
Date
Signature of Student

forgetfulness. In the 1500s, a Swiss scholar named Conrad Gessner spent his career writing the first bibliography and going around Europe to different libraries. He wrote that there were too many books, and something needed to be done about it—someone needed to separate the good books from the bad ones. (At the time, there were only about 3,000 books total in the continent's collective libraries.) "There are folks who say things have changed forever every time there's a new technology," says Aguilar. "But the reality is that the fundamental process of engaging in the world and learning about it hasn't changed." He points out that nothing about this technology is changing working memory, or the way we process information.

Swartout uses the example of calculators: When graphing calculators became powerful three decades ago, some people bemoaned the situation and believed students would rely only on calculators and not learn the fundamentals that made them work. Instead, he points out, schools didn't ban calculators but focused kids in the lower grades on learning arithmetic tables. Then, as the students got older and more advanced, the use of calculators was allowed and encouraged. "Sometimes [calculators are] even required at the higher grade levels. It frees you from the mundane minutiae of working out the arithmetic and allows students to focus on higher-level concepts," says Swartout. "I've had conversations with faculty members in the English Department here at USC, and they've said: Anything that can get us off a student having to stare at a blank page, and get into the mode of thinking critically about what's being written and whether it's effective or not, is a win."

## FUTURE BENEFITS OF AI

In the future, generative AI may improve workflows and reduce the amount of time workers spend on rote or time-consuming tasks. Some classroom teachers are already using it to design skeletons of lesson plans and create prompts for students to respond to—things that would normally take teachers a long time to do either by hand or via traditional internet searches. Instead, teachers can now generate content immediately and then edit the output. "It reduces that lag between an idea and an artifact that helps instruction," Aguilar says.

Another potential use for generative AI in education is personalization. For years, Aguilar says, educational technologies have promised to create learning experiences that adapt to students' specific needs. Generative AI can help educators get closer to that goal by tailoring curriculum to individual students' interests and needs, as well as capturing where some students might need extra instruction, thus actually creating personalized learning paths for them.

The technology can also break down barriers and make learning more accessible to more people—particularly in coding, Aguilar says. Imagine a tool that can be a conversation partner as well as a coach to help a student gain a new skill. And, finally, generative AI can be a potent research tool to help teachers and others parse large data sets to help uncover insights and patterns that might have gone unnoticed otherwise.

Universities are good at developing insights into the implications of innovation on instruction and student engagement, and setting guidelines for things that we should try to do better—or things to avoid, Aguilar says. "Our main contribution and approach is to be in the room when a lot of things are being designed so that we ensure that approaches are empirically sound," he says.

"What we are doing differently is looking less at the tech itself but more at the human uses of the technology," adds Sinatra. "That's what we want to explore in the center: How are humans using this, how should humans use it and how should they not. The center is aiming to focus more on that human interaction."

