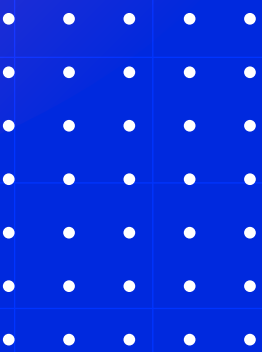# 11
AI
Use Cases in Higher Ed

Introduction

In recent years, artificial intelligence (AI) has emerged as a transformative force in higher education, reshaping how institutions approach admissions, teaching, learning, and administration. However, there are still so many skeptics in the higher education space who believe AI is still in the early stages and we should wait a few years to explore ways to implement and leverage the technology. A study by **EDUCAUSE** found that **59%** of institutions are afraid of falling behind with AI. A significant majority of respondents **(76%)** noted that their institution's AI strategy prioritizes enhancing educational experiences and student services. Additionally, respondents reported that their institution's AI initiatives also target improvements in administrative efficiency, productivity, the development of new educational models and programs, and the establishment of new core capabilities, with **56%, 51%, and 44%** of respondents emphasizing these areas, respectively.

From personalized learning experiences and predictive analytics for student success to innovative applications in academic advising and mental health support, universities are harnessing AI to enhance educational outcomes and operational efficiency. This eBook explores the diverse ways higher education institutions are integrating AI technologies, highlighting successful case studies, emerging trends, and the potential challenges that accompany this digital evolution. As we examine the evolving landscape of academia, it becomes clear that AI is not merely an auxiliary tool but a pivotal partner in creating a more responsive and inclusive educational environment.
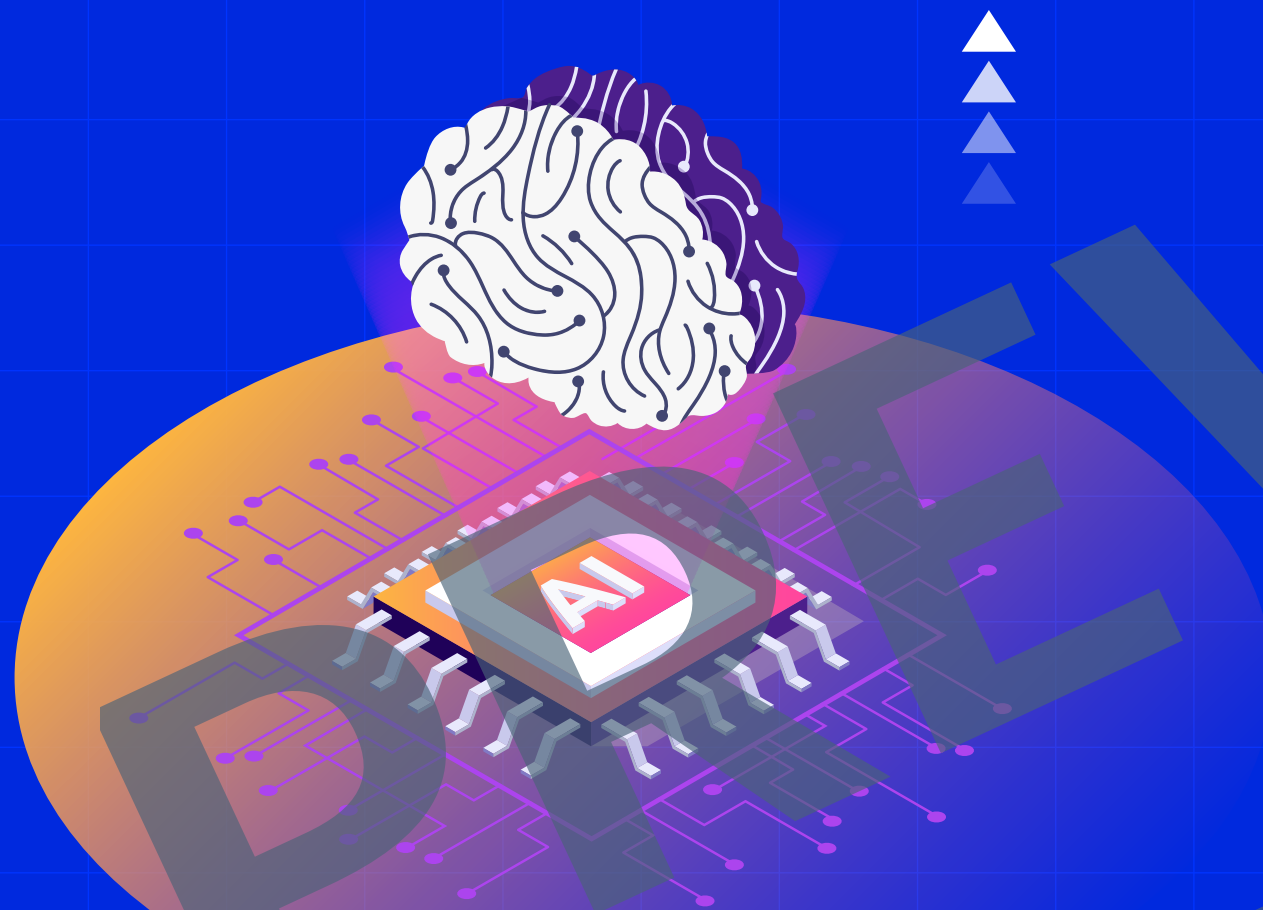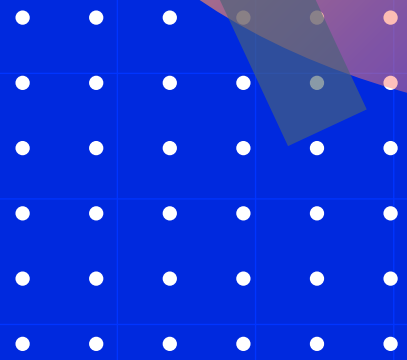
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1. Streamlining Admissions

