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Education

The 3 most promising ways AI will positively impact higher ed

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Arriving at the inflection point: 3 breakthrough applications for AI in higher ed

If 2023 was the year AI broke out into the mainstream, then 2024 and 2025 must see higher education move from reactivity and uncertainty with AI implementation to a deliberate, strategic approach. Leaders are looking across their institutions for opportunities to use AI to transform student experience, research, management, and operations, carefully balancing benefit and risk.

As an educator of more than 20 years with a deep commitment to innovation, I've seen other waves of transformative technology bring new benefits to learning. But looking at the potential breadth and depth of change AI and generative AI bring to how institutions operate and succeed, it's hard to deny that we've arrived at an inflection point.

Between intriguing potential and evolving risk, we know the eventual impact of AI will be significant — but everything else still feels uncertain. What will be the short-term impact on the economy or long-term effect on culture and creativity? At the current moment, we catch glimpses of a multiplicity of future states, both positive and negative.

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Moments rarely feel bigger than this

While some domains might take a wait-and-see approach on AI, higher education doesn't have that luxury. The choices made today about technology and its role in how universities deliver on their mission will shape the future of higher education and the future of work.

AI has the potential to impact nearly every facet of university life, including student experience, faculty research, physical campus infrastructure, and even athletics. The benefits are equally important and expansive, potentially improving students' access to expert resources and support, automating administrative tasks to increase teaching time, and increasing the effectiveness of strategic decision-making across the institution.

Success demands finding the right starting point

Maximizing AI's potential positive impact while reducing risk and uncertainty starts with finding relevant applications where this technology can make an immediate difference. While finding relevant applications has always been a best practice for integrating technology on campus and making it matter, the magnitude of the AI moment makes thoughtful implementation even more critical.

Promising uses of AI can be organized into three primary categories:

1. **AI for creativity and consumption** will impact how students, faculty, and staff learn, explore, collaborate, and produce work. Building strong foundations in AI literacy and ethics are critical here.

2. **AI for skill development** will prepare both students and faculty to better succeed in a future increasingly shaped by AI-focused tools and skills. This category includes general upskilling, like prompt engineering, as well as domain-specific uses of AI and generative AI, along with exposure to newly created AI career paths.

3. **AI for infrastructure** will transform how institutions build and manage the many digital and physical systems required to keep campuses operating. This category will be critical for both daily efficiency and long-term economic sustainability.

While creativity and consumption have gotten a lot of attention over the last year thanks to high-profile generative AI platforms, institutions should look "up and down the stack" to find the most tangible, meaningful benefits of AI implementation.

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AI for creativity and consumption

Generative AI went viral largely due to applications like ChatGPT and the subsequent release of text-to-image and video platforms. Even as higher-education institutions move cautiously through solution analysis and adoption, large parts of their student body and faculty are already engaged with the technology.

This early, often informal adoption is driving action. When the 2024 Educause AI Landscape Study asked respondents what was driving formal planning efforts, 73% said they were responding to the rise of student use of AI in courses. 68% said they were worried about risks of inappropriate use, while 59% said they were concerned about falling behind peer institutions.

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Integrating generative AI into teaching and learning

Using AI platforms before, during, and after instruction is still controversial on many campuses. But using this technology can help both the educator and the learner. How can generative AI give instructors more time to focus on scholarship and share their expertise with students?

- **Learning gets deeper** by training LLMs on specific domains, the accompanying catalogue of research, and an institution's curriculum in that domain.
- **Learning gets easier** by creating generative AI chatbots that produce more customized student experiences while reducing faculty workload.
- **Schools can begin to build what's next.** As students and faculty collaborate to integrate generative AI more deeply into coursework, making students ready for an AI future will require new priorities and partnerships across the private and public sectors. Technology leaders like Intel are already out in front with investments and programs aimed at universities.

Setting the obstacles of informal AI adoption aside, generative AI's ability to reshape teaching and learning cannot be understated. This is why campuses are buzzing with generative AI energy, as faculty, staff, and students work together to build and launch important pilot programs.

One such pilot launched this year at Hong Kong Metropolitan University. The institution deployed an on-demand coursework tutor that students accessed via chatbot 24/7. The result is greatly enhancing students' chances of academic success, while reducing some of the workload of busy faculty and staff. Students report getting satisfactory answers the first time in over 80% of sessions.