## Stephen Aguilar begins work on AI dashboard project for U.S. Army

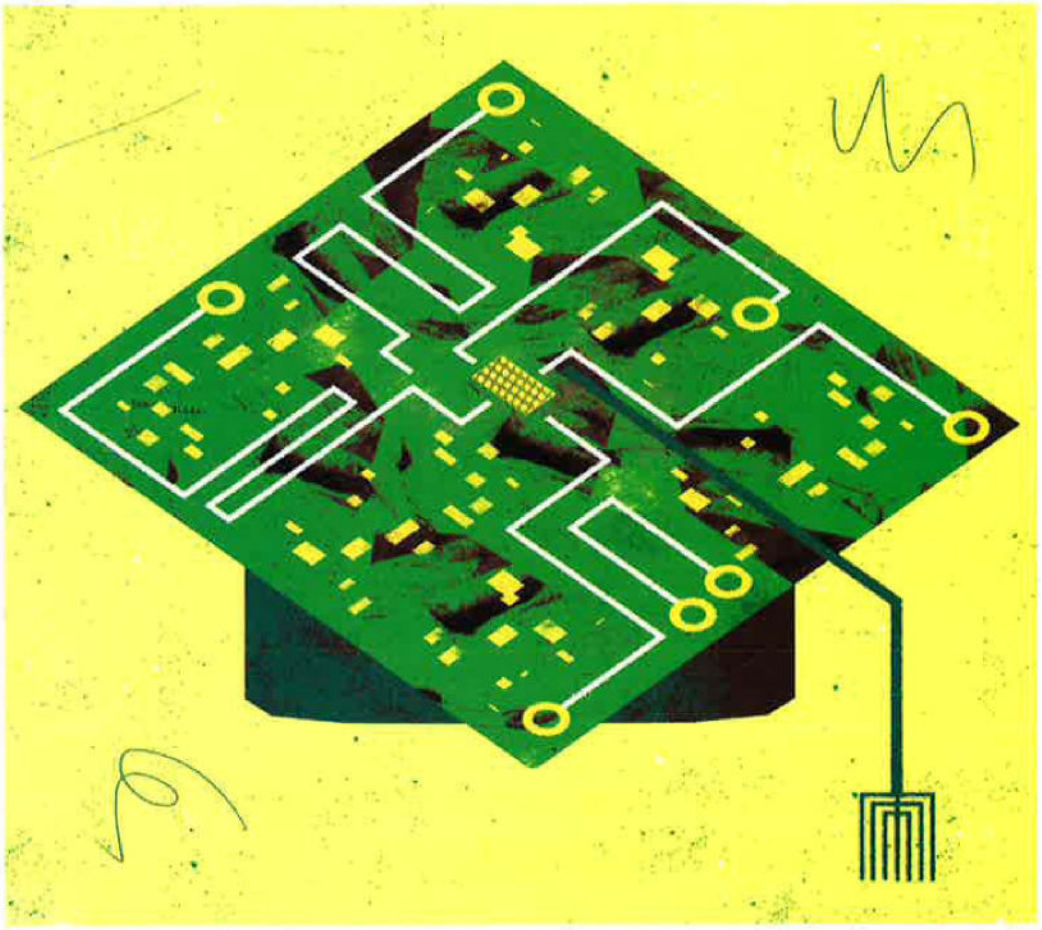
This fall, Assistant Professor Stephen Aguilar began work on the AI-Enhanced Dashboards (AID) project, one of the five inaugural tracks for the Artificial Intelligence Research Center of Excellence for Education (AIRCOEE). AIRCOEE is a two-year, $4.5 million dollar research contract through the U.S. Army Research Office housed within the USC Institute for Creative Technologies.

Aguilar is leading a team to create an AI-enhanced dashboard for instructors and students. The resulting set of dashboards will provide AIRCOEE with actionable insights to help instructors engage and support students in the classroom and during periods when they need to self-pace their learning.

With a background in learning analytics, Aguilar will take what is known about dashboard design and instructor insights to determine when to provide assistance to students who may need additional support. "We will use data from their learning management system and create a series of dashboards that are useful for instructors," said Aguilar. "We aim to support the instructor's pedagogy and provide information they'll need in order to be effective in their roles."

Reviewing applications is a community effort at Kenyon. The college uses both the Common Application and the Coalition Application to gather student admissions materials and begins reviewing applications in mid-November. "We have a holistic review process," Motevalli-Oliner says. "We read everything that a student submits to us." Employing a committee-based evaluation method that encompasses a two-person review, teams read applications every day; one person reviews the applicant's academic side while another examines co-curriculars and recommendations. This approach contextualizes the prospective student.

While there is a growing trend in college admissions to use artificial intelligence, Kenyon does not employ AI in their process at this point. There is an art and science to Kenyon's review, according to Motevalli-Oliner. "Synthesizing information with AI, I can see that happening, but I don't think you'll ever take away from the human element," he says.



There are, however, a growing number of colleges and universities using AI to assist admissions offices as they evaluate applicants. Texas A&M University–Commerce and Case Western Reserve University utilize AI tools like Sia to quickly process college transcripts by extracting information like student coursework and college transfer credits. Georgia Tech has been experimenting with AI to replicate admissions decisions using machine learning techniques. The technology allows schools to sift through large data sets, evaluating thousands of applications more efficiently. Theoretically, this frees admissions staff members to have more time to thoughtfully consider other aspects of applicants' submitted materials. But what's at stake when AI is incorporated into the review process?

"It's a complicated matter, and it's not the first time that admissions has considered how to use algorithms or formulas in its processes," says Jerome Lucido, founder of USC Rossier's Center for Enrollment Research, Policy and Practice (CERPP) and former chair of and national presenter for the College Board's Task Force on Admissions in the 21st Century.

While related, there are two distinct tools in the college admissions process: algorithms and machine learning, according to Lucido. A college admissions algorithm is a set of rules or instructions used by educational institutions to evaluate and select applicants for admission. Colleges and universities often have their own unique admissions processes and evaluate based on the university's criteria. Many institutions commonly use a holistic approach that considers a combination of factors including academic records, standardized test scores, extracurricular activities, recommendation letters and interviews.

Machine learning, a subset of AI, is a specific technology that can be used to improve data analysis and decision-making. According to researchers at the USC Viterbi School of Engineering's Information Sciences Institute, machines are taught to behave, react and respond similarly to humans using data collected. As it applies to the college admissions, machine learning combined with admissions algorithms would streamline the process, identify patterns and make informed decisions to form predictions based on historical data. This data-driven approach could potentially help universities identify candidates who possess those characteristics determined by the institution for academic success.