According to a survey done by [Intelligent](#) in September 2023, 50% of colleges are using AI to help with the screening process in many admissions, and predicted that 82% will be using it for the 2024 admission cycle. AI serves as a valuable tool to streamline parts of the admissions process, easing the workload for staff—especially at institutions handling high volumes of applications.

Rutgers—New Brunswick, for example, received over 60,000 applications for fall 2024, a record-breaking number, according to Courtney McAnuff, vice chancellor for enrollment management. Their academic record system allows admissions officers to request official transcripts only from the approximately 7,700 admitted students who submitted self-reported data, significantly reducing manual effort.

"It saves us about 400,000 transactions because we're not getting transcripts, either digitally or through the mail," McAnuff says. "We don't have to file or image those transcripts. We don't have to acknowledge the 50,000 people that called and asked if we got their transcript." [1]

Institutions like **Texas A&M University-Commerce** and **North Carolina State University** use AI tools such as Sia to expedite college transcript processing, extracting details like student coursework and transfer credits. **Georgia Tech** is exploring AI-driven models to replicate admissions decisions using machine learning, enabling schools to evaluate thousands of applications more efficiently by sifting through extensive data sets.

3. Supporting Student Retention

Nova Southeastern University utilized an AI platform called Aible to identify students who were most likely to leave the university. This AI-powered analysis helped the University's Center for Academic and Student Achievement prioritize and target its retention efforts specifically for the most at-risk students. Key aspects of **Nova Southeastern's** AI-driven retention strategy include:

Proactive approach:

Rather than waiting for warning signs that a student is struggling academically, the AI system allows the university to anticipate potential issues much earlier.

Personalized interventions:

With this information, the university can offer tailored support services, intensify advising efforts, and make targeted curricular changes to address specific student needs.

Data-driven targeting:

The AI analyzes various data points to predict which students are at the highest risk of dropping out.

Early support:

The AI enables the university to assist before a student begins to experience significant academic troubles.

This approach represents a shift from reactive retention methods to a more proactive, data-informed strategy. By leveraging AI, Nova Southeastern University aims to identify at-risk students earlier and provide more timely and effective interventions to improve overall student retention rates. [2]

Several colleges are using AI to identify struggling students and provide support:

College of Charleston: Launched an AI chatbot named Clyde in fall 2023, which engaged over 50,000 students and flagged more than 900 for follow-up, aiding retention efforts.

Georgia State University: Uses the chatbot Pounce to send text messages to at-risk students about financial aid and course registration, reducing summer melt by 22% and improving academic performance for first-generation students.

University of Nevada, Las Vegas: Implemented a digital avatar of the university president as a chatbot, helping students access campus resources and address mental health concerns.

These institutions demonstrate the effectiveness of AI tools in engaging with students, flagging those who need support, and enhancing retention and academic success.

6. Fielding Financial Aid Questions

Universities are increasingly using AI in financial aid offices to streamline administrative tasks, like verifying documents and answering common questions, allowing staff more time for personalized support. AI chatbots are especially valuable for quick, routine responses, and predictive analytics tools help forecast students' financial needs, allowing aid offices to allocate resources more effectively. While AI enhances efficiency, there are challenges in balancing automation with personalized service and ensuring data privacy and accuracy.

Several universities, including the **University of Oklahoma** and **Georgia State University,** have implemented AI in their financial aid offices. These AI systems assist by responding to routine inquiries, such as FAQs, and managing document verification, reducing processing times for students. AI tools also help forecast financial needs, allowing offices to better allocate aid resources. Schools are finding that AI can free up financial aid staff for more personalized support, though balancing automation with data privacy and personal service remains a challenge.

