DAILY TROJAN

AI: INSIDE AND OUT SUPPLEMENT

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Art by Arielle Rizal

AI: Inside and Out

LETTER FROM THE EDITOR

Artificial intelligence feels like an angel and devil talking on my shoulders.

I woke up the other day with my phone on my chest from falling asleep on TikTok. I snoozed my alarm and checked the time to see if I could sneak in another 30 minutes of sleep, though my phone beckoned my call that morning.

The missed notifications and AI-generated videos of Steve Harvey running from monsters on TikTok lured me in like no other. I shook hands with the devil, and traded my sound slumber for more technology time.

Once TikTok bored me and I got the Google Calendar notification for class, I was up and out the door. But after class, looming internship deadlines and applications carried me to Leavey Library, where I sat working on cover letters the rest of the night. My brain was jumbled trying to decipher if my letter was actually good, or if I was just staring at the words for too long.

With ChatGPT queued, I fed the program my letter, eventually digesting the sentences and spitting out the active words I was missing. A saving grace, to say the least.

Throughout my daily life, artificial intelligence has dictated a lot of the decisions I make. AI has intrinsically set both positive and negative aspects in my life, as well as in the lives of many others. From AI-generated content to job applications, AI, I believe, has been a tool of change, a lens into the potential good and bad a user can do with such a system.

AI is expansive. We are entering a formative digital age that likely won't happen in the near future. Similar to the creation of the internet or even the first smartphone, we have the power to decide technology's boundaries and how we integrate AI into our communities.

Artificial intelligence has manifested itself in so many different avenues that we often don't see outside our daily lives. To understand and utilize this growing system, I believe we must first explore AI for all of the potential evils and solutions it offers, inside and out.

— Jason Pham, Fall 2023 Features Editor
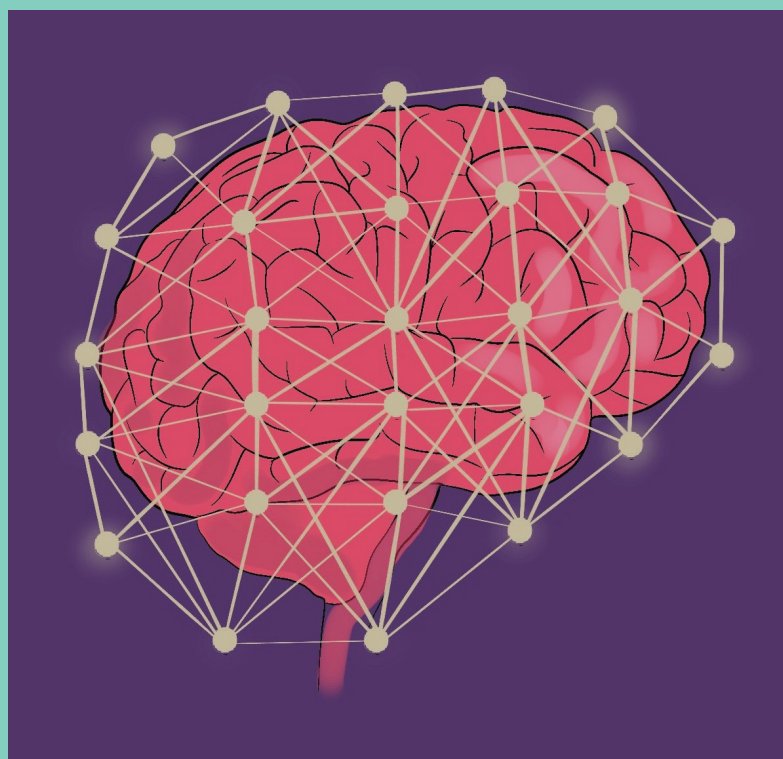
Lyndzi Ramos / Daily Trojan

Five events to attend for intelligence on AI initiatives

Explore what the University and South Los Angeles have to say about AI learning.

By JASON LIBERTY
Features Staff Writer

With the rapid growth of artificial intelligence and its entrance in social media apps, the news and typical conversations may feel overwhelming. Questions of "What even is it?" "Will it take over?" and "Should I use it?" are dilemmas humans face in today's modern age of technology. Remember when Apple's Face ID freaked everyone out, or those times when your TikTok "For You" page has become a bit too personal? Well, that's AI at work.

Luckily, easing ideas of uncertainty and confusion around AI can be accomplished near here in South Los Angeles. Below are both on-campus and off-campus events and activities that anyone can attend to think critically, engage with and get educated on AI and all of its impacts.