In a joint statement from the Association for Institutional Research (AIR), EDUCAUSE and the National Association of College and University Business Officers (NACUBO), the organizations supported and reinforced the use of data to help better understand students. Data also lays the groundwork to develop innovative approaches for improved student recruiting. However, there is a challenge of relying too much on quantitative data. AI is efficient for processing data, yes, but it may not capture a student's complete life story, full potential or unique qualities. For instance, factors like personal challenges, resilience and growth might not

be reflected in the data, which could lead to missed opportunities for students who have overcome obstacles.

"Many large public flagships and certainly selective privates were already well down a path that wasn't being called AI," says Don Hossler, senior scholar at CERPP. "They were building in algorithms that help them screen students." The use of AI in the screening process, Hossler says, is really the next natural extension.

## LET'S BE REALISTIC: AI AND APPLICATIONS

For students applying to college, AI's role in admissions initially seems promising, offering several benefits. For example, chatbots, or automated live chats, become pseudo customer service representatives, providing instant assistance during the application process, answering common questions, offering personalized guidance based on the student's profile and even setting deadline reminders. It is also important to recognize their limitations. While useful for routine queries, chatbots may not replace human interaction, especially for complex issues or emotional support that some applicants may require. A balanced approach would be a combination of a chatbot and human support from college admissions staff and counselors to ensure a successful and positive application experience for students.

On the flip side, students are turning to generative AI technology to help them pull together their applications, including using ChatGPT to write their personal essays—the one area of the process where applicants can show universities who they truly are. AI, with its near humanlike responses, may sound appealing, but it calls into question academic integrity. Will university admissions be able to determine whether an essay was written by a human?

**"Synthesizing information with AI, I can see that happening, but I don't think you'll ever take away from the human element."**

**—Ryan Motevalli-Oliner ME'20, associate dean for enrollment operations at Kenyon College**

"The sad part of that, on the student's side, will be that it may reduce the extent to which they think through the application process on their own," Hossler says. An essay prompt from this year's Common Application asks students to "Recount a time when you faced a challenge, setback, or failure. How did it affect you, and what did you learn from the experience?" An AI-generated response to the prompt would not result in a genuine student answer. However, one benefit for students using a tool like ChatGPT during the drafting stage is that it offers a forum to try out ideas or to formulate arguments. According to Rick Clark, Georgia Tech's assistant vice provost and executive director of undergraduate admission, AI could act as a sounding board for students who cannot afford an admissions consultant.

"Will they use it? Probably. Will we be able to decipher it? Probably not, to be honest," Motevalli-Oliner says. "It's a resource, but at the end of the day, you're going to have to write that essay yourself."

While the essay is one of the most important parts of the review, it's not the only consideration. Kedra Ishop, vice president for enrollment management at USC, sees this next phase as another evolutionary step in admissions. "We navigate at different levels, at different kinds of institutions," says Ishop. A 25-year higher education veteran and nationally recognized expert, she leads the university's admissions, financial aid and registration functions. "In the admissions space, we always have a sense of healthy, positive skepticism, and we seek more information to know more about the student," she says.

Ishop adds that admissions officers are adept at triangulation during the review process. Through triangulation, admissions professionals identify correlations within an application, looking to see if a student's voice is consistent throughout and ensuring that recommendations align. Admissions officers seek multiple sources of data on each student for that reason. Ishop acknowledges that various individuals—parents, guardians, teachers or educational consultants—often assist and play a role in assembling admissions materials with students. "We'll see this year in particular what comes from [AI]," says Ishop. "We're not panicked about it." As with any new technological development, she is aware that it is something that the admissions team will have to steer through and expect that the student's voice will prevail.

## AI + ADMISSIONS = EQUITY?

Amid the landscape of the U.S. Supreme Court decision on race-blind admissions (see sidebar), the implementation of AI in college admissions has raised equity concerns. On the plus side, these tools can help institutions identify applicants who might have been overlooked through traditional processes, but on the other, there are valid concerns about bias.

Can AI learn biases? Bias can seep into the system in a variety of ways. For example, AI systems learn to make decisions based on data that may include biased human decisions or that may contain a flawed data sampling featuring groups that are underrepresented. If not carefully designed and monitored, AI systems could conceivably perpetuate existing biases in the admissions process.

"We know from [UCLA internet studies scholar] Safiya Noble's work and that of many others that technological innovations like Google search engines are often baked with biases that can reproduce inequities," says Royel Johnson,

USC Rossier associate professor. "AI is no different. It's people who design and inform the algorithms, curate the data and make the decisions that shape these systems."