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What leaders are already doing

Lenovo is proud to partner with institutions that are working to bring AI where its advantages can provide the most benefits. At the University of North Carolina, the Center for Faculty Excellence annually distributes Instructional Innovation Grants funded by Lenovo. 2024-25 grantees are focusing on:

- integrating generative AI into the curriculum of large enrollment courses,
- providing faculty development around generative AI within specific departments,
- developing discipline-specific communities of practice that discuss AI uses and issues,
- and conducting systematic inquiry on using generative AI to support student learning.

Giving students strong AI foundations

If AI is providing a new way of thinking and working, it means AI preparation must start by defining and understanding these important new fundamentals. At the University of North Carolina, leaders have crafted a robust AI literacy and fluency framework as part of their ongoing AI adoption. The current draft includes:

- **Foundations of AI** - including technical and historical overview with a focus on importance of data to AI
- **Ethical implications of AI** - helping learners understand the broad consequences of building and using generative AI on society, as well as specific impacts on scholarship and research inside higher ed
- **AI competency and skills** - ensuring that learners master the “hard” skills of AI, such as prompting and integrating generative AI into existing workflows
- **AI mindsets and practices** - equipping learners with the ability to better engage with an AI-enabled world, including everything from detecting AI fakes to building AI products and services

No matter which career path they take, students will be working in an AI-everywhere world.

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Preparing students for AI success in school and the workforce

Much of the controversy around AI centers on potential implications for the workforce, which is driving plenty of anxiety for students. Will AI take over jobs in the knowledge economy? How will the nature of work change in the years ahead? Most importantly for universities, what skills and competencies will be required for students to survive and thrive? The latest research from the International Monetary Fund predicts 6 out of 10 jobs will be impacted by AI.

The size of this impact means AI skills development is critical — not just for graduates or new job seekers, but also for faculty and staff. What can higher-education institutions do right now?

- **Universities can prepare for new careers and opportunities** directly driven by AI. Enrollment in AI-focused degrees has taken off dramatically, as data science and machine learning programs become more attractive to students. And the number of degree programs internationally has tripled since 2017.

- **Schools can give learners new skills and competencies** for succeeding in an AI-impacted world. AI is accelerating new modes of research, creativity, and productivity. We also know the role of human expertise and experience will change — what does that mean to today's students? Universities find themselves in a curious place, teaching students to master AI even as leaders struggle with how to embed it into their own world.

- **Finally, they can empower faculty to achieve more by integrating AI** directly into instruction and coursework. Like students, faculty and staff are confronting significant uncertainty about the future. If AI is going to shape the future of higher education, then faculty and staff must also be prepared for success.

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What leaders are already doing

One of the biggest AI concerns for graduating students is entering the workforce unprepared. The University of North Carolina is solving for this gap with an optional, single-credit course designed as a “bootcamp” to ready students for AI success, meeting student needs during the institution’s transition to more comprehensive integration of “AI literacy” into coursework across campus.

Intel is going beyond just providing the computing platform that will enable the next generation of AI. They’re also working to ensure higher-education students have access to the latest and greatest tools and resources to “empower students with the necessary AI skills for employability in the digital economy.” The free AI Education Workforce Program aims to boost student confidence and employability in the field, with a matching program aimed at educators.

AI for infrastructure

The modern campus is a complex set of digital and physical systems, each with its own needs and risks. While much of the attention around AI has been focused on what it can do for students and staff, its potential to revolutionize the management of campus systems and infrastructure is equally crucial, especially as universities face increasing global competition to stay ahead.

By making campus systems more effective, efficient, and agile, AI can help universities focus more human and budget capital on instruction, research, and collaboration. Here, AI's biggest capability isn't creation, but orchestration. As campuses evolve and grow, especially inside their "digital stack," the ability to automate the management of so many moving pieces will be essential.