A Carative Approach to AI Governance

Look no further than what USC has to offer for AI learning. Requiring no payment and travel, the Center for AI in Society is hosting an informational Zoom on Nov. 9 from 2 p.m. to 3 p.m.: "A Carative Approach to AI Governance." Kush Varshney, senior manager at IBM Thomas J. Watson Research Center, is offering a possible solution for the lack of governance in AI. The talk will focus on how looking through the lens of a nursing theory perspective — an especially caring and empathetic route — can help determine who has access to AI and what the technology is used for. Varshney will, for example, look at the lack of governance in rural India specifically on who should have access to solar panels.

New Directions 2023

Staying on campus, yet held in person this year, is the 2023 "New Directions in Research on the Psychology of Technology" conference hosted by Psychology of Technology Institute. With this year's theme being "The Psychology of AI Value Alignment," the two-day event on Nov. 3 and 4 will bring together CEOs, scientists and AI experts, all in favor of creating a
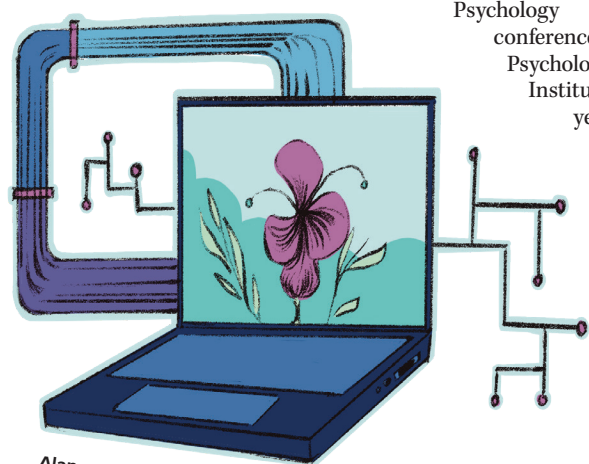
Alanna Jimenez / Daily Trojan

Can artificial intelligence write your academic paper? It depends

A closer look at course learning surrounding AI, ChatGPT and generative machines in the classroom.

By SCARLETT LOVALLO & KARISSA YAN
Features Staff Writers

At first mention, artificial intelligence seemed to be a professor's academic nightmare.

With ChatGPT generating college students' essay drafts, Midjourney designing inventive visual artwork and machine learning effectively debugging code, computer systems have instigated concerns of job replacement, copyright and dependence. And while concerns of ethical use of artificial intelligence are far from nonexistent, some undergraduate curricula are reimagining learning with generative AI.

General university guidelines give discretion to professors in determining course policies for AI. Students may find syllabi prohibiting use of computer systems between mentions of Turnitin and Academic Affairs, or in contrast, assignments incorporating artificial intelligence into academic work and independent projects.

Preparing students for careers integrating AI into neuroscience, biotechnology and pharmacology, instructors at the Davis School of Gerontology are incorporating machine learning into syllabi. In the upper-division course "Physiology of Aging," John

Lyndzi Ramos / Daily Trojan

—— DEEP DIVE ——

AI rattles creative fields like never before

Members of the School of Cinematic Arts, Annenberg School for Communication and Journalism and Thornton School of Music spoke on the future of AI in the creative workforce.

By MEENA ASPEYTIA, LUCAS DAMASCO & VICTOR YE
Features Staff Writers

ChatGPT. Virtual 24/7 customer service chatbots. Text-to-video generators. Artificial Intelligence has seen rapid evolution, with companies such as Runway, Kaiber and Midjourney paving the way for text, image or voice-to-image/video generation models. Especially with the emergence of Deepfakes — AI used to digitally alter and manipulate images in order to impersonate or replicate someone's persona — technology is a complex landscape for creative and personal usage rights.

Among tensions in the media and entertainment field, the branching technology has also received mixed feelings from some in creative industries who question whether the risk factors are in the technology itself or the user.

Jaden Kirshner, a junior majoring in business of cinematic arts with an artificial intelligence minor, said he sees the potential for AI development in film, though the power may be up to the creator or user to utilize AI for positive progression or negative obstacles.

"Take deepfake videos, for example. They could be a way to make content more personalized by putting your own face on a character, or it could be used to revitalize actors who have passed away," Kirshner said. "However, there are also many negatives, such as misinformation that may occur through the falsification of videos."

AI's domains don't just create video content; they have also invaded writing spaces and caused an uproar amongst many writers around the nation. In May, the world witnessed the Writers Guild of America go on a 148 day long strike, demanding higher royalties and, more importantly, safeguards to their jobs alongside Artificial Intelligence. AI poses a major threat to the writers careers due to the possibility of AI writing similar or even more improved scripts; however, some, including Kirshner, view AI in a more positive light.