This could disproportionately disadvantage certain groups, leading to inequitable results. AI systems may also unintentionally favor applicants who have financial resources to hire college consultants, which could create a class divide and widen the education gap. According to Hossler, affluent students are likely working with private counselors who inform applicants of what they need to say or write rather than acting as an open editor for applications.

Lucido, an outspoken expert on the affirmative action decision, is cautiously optimistic. "I want to keep an open mind about what this sort of machine learning can do to assist admissions and equity," Lucido adds. "But everything I know about college admissions and how it's done suggests that even currently, we don't have a highly equitable system, particularly in the most selective places."

The most important element about the review is reading in context, according to Ishop. Whether it is AI learning-, neighborhood- or socioeconomic-bias, "our process is designed to read within that environmental context," she says. Considering information such as an applicant's socio-economic background and the educational opportunities available at a student's high school—several AP courses at one school versus only a few courses offered at another—provides context for the admissions team.

**"Certainly, there are enormous benefits of AI, but we must also be clear about the risks. ... AI is only as just as the equitable decisions that inform its design."**

—**Royel Johnson,** associate professor of education

## FORGING A NEW PATH FORWARD

How higher education institutions address equity and AI will require a multifaceted approach. No system is perfect, and human involvement is still needed. Colleges and universities should invest in training admissions professionals to work with AI tools and carefully assess the recommendations provided by these systems. "You have to have mission-directed people and highly trained people to understand how this works," says Lucido.

According to a PricewaterhouseCoopers report, individuals write the algorithms, select the data used by algorithms, and decide how to apply the results. Without diverse teams and rigorous testing of the AI systems created, there is a chance that individual biases may enter the AI. How do you change that? A diverse admissions staff may be one way, and collecting and using data that accurately reflect the backgrounds, experiences and achievements of a range of applicants could mitigate biases present in historical data and improve the algorithm's ability to identify the potential in all students.

Oversight, monitoring and adjustment of AI systems is needed when it's applied to college admissions. "It's an open question as to how much oversight can and will be given if these systems are used," Lucido says. Regular assessments of AI's impact on equity, combined with improvements, can help address biases and flaws.

"Certainly, there are enormous benefits of AI, but we must also be clear about the risks," Johnson adds. "Overreliance without conscientious efforts to mitigate bias will surely exacerbate the very inequalities we seek to address. AI is only as just as the equitable decisions that inform its design."

For Liana Hsu ME '20, director of admissions at UC Berkeley Graduate School of Journalism and a graduate of USC Rossier's EMP online program, day-to-day work in the admissions office differs. Berkeley's admissions team is focused on holistically supporting prospective students who are interested in learning about and applying to the Master of Journalism program.

This work includes designing an equity-centric admission review process. "We are continually in the midst of evaluating our admissions processes to understand how we are serving our students," Hsu says. "I want to really understand how we can close the gaps for students to better support them and to think about how we strategically use our resources."

AI does not currently play a role in the school's review process. "We want to hear from the students' voices directly—their full lived experiences and how that's shaped their passion for journalism. These are not intricacies that AI can provide," Hsu says.

Hsu sees potential AI benefits both on the university and applicant sides. Colleges could use AI to explore and fine-tune marketing and outreach efforts, and candidates could utilize it as a search compilation tool to help them find funding and scholarships, particularly for graduate education.

"Hopefully, there are more conversations," Hsu says. "I think it's important for higher education institutions to always adapt and, in particular, always think about how we use new technologies to increase accessibility, advance educational equity, and leverage them as a tool to empower students."

## DEAN NOGUERA WEIGHS IN ON RECENT U.S. SUPREME COURT RULINGS

Two of the U.S. Supreme Court's rulings—race-blind admissions and student loan forgiveness—will have significant impacts on higher education in the United States. Though the setbacks are significant, I want to reassure our students, faculty, staff and colleagues of USC Rossier's ongoing commitment to educational equity and diversity, and to provide support to students who require financial assistance as they pursue their education.

Regarding the Supreme Court's ruling on university admissions, President Folt has reiterated USC's commitment to excellence and diversity. We will continue to serve outstanding students from a wide variety of backgrounds and from across the globe.

The student loan decision is also gravely disappointing. The cost of higher education remains a significant obstacle to many of our students, and the debt many are compelled to incur often has an adverse effect on their professional careers and wellbeing. USC Rossier remains committed to prioritizing scholarships for our students in our fundraising efforts. Our goal is to work toward ensuring that financial burden will not hinder access to education for our students.

While these and other recent decisions by the court are significant setbacks for many in American society, we will not allow them to undermine our dedication to the pursuit of USC Rossier's mission.