University of Wisconsin–Madison, which is among the universities using AI in their financial aid offices. UW–Madison has integrated AI tools to handle routine tasks like answering frequently asked questions and streamlining document verification, which frees up staff to focus on more complex, personalized financial aid support for students. This AI approach is part of a broader trend in higher education to make administrative services more efficient while enhancing the student experience. [4]

8. Roommate Matching

In the ever-evolving landscape of higher education, finding the right roommate can significantly impact a student's college experience. Traditional roommate matching methods often rely on basic questionnaires and compatibility factors, but with the advent of artificial intelligence, this process is becoming more sophisticated and personalized. AI-driven roommate matching systems analyze a wide range of data points—such as personality traits, lifestyle preferences, and social habits—to create more accurate and compatible pairings. By leveraging advanced algorithms and machine learning, colleges are enhancing student satisfaction and fostering healthier living environments, ultimately contributing to a more positive campus experience. Here's a summary of universities that have successfully implemented AI or advanced roommate-matching systems:

The University of Michigan uses detailed questionnaires and algorithmic matching to consider lifestyle preferences, academic interests, and personality traits.

Stanford University Employs a hybrid approach, combining human oversight with algorithmic matching and extensive student interviews to ensure compatibility.

New York University creates a balanced and inclusive living environment by considering cultural backgrounds, gender identities, and other diversity factors.

The University of New Haven successfully beta-tested Roommate Connect©, an AI-powered software, leading to its immediate implementation for enhancing campus life.

These universities illustrate the trend towards using advanced technologies, including AI, to improve roommate matching processes and enhance student satisfaction.

9. Enhancing the Museum Collection Experience

Harvard Art Museums use AI to categorize, tag, describe, and annotate their collections. AI provides descriptions of artworks without context, making art more accessible to non-experts. AI interpretations also enhance accessibility by making browsing and searching art collections more intuitive for the general public. Researchers at **Rutgers University** use machine learning to uncover previously unnoticed connections between artists.

The Florida Museum of Natural History at the **University of Florida** has created curatorial positions specifically for AI, hiring Arthur Porto and Nicolas Gauthier to study specimens and analyze archaeological data in innovative ways. At the Mead Art Museum at **Amherst College**, ChatGPT-4 has been utilized to create audio descriptions for its online collection, improving accessibility for visually impaired visitors, with students providing human oversight for the AI-generated content. **The MIT Museum** in Cambridge, Massachusetts, features interactive exhibits focused on science, technology, engineering, arts, and math (STEAM), including AI-driven experiences like writing poetry with AI and an "AI: Mind the Gap" gallery that educates visitors about AI capabilities and limitations.

Carnegie Mellon University's Human-Computer Interaction Institute researches enhancing learning and engagement in museum exhibits through AI integration, exemplified by their earthquake table exhibit featuring a virtual assistant named NoRilla. Additionally, the Nasher Museum of Art at **Duke University** has experimented with AI to curate an exhibition from its collection, collaborating with Duke's Art, Art History and Visual Studies Department and the Duke Digital Art History and Visual Culture Research Lab to use ChatGPT for selecting artworks and creating accompanying texts. These initiatives illustrate how university museums leverage AI to improve curation, accessibility, education, and visitor engagement.
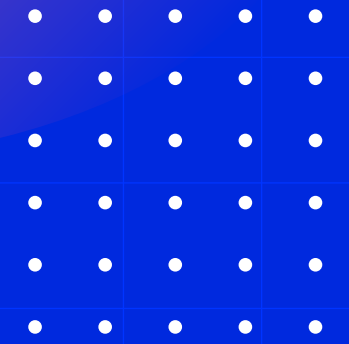
5 Steps to Help You Get Started with AI in Higher Education

If your institution is exploring AI adoption, consider the following steps to begin:

Step 1

Assess Your Needs

Identify key pain points, such as improving admissions efficiency or enhancing student retention. Conduct a stakeholder survey to prioritize areas for improvement.

Step 2

Build a Roadmap

Develop an AI implementation roadmap with clear milestones, roles, and responsibilities. Partner with experienced EdTech providers to accelerate the process.

Step 3

Start Small

Begin with pilot projects in high-impact areas, such as AI-powered chatbots for financial aid queries or personalized learning platforms for courses.

Step 4

Focus on Training

Provide training programs for staff, faculty, and administrators to ensure AI tools are used effectively and ethically.

Step 5

Evaluate and Iterate

Monitor key metrics like cost savings, user engagement, and student outcomes. Use these insights to refine your approach and scale successful initiatives.