"There is constantly a disconnect between creatives and the business and technical side of things, so if we want to see a positive future, these two sides need to
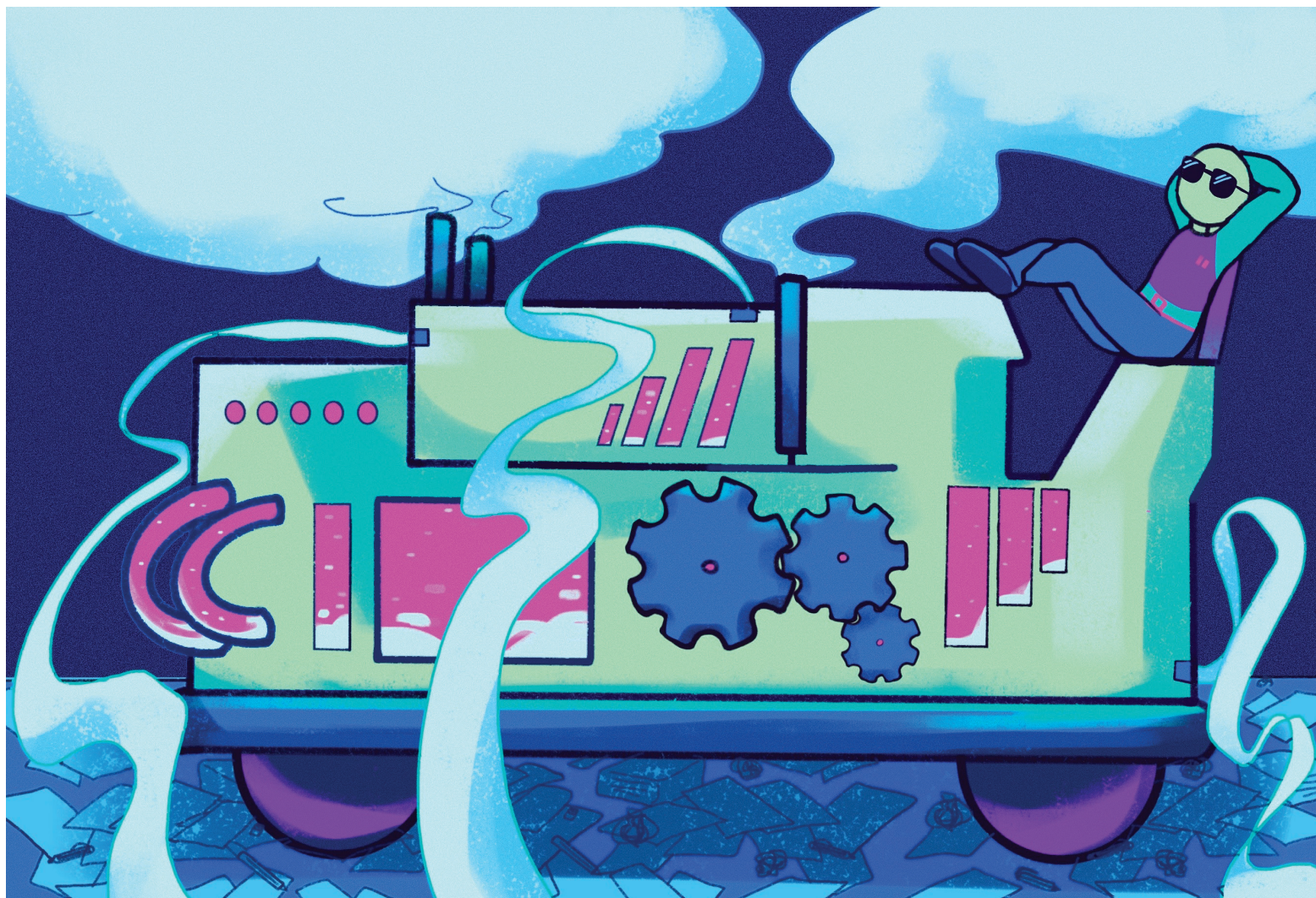
Gloria Jin / Daily Trojan

come together," Kirshner said.

Kirshner said he believes writers should welcome the new technology as an aide, rather than an opponent, for writing spaces.

"Something can't be creative unless it can fall in love or fear death. AI can do neither of those things. To have a real story, an emotional story that really connects with someone on a deep level and resonates with people like some of the great stories have, I don't think AI can do that alone," Kirshner said. "But the writers who embrace AI will get a leg up and hopefully create better work."

Though movie monologues and TV scripts aren't the only creative writing spaces tackling the emergence and progression of AI, some

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JADEN KIRSHNER
Junior majoring in business of cinematic arts with a minor in artifical intelligence

journalists and media writers are welcoming AI with open arms.

Mike Ananny, an associate professor of communication and journalism and the co-director of the Center on Generative AI in Society, concurs with Kirshner on embracing AI. Ananny said he

believes Artificial intelligence will not replace the journalism industry, but will rather be a supplementary tool that can aid professionals in fact-checking and reporting.

"One is understanding how to produce media in environments where there may be lots

of disinformation coming from a lot of places, from generative AI systems to others," Ananny said. "The second point is how to act defensively within an environment where there may be misinformation and how to insulate your own work practices."

Key skills like identifying the authenticity of source materials or reporting skepticism in a social media post are critical to the development of a student's ability to analyze content effectively in the age of AI emergence, Ananny said. Practice through extracurricular activities beyond the classroom, he said, will be beneficial for Annenberg students who want to exercise their critical thinking skills.

"One thing is getting involved with the [Annenberg] Media Center and grappling with these questions as a media producer," Ananny said."There is also a lot of independent study that is underutilized working with individual professors. Rather than waiting for the perfect opportunity to present itself, I think students already have an idea of what they are curious about."

Universities across the nation, such as the Harvard Graduate School of Education and UC Berkeley School of Law, are attempting to adopt artificial intelligence technologies in classrooms with different approaches. Ananny said he's optimistic about the media field because he believes this is the perfect opportunity to study journalism with a critical systems-level approach that analyzes how media systems work. For

Heidi Atlas / Daily Trojan file photo

The USC School of Cinematic Arts and the film industry grapple with artificial intelligence and the rise in deepfake videos among ongoing writer strikes.

CREATIVE | Students learn to navigate changes in their industries of study

him, these approaches have always been the work of a journalist.

AI applications don't just produce written content and replicate imagery, but have extended to cloning voices and sounds as well. Websites like Speechify and ElevenLabs can replicate pre-existing voices or even produce new, human-sounding conversations with any accent. With celebrities' and performing artists' voices publicly available online, some music industry professionals believe such technology could be innovative and improve royalty payouts for record labels.

Andrew Leff, a Thornton professor with 20 years of music industry experience as an attorney,

artist manager and booking agent, said AI could reduce royalty costs from a business standpoint.

"Here's the problem with AI: You would think that people in the arts community would be against AI because we like to think that our art is a human-based profession," Leff said. "But, if I'm a record label executive in 2023 and I have the choice of two songs and one of those songs I have to pay royalties on and the other one I don't have to pay anything on — from a financial POV I might be much more interested in going the AI route."

The music industry is having trouble maintaining its value, losing half its revenues and streaming value after having

trouble adapting to the dawn of the digital era and today's streaming-centric society. The average payout per stream to artists is $.0033 and 10% of artists make up 99% of streams.

"Every stream recorded is at the expense of another artist, so by polluting the royalty pool with AI-generated content means less of the pie for legitimate artists to share," Leff said.

Despite the diversity of angles in the framing of AI toward the creative industries, one fact is clear: The technology is here to stay. There will be necessary steps to increase critical skills in order to supplement the use of AI in respective fields within entertainment, media and music.

> *"Every stream recorded is at the expense of another artist, so by polluting the royalty pool with AI-generated content means less of the pie for legitimate artists to share."*
> ...
> **ANDREW LEFF**
> *Thornton assistant professor of practice*

EVENTS | The next level of AI learning

Noah Pinales / Daily Trojan

world with more healthy and daily interactions with AI. Broken down into eight sessions, ranging from data blitz to individual well-being, attendees will have the opportunity to hear from about 22 different guest speakers. Carey Morewedge, a professor of marketing and an expert in psychological research, for example, will discuss the human biases in AI algorithms. The event's schedule is subject to any final changes and more guest speakers may be included.

Ethics in the Age of AI

Whether you're a tech genius or simply curious about how AI affects our world, on Nov. 14 from 4 p.m. to 6 p.m., the Viterbi School of Engineering will host "Ethics in the Age of AI." Attendees will get the opportunity

to dive deep into philosophical AI dilemmas and be challenged to think about how technology, humanity and ethics are all influenced by each other. Now, AI is added to that mix.

AI and Me Conference

Interested in exploring AI outside of campus walls? Head on over to El Monte this Sunday, Oct. 29 for the "AI and Me" Conference. Providing a full day of AI experiences and learning objectives, the event is made for AI enthusiasts and crazily curious people. The conference is composed of talks about several fields that AI is becoming prevalent in. Want to go into medicine or entertainment? You're in luck, because there are whole discussions focused on both, plus more — including marketing,

business and even how AI and identity are interlinked.

Is HR Already Behind in the AI Revolution?

Make your way to Culver City on Nov. 9 for an event about human resources and AI. Judy Albers, director of research enablement at the Institute for Corporate Productivity and the moderator of the event, and four guest speakers will share their research findings on HR and AI. After conducting a global research study, they are now able to share what causes organizations to perform highly over others with respect to AI and what the future of AI has in store. Individuals working in HR or anyone with a free Thursday off are encouraged to attend and can purchase tickets online.

ACADEMIC | Rules vary

Walsh, professor of gerontology, encourages students to develop skills in artificial intelligence programming. Students create a Wix website with algorithm-generated data for a specialization of cancer, including prevention and risk factors, advanced diagnostics, treatments and clinical trials.

"My goal is [for students to] be competitive in the professional world that is completely embracing AI," Walsh said. "People are getting really incredibly lucrative careers based on knowing how to communicate with AI and [using] the right search terms."

At the Viterbi School of Engineering, artificial intelligence is arguably redefining computer diagnostics, advancing early diagnosis of Alzheimer's disease. Researchers are training AI to detect blood markers of the neurodegenerative condition in cross-disciplinary research. Such innovation at the intersection of biomedical research and computer science prompts the introduction of AI training into undergraduate education.

But artificial intelligence is still (machine) learning: USC Libraries warns students of current model limitations, citing that generated information may be false, outdated or biased. For students, using this sometimes unreliable computer-generated information for assignments could cause professors to label them as plagiarized or entirely fabricated. Such reminders reflect that artificial intelligence remains remarkable, yet imperfect.

Recognizing computer system flaws, Walsh requires his students to fact-check algorithm-generated content. After generating their websites, undergraduates will reference credible sources, confirming the accuracy of data. Such policies ensure students correct misinformation and acknowledge "algorithmic bias," or implicit bias from data training the computer systems. When left unaddressed, automated bias can perpetuate disparities in representation, exacerbating existing structural inequities.

While artificial intelligence may be to blame for computer-generated errors, students should be aware that they are ultimately responsible for work they create or endorse.

"Even though it's AI generated ... you're still presenting it as yourself," Walsh said. "You are now the advocate for ... that tool, so you have to justify it."

While most undergraduate schools have yet to standardize expectations for AI usage, professors are recommended to clearly state their individual course policies.

Mark Ananny, an associate professor at the Annenberg School of Communication and Journalism, takes on a reflective approach to the question of AI use in his syllabus, and more generally, the learning environment he wants to foster with his students.

"Generative AI can be an opening to other ways of learning and other ways of critical thinking, [and this critical engagement], to me, is the whole point of a learning environment. It's a matter of how generative AI can fuel that," Ananny said.

Annany said one of the biggest mistakes in the rhetoric surrounding AI is in the personification and the agency ascribed to AI, which is essentially a mathematical algorithm. Much of the fear and hype surrounding generative AI is in its potential to replace human labor, but as students prepare for a future in a workforce that is saturated with fast-paced technological innovation, he hopes that his classroom can equip students with an important "metaskill": developing an understanding of the greater politics of labor organization and technological distribution.

"I am most deeply interested in the politics of technology," Annany said. "Why are some systems made and other systems not made? What kind of image of people or humanity or success or public life — those big, huge humanistic concepts — end up being baked into these systems?"

In the School of Cinematic Arts' course "AI and Creativity," Professor Holly Willis has already seen increased awareness around the ethics of AI among her students. By using generative AI tools such as ChatGPT and Midjourney for language, still-image and motion generation, students have also taken on a reflective practice, critiquing the biases and limitations in the datasets that these tools are trained on — datasets of which are sourced from existing databases that may contain race, class, gender and geographic skews.

In this period of flux, professors face the challenge of designing course policies that balance the concerns around academic integrity while also introducing the opportunity to use AI reflectively and creatively in the classroom.

"The knee jerk reaction that I find most troubling is the idea that students just want to cheat, and they'll be using these tools to get through their classes quickly and easily without doing the actual work themselves," Willis said. "I kind of push back against that and recognize that students are often very serious about why they're here and what they want to do as they're learning."

At the Marshall School of Business, relevant guidelines mirror the sentiment that fundamentals are essential. In foundational and lower-division courses, students are not allowed to consult AI for work relating to analysis, critical thinking or innovation. Such curricula are necessary for students to practice independently, prior to in-depth analysis and applications.

After students develop the fundamental skills in lower-division courses, they can apply AI to enhance their craft in upper-division courses. Annany said AI tools can be integrated into the "journalistic workflow" to provide different starting points for projects that would originally take longer, more tedious preparