duke University Press, 2024).

**Benito Bisso Schmidt** is Dean of the International Relations Office at the Federal University of Rio Grande do Sul (Brazil).

**Jonathan Brindle** is Head of the International Relations Office at the Universite Polytechnique Hauts-de-France in Valenciennes, France. With a background in academia and a passion for leadership, he has worked at various institutions to hone his expertise. Holding positions as a Doctoral Candidate and Postdoctoral Fellow at the Norwegian University of Science and Technology (NTNU), he delved into rigorous research and academic pursuits. Subsequently, his academic journey led me to the University of Ghana's Institute of African Studies, where he served as a Visiting Researcher and Project Leader. This experience allowed him to engage deeply with projects of significant academic and societal impact. As a Research Affiliate at KU Leuven, I furthered my research endeavors, contributing to the vibrant academic community of one of Europe's foremost research universities. Today, as the Head of the International Relations Office at Université Polytechnique Hauts-de-France, he finds purpose in serving as both a leader and a facilitator. His role encompasses supporting the development of international engagement and cooperation, as well as executing strategic plans and associated goals. Efficiency lies at the core of his approach. He establishes robust systems and allocate resources to implement international research and education agendas. Through collaboration with the university community, he cultivates international partnerships, amplifying their impact across the institution. His journey is marked by a dedication to advancing international education and research, leaving a lasting imprint on the academic landscape.

**Hans-Joachim Bungartz** is a full professor of informatics and mathematics at Technical University of Munich (TUM), where he holds the Scientific Computing chair in TUM's Department of Computer Science.

Dr. Bungartz earned degrees in mathematics and informatics and a PhD as well as his habilitation in informatics, all from TUM. After professorships in Augsburg and Stuttgart, he returned to TUM in 2005. From 2013 to 2022, Dr. Bungartz has served as Dean of Informatics, and since 2022, he has been Founding Dean of the new TUM School of Computation, Information, and Technology – a merger of mathematics, informatics, as well as electrical and computer engineering. Furthermore, since 2013, Dr. Bungartz has also served as TUM Graduate Dean, heading TUM Graduate School with responsibility of doctoral education TUM-wide. He is a member of TUM's Extended Board of Management.

Dr. Bungartz has served on many editorial, advisory, and review boards, and he was a member of the scientific directorate of Leibniz Institute for Informatics Schloss Dagstuhl. From 2006 to 2013, he was chairman of the Commission for IT Infrastructure of the German Research Foundation (DFG), and from 2011 to 2020, he was chairman of the board of the German National Research and Educational Network (DFN). From 2016 to 2022, Dr. Bungartz was a member of the steering committee of the Council for Doctoral Education of the European University Association (EUA-CDE). Furthermore, he is a board member of Leibniz Supercomputing Centre (LRZ), one of three German national HPC centers.

His research interests are where Computational Science and Engineering and High-Performance Computing meet.

**Rodrigo T. Calado** is the Provost of Graduate Studies at the University of São Paulo (Brazil).

**William D. Cornwell** is the Provost at the American University in the Emirates (AUE), a dynamic institution located in Dubai, one of the most exciting metropolitan areas in the world. AUE combines the structure and rigor of American higher education with the multicultural environment and exciting opportunities of the United Arab Emirates (UAE). Before joining the AUE, he had taught at the United States Military Academy at West Point, Salem State University, Drew University, and other American universities.

**Michael Cunningham** serves at the Associate Provost for Graduate Studies and Research in Tulane University's Office of Academic Affairs. Dr. Cunningham holds the academic rank of Professor at Tulane University; and he has a joint faculty appointment in the Department of Psychology and the undergraduate program in Africana Studies. He is a developmental psychologist with a program of research that focuses on racial, ethnic, psychosocial, and socioeconomic processes that affect psychological well-being, adjustment to chronic stressful events, and academic achievement among African American adolescents and their families. He uses mixed methods in his research projects that includes the study of gender- specific patterns of resilience and vulnerability in urban African American 70 participants. Dr. Cunningham has received external funding from several sources including the National Science Foundation (NSF), The National Institutes of Health (NIH), The Mellon Foundation, the Louisiana Board of Regents, and The U.S. Department of Education. He has been recognized for his research from the National Research Council. He has received Tulane's highest teaching award and been designated as a Suzanne and Stephen Weiss Presidential Fellow. He completed his doctoral work at Emory University after completing an undergraduate degree at Morehouse College. Dr. Cunningham also completed a postdoctoral fellowship at the University of Pennsylvania. Along with serving as an Associate Provost at Tulane, his current professional service includes serving as Editor-in-chief for Research in Human Development. He has severed on several journal editorial boards such as a Senior Editor for the American Educational Research Journal, the Journal of Negro Education, and Child Development of which he was an Associate Editor from 2007-2019. He currently serves on executive board of the Council of Graduate Schools as Chair-elect and the Educational Testing Service's Graduate Education Advisory Committee as well as previous service on the boards for organizations associated with graduate education (e.g., Association of Graduate Schools – AAU - AGS, Council of Southern Graduate Schools, & ETS' Graduate Record Exam - GRE) and academic disciplinary societies (e.g., the Society for Research in Child Development's (SRCD) and the Society for Research in Adolescence's (SRA)). His mentoring experiences include being a Senior Mentor for the Robert Wood Johnson's New Connections Program and a Faculty Mentor for the American Psychological Associations Minority Fellow Program's Psychology Summer Institute. Most recently, Dr. Cunningham was as a recipient for the Society for Research on Adolescence's Mentoring Award and he was selected as Tulane University's recipient of the Oliver Fund Award for Excellence in Faculty Mentoring in 2021.

**Jocelyn DeJong** is a professor of public health and Associate Provost at the American University of Beirut, Lebanon where she directs the Graduate Council. The Graduate Council is the only entity on campus focused on graduate education and graduate students across the university and works along the continuum from graduate admissions/recruitment through graduate student experience and professional development. She received her Bachelor of Arts in social anthropology from Harvard University, her Master of Philosophy in Development Studies from the University of

Sussex, UK, and her PhD in public health from the London School of Hygiene & Tropical Medicine. She has spent most of her professional life in the Middle East region, having conducted PhD fieldwork in Jordan and worked for the Ford Foundation's regional office in Egypt in the 1990s. Her main research area is reproductive health, with a focus on the Middle East and North Africa region and forcibly displaced populations. She joined the American University of Beirut in 2005, and served as Associate Dean at the Faculty of Health Sciences before transitioning to the Office of Provost in 2021.

**Catherine E. Déri** is an Associate Professor with the Faculty of Education at Université du Québec en Outaouais. Her current research interests focus on academic integrity and plagiarism prevention strategies. Her doctoral dissertation was on virtual communities and social learning within academic writing groups.

**Effrosyni Diamantoudi** is the Interim Provost and Academic Vice President at Concordia University (Canada).

**Dr. Martha Espinosa-Cantellano** is a distinguished scientist at the Center for Research and Advanced Studies (Cinvestav) in Mexico City, where she serves as a researcher in the Department of Infectomics and Molecular Pathogenesis, as well as Planning Secretary and the Head of the Office of International Relations. With a medical degree from UNAM and a doctorate in experimental pathology from Cinvestav, her career spans over three decades of research in parasitology, immunology, and disease modeling. She has held prominent positions, including postdoctoral training at Rockefeller University and visiting research at the University of Tokyo. Her ongoing projects investigate the immunology of multiple sclerosis, viral participation in disease development, and innovative human models for infectious diseases. Dr. Espinosa-Cantellano's contributions include over 40 years of publications, numerous awards such as the Miguel Alemán Award in Health Sciences, and mentoring many graduate students in groundbreaking research. Her work continues to advance understanding of protozoan pathogenesis and host immune responses, fostering international collaborations and innovative scientific progress.

**Mary Farmer-Kaiser** is Professor of History and Dean of the Graduate School at the University of Louisiana at Lafayette. The University, the second-largest in Louisiana, holds the Carnegie Classification of R1: Doctoral Universities – Very High Research Activity and ranks among the top 100 public research universities identified by the National Science Foundation's HERD Survey. As dean, Dr. Farmer-Kaiser provides strategic leadership for graduate education spanning more than 30 departments and seven academic colleges, collaborating across the University to advance excellence and innovation in graduate study. A historian by training, her leadership is grounded in a deep commitment to mentorship, access, and scholarly engagement. Nationally, she serves as chair-elect of the Council of Graduate Schools Board of Directors and has previously served as president of both the Conference of Southern Graduate Schools and the Louisiana Council of Graduate Schools. she is a member of the Southern Regional Education Board's Doctoral Scholars Program Advisory Board. Her leadership is informed by a dedication to strengthening graduate education through engagement across institutional types—large and small, public and private, HBCU, MSI, and PWI alike—and to cultivating welcoming, transformative, interdisciplinary, and forward-

looking academic communities. A first-generation college graduate, Dr. Farmer-Kaiser earned a B.A. in History from Kansas State University, an M.A. in History from Clemson University in South Carolina, and a Ph.D. in History from Bowling Green State University in Ohio.

**Owen Gower** is the Director of the UK Council for Graduate Education, leading its strategy to support an inclusive and world-leading postgraduate sector. He has served on a number of UK national bodies, including: the UKRI Talent and Skills Advisory Group; Student Space which supports student mental health; Generation Delta – a project to increase the number of Black female professors; and the Equity in Doctoral Education through Innovation and Partnership project. He is passionate about postgraduate education, and has given talks on a range of topics, including: the value of doctoral education; leadership and doctoral supervision; and the development of autonomy through doctoral education.

Owen has a background in engaging academic research in public policy. He previously worked as Programme Director for an educational charity, where he sought to build interdisciplinary collaborations on a range of social policy issues, involving national organisations such as the Association of Chief Police Officers, the office of the Chief Medical Officer for England, the Foreign and Commonwealth Office, and the race equality think tank the Runnymede Trust.

A keen advocate of partnerships between academia and the voluntary sector, he has managed a series of fixed term post-doctoral positions in the voluntary sector, developed a doctoral placement scheme, and served as a collaborative supervisor for a PhD studentship. Owen has a PhD in Philosophy, and has taught at Birkbeck, KCL, and Royal Holloway. He is a member of the Philosophy of Education Society of Great Britain and a Fellow of the Royal Society of Arts.

**Eduardo Gómez-Ramírez** studied Mechanical Electrical Engineering, specializing in Digital Electronics, at Universidad La Salle, graduating in the class of 1986-91. He obtained his master's and doctoral degrees in Sciences at CINVESTAV-IPN. He is a member of academic committees for both national and international conferences, as well as internationally recognized journals. He has been the Coordinator of the "Task Force Hybrid Intelligent Systems" of the IEEE worldwide from 2021-2025. At Universidad La Salle Mexico, he has held the following positions: Head of the Engineering and Technology Area of the General Research Coordination from 1998 to 2003, Head of the Master's in Science in Cybernetics from 2006 to 2009, Dean of the Faculty of Engineering from 2009 to 2012, Director of Graduate Studies and Research from 2012 to 2021, and since July 2021, Vice-Rector of Research. Since October 2022, he has been the coordinator of the International Lasallian Research Network (RIILSA). He served as vice president and president of the Mexican Council of Graduate Studies (COMEPO) during the periods 2019-2020 and 2020-2022, respectively. He is currently a consultant and part of the steering committee for the period 2024-2026. His main areas of interest are: Intelligent Computing and Control, Evolutionary Robotics, Game Theory, and Innovation. He has presented more than 150 papers at conferences, published over 35 articles in journals, 7 book chapters, and 4 books. He has also been invited to give more than 100 keynote speeches at national and international levels. His main appointments include being a "Senior Member" of the IEEE, a member of the Committee of the Hispanic American Association of Fuzzy Systems (HAFSA) since 2004, and a founding member of the IEEE Mexico CIS Chapter since 2004.

**Peter Hanenberg** is the Chair of the Steering Committee of the Council for Doctoral Education of the European University Association (EUA-CDE). Peter joined EUA-CDE in 2022. Since 2020, he has been Director of the Católica Doctoral School and Vice-Rector for Research at the Universidade Católica Portuguesa (UCP) in Lisbon, Portugal, where he also coordinates the Doctoral Program in Integral Ecology and the Postdoctoral Program on Integral Human Development. Peter started his academic career at the University of Bamberg in Germany and has been a professor for German and Culture Studies at UCP since 1995. His research focuses on the literary representation of the Idea of Europe and the intersection of Culture Studies and Cognitive Sciences.

**Alexander Hasgall** holds a doctorate in Contemporary History from the University of Zurich, with research on memory politics and transitional justice in Argentina. His academic interests include doctoral education, research ethics, science diplomacy, and the societal role of research. From 2017 to 2023, he served as Head of the Council for Doctoral Education at the European University Association (EUA-CDE), and currently coordinates, among other activities, a COARA Task Force on peer review in the social sciences and humanities. He also serves on advisory boards including the TUM Graduate School and as a Trustee of the UK-based non-profit CRAC/Vitae.