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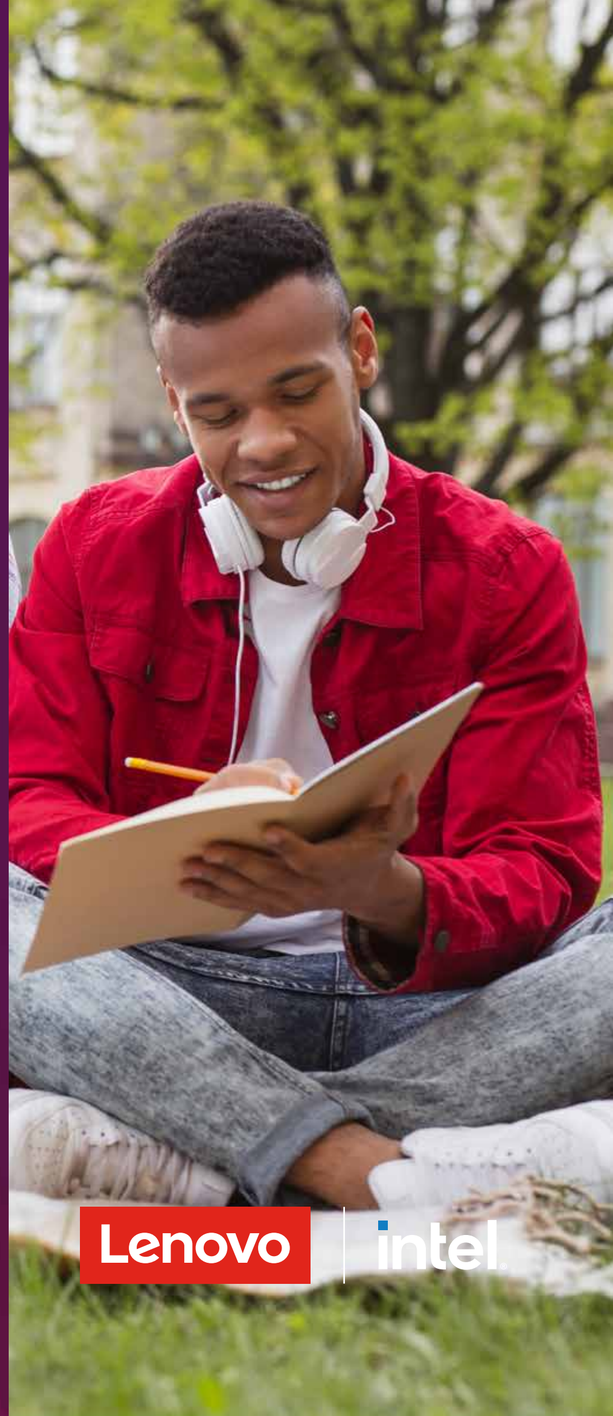
- **Campuses can make buildings and services work better** by deploying AI-assisted automation and operations. This might include using computer vision, the latest in IoT, and other “smart technology” to gather information and monitor in real-time, which can help turn large campuses into safe, visible, easily managed ecosystems.

- **Leaders can make faster, smarter decisions about what matters** most to both the mission and business model. The first real wave of AI was mostly data analytics, but those benefits are only getting stronger. The current phase of AI will supercharge those capabilities, helping make every important system — from enrollment and administration to finance — smarter. Decisions come faster, with greater efficacy, and less human stress.

- **Universities and colleges can future-proof digital foundations** by embedding AI-readiness into every systems decision. Whether it’s elevating curriculum system-wide or competing for important research funding, tomorrow’s challenges can’t be solved on today’s infrastructure. Changes made to the environment today will directly impact future AI readiness.



What leaders are already doing

Users of business and information systems have been watching AI quietly transform their workloads for a while. The recent developments in advanced AI and the rise of generative AI have dramatically expanded the impact data can have on how systems are built and managed. Even in the early stages of AI systems optimization, the results have been compelling.

We know that modern systems collect more and more data. When it comes to cybersecurity, this accumulation can be counterproductive because modern threat actors are so busy. Security experts live in a constant state of notification and alert. So having a multi-layered, AI-powered cybersecurity strategy in place is critical to keeping all stakeholders and their data safe.

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Mastering this moment: how do institutions move towards AI uncertainty?

For higher-education institutions to remain relevant and arm their graduates with foundational AI skills in their chosen fields, they must strategically navigate this inflection point. As an educator and technologist, I know we've faced similar opportunities in previous decades. I also know they've never been this big or potentially impactful.

If students — and institutions — are to thrive in an era of AI everywhere, the preparation for that success must start now and involve stakeholders across campus.

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