**Robin Hicks** has a Bachelor of Science from Dalhousie University and a PhD from the University of Guelph. Since 1996 he has been Professor in the Chemistry Department at the University of Victoria in British Columbia, Canada. Robin has held several academic leadership appointments at the University of Victoria, including Director of the Centre for Advanced Materials and Related Technolgies; Associate Dean Academic in the Faculty of Science; and Associate Vice-President Academic Programs (Acting). Since 2021 Robin has been the Dean of the Faculty of Graduate Studies, with responsibility for 3,000 graduate students enrolled in 160 different graduate programs at UVic.

Prof. **Aleksandra Kanjuo Mrčela,** professor of Economic Sociology and Sociology of Work, Head of Research Center for Organisations and Human Resources, Faculty of Socoial Sciences, University of Ljubljana (https://www.fdv.uni-lj.si/en/research/research-centres/department-of-sociology/centre-for-organisational-and-human-resources-research) and Chair of Steering Committee of the Council of Doctoral Studies, European University Association (https://eua-cde.org/ ); Editor of Social Politics: International Journal for Studies in Gender, State and Society (https://academic.oup.com/sp) ; Fields of interest: gender, labour markets, platform economy, doctoral education.

**Matthew Linton** is the Senior Manager, Programs and Publications at the Council of Graduate Schools. He is the director of the Strategic Leaders Global Summit on Graduate Education, a global forum convening leaders from top universities to explore urgent challenges in international higher education, and the National Name Exchange, a program that provides information to students interested in graduate school to make applying to and succeeding in graduate school easier. Dr. Linton publishes frequently on topics in graduate education, including Master's Education: A Guide to Creating Sustainable Programs (2025), Microcredentials and the Master's Degree: Understanding the National Landscape to Support Learners and the Workforce (2024), and The Organization and Administration of Graduate Education (2020). His interests include

new models of credentialing, aligning graduate education with workforce priorities, and international graduate education. Before coming to CGS, Dr. Linton worked as a research assistant at Harvard Business School. He received his doctorate in history from Brandeis University.

**Simon Marti** is the Head of the EUA Council for Doctoral Education (EUA-CDE). An integral part of the European University Association, EUA-CDE is now the largest European network in this field, representing more than 280 universities in 39 countries. Simon joined EUA in 2024 after heading SwissCore, the Swiss Contact Office for European Research, Innovation and Education in Brussels. He previously was the Head of the Science Office at the Embassy of Switzerland in the United States and worked as project manager at the Swiss State Secretariat for Education, Research and Innovation in Bern, among others. Simon is a political scientist and holds an MA from the University of Bern. He completed his doctorate in Swiss-EU relations at the University of Basel and conducted postdoctoral research as a visiting scholar at Columbia University in New York.

Prof. **Shireen Motala** is NRF/DHET SARChI Chair: Teaching and Learning (Tier 1) at the University of Johannesburg, serving her second term as Chair. She was first appointed as Chair in September 2020.  She was the Head: Postgraduate School (PGS), University of Johannesburg (UJ) until September 2020.She is a member of the governance council of the Academy of Science in South Africa (ASSAf). Prior to joining UJ in 2010, Prof Motala was the Director of the Education Policy Unit at the University of the Witwatersrand. Prof Motala has held numerous leadership roles related to higher education including Chairperson of the Education Policy Consortium (2006-2010), Chairperson of the UNESCO South African Commission (2001-2006) and first inaugural president of the South African Research Association (SAERA) (2013-2014). She was appointed by the Minster of Higher Education and Training to serve on the Council of Higher Education (CHE) for two terms from 2010-2018. An NRF rated researcher her research record is substantial.  Her research interests and expertise are in the areas of education financing and system reform, access and equity, decolonisation, and education quality in schooling and higher education.

**Dr. Jocelyne Napoli,** Senior Associate Professor at the University of Toulouse, builds bridges between universities, industries, and international organisations. As Vice President for Communication, she drives initiatives that foster cooperation across institutions and give international visibility to research, training, and students. She conceived and directs the MITAT Master's degree in International Management of Air Transport and Tourism, a fifth-year university programme (MSc equivalent) taught in English and unique in France for combining tourism and air transport management. Fluent in French, English, and Italian, she brings intercultural perspectives to her work, balancing academic knowledge, professional practice, and global dialogue. A former Marketing Director, she secures funding, leads projects on sustainability, multimodality, and digitalisation, and is regularly invited to speak worldwide on air transport economics, international tourism, and higher education internationalisation. Her latest book explores the relationship between higher education and tourism development.

**Mary Newsome** is the Assistant Dean of Graduate Learning Support at Qatar University (Qatar).

**Gaelle Picherit-Duthler** (PhD, University of Kentucky) is the Dean of Graduate Studies at Zayed University. She previously served as the Associate Dean of the College of Communication and Media Sciences. Her academic expertise focuses on strategic communication, internal communication, CSR, social media, and global virtual teams. Her works appear in *Public Relations Review, Journal of Public Relations Research, Journal of Middle East Media, Middle East Journal of Culture and Communication,* and *Public Relations Journal.* She is the President of the Global Communication Institute and an active member of the communication industry in the United Arab Emirates, including the Advertising Business Group and the Middle East Public Relations Association.

**Annie Pilote** has been Dean of the Faculty of Graduate and Postdoctoral Studies at Université Laval since 2023. A full professor at this institution, she has expertise in educational administration and policy. Her research in the sociology of education focuses on student pathways in higher education, with a particular emphasis on equity issues. Prior to her current role, she was Associate Dean for Research and Graduate Studies in the Faculty of Education (2011-2012, 2014-2022). She led a number of initiatives to promote student retention and educational success, particularly among First Peoples. She currently serves as Vice-President of the Association of Deans of Graduate Studies in Québec, Vice-President of the Board of the Federation for Social Science and Humanities and as an executive committee member of the Northeastern Association of Graduate Schools.

**Fahim Quadir** is the Vice-Provost and Dean of Graduate Studies and Postdoctoral Affairs at Queen's University in Kingston, Ontario, Canada. Prior to joining Queen's, Dr. Quadir served as Interim Dean and Associate Vice-President Graduate in the Faculty of Graduate Studies at York University, where he was a Professor of Development Studies. From July 2013 to May 2017, he held the position of an Associate Dean in the Faculty of Graduate Studies. He is the founding director of York University's Graduate Program in 72 Development Studies and its undergraduate program in International Development Studies. Previously, he held academic positions at St. Lawrence University in New York, Queen's University at Kingston and the University of Chittagong in Bangladesh. He also taught at Dalhousie University in Halifax, Nova Scotia. Professor Quadir specializes in International Development, International Relations and International Political Economy. He has edited/co-edited five books and published extensively in various international peer reviewed journals relating to South-South cooperation, emerging donors, aid effectiveness, good governance, civil society, democratic consolidation, transnational social movements, human security and regional development.

**Normand Roy** is a Professor in the Faculty of Education Sciences at the Université de Montréal (Canada).

**Dr. Adam Sarty** holds an undergraduate degree in Engineering Physics and a Ph.D. in experimental nuclear physics from the University of Saskatchewan. He was a postdoc at the Laboratory for Nuclear Science at the Massachusetts Institute of Technology, and

then spent five years as an Assistant Professor at Florida State University before joining the Faculty of Science at Saint Mary's in 2000. Prior to assuming his current role in 2017, he served as Associate Dean of Science for 7 years, responsible for Curriculum, Student Affairs, and Outreach. Dr. Sarty's enthusiasm for his continued research into the structure of the nucleon and light nuclei has been matched only by his passion for teaching and science outreach. Over the years, his teaching excellence and commitment to educational development has been recognized with various awards, including the Medal for Excellence in Undergraduate Teaching from the Canadian Association of Physicists, the Science Champion Discovery Award from Halifax's Discovery Centre, Volunteer of the Year recognitions from the Province of Nova Scotia and the Halifax Regional Municipality, the Educational Leadership Award from the Atlantic Association of Universities, and a 3M National Teaching Fellowship. To further his goal of communicating science, Dr. Sarty has spent many years engaging in community presentations about physics to groups ranging from preschool to high-school age and beyond. He also co-chairs and organizes the annual Halifax regional science fair, and has chaired or served on numerous Boards and Committees related to the promotion and administration of Science and other academic initiatives. Some positions in which Dr. Sarty has recently served, or is currently serving, in this area include: President of the Canadian Association of Physicists, Chair of the CAP Division of Physics Education, Chair of the NSERC Scholarship & Fellowships Committee for Physics and Astronomy, the Canadian Institute of Nuclear Physics, TRIUMF Board of Management, Halifax's Discovery Centre Board of Directors, and the Chair and Judging Coordinator for the Discovery Awards for Science and Technology. In his current role as SMU's AVP Research, Sarty also serves as the Chair of the Steering Committee for CLARI (Change Lab Action Research Initiative), the Vice-Chair of Nova Scotia's Offshore Energy Research Association, as a Board member for ACENET, as an institutional SSHRC and NSERC Leader, as a steering committee member for the Nova Scotia Integrated Health Research Innovation Strategy, and as a member of the Alliance of Canadian Comprehensive Research Universities.

**Michael J. Solomon** is the Dean of the Rackham Graduate School and Vice Provost for Academic Affairs at the University of Michigan. He currently serves as the Board Chair at the Council of Graduate Schools.

**Dezhen Song** is a Professor and Deputy Chair of Robobics in Mohamed Bin Zayed University of Artificial Intelligence (MBZUAI), Abu Dhabi, UAE. Prior to that, he was a Professor and Former Associate Department Head for Academics with Department of Computer Science and Engineering, Texas A&M University (TAMU), College Station, Texas, USA. Song received his Ph.D. in 2004 from University of California, Berkeley; MS and BS from Zhejiang University in 1998 and 1995, respectively. Song's primary research area is robot perception, robot navigation, sensor fusion, networked robots, and automation. From 2008 to 2012, Song was an Associate Editor of IEEE Transactions on Robotics (T-RO). From 2010 to 2014, Song was an Associate Editor of IEEE Transactions on Automation Science and Engineering (T-ASE). Song was a Senior Editor for IEEE Robotics and Automation Letters (RA-L) from 2017 to 2021 and currently is a Senior Editor for IEEE Transactions on Automation Science and Engineering (T-ASE) (2023-2028). He was also a multimedia Editor and chapter author for Springer Handbook of Robotics. His research has resulted in one monograph and more than 150 refereed conference and journal publications. Dr. Song received NSF Faculty Early Career Development (CAREER) Award in 2007, Kayamori Best Paper Award of the 2005 IEEE

International Conference on Robotics and Automation (ICRA), the 2022 Best Paper Award of the LCT 2022 Affiliated Conference, the First place in GM/SAE AutodriveChallenge II competition in 2023, and Amazon Research Award in 2020.

**Olivier WONG-HEE-KAM** is Vice-President in charge of digital technology for the University of Rennes and scientific leader of the AIR project, a Digital Demonstrator in Higher Education (DemoES). As president of the VP-NUM association, which brings together vice-presidents for digital technology in higher education, he is involved in issues related to mutualization, cybersecurity and Artificial Intelligence (AI). He coordinates and contributes to various experiments in Generative AI (GenAI), in Rennes (RAGaRenn) and at the national level (ILaaS). He is committed to improving the strategic vision for GenAI through actions and reflections based on concrete use cases, their impacts and their framing, while responding to the challenges of sharing digital services and computing infrastructures.

**Prof. Ren Youqun** is currently the Party Secretary of Shandong University, and also serves as a deputy director of the National Steering Committee for Postgraduate Degree in Education.

Previously, he held several prestigious positions, including Vice President, Deputy Party Secretary, and Executive Deputy Party Secretary of East China Normal University. At the Ministry of Education, he served as Director-General of both the Department of Teacher Education and the Department of Degree Management & Postgraduate Education, where he was also Deputy Director of the Office of the State Council Academic Degrees Committee.

His research focuses on educational technology, learning sciences, curriculum and instruction, and teacher education. Recognized for his academic contributions, he was honored as a member of the distinguished Program for New Century Excellent Talents in Universities. Over the past five years, he has authored several influential monographs and textbooks, including International Handbook of the Learning Sciences, Interpretation of the Information Technology Curriculum Standards for Ordinary High Schools, and the Artificial Intelligence series. He has published 13 academic papers indexed in the Chinese Social Sciences Citation Index (CSSCI), including the widely cited "Deepening the Reform of University Education Approaches to Continuously Stimulate the Vitality to Train New Talents for the Era." In addition to his academic publications, Prof. Ren has contributed numerous signed articles to prominent national newspapers such as People’s Daily, Guangming Daily, and China Education Daily.

**Yang Zongkai** is the President of the Wuhan University of Technology (WUT) and is the Vice-Chairman of the University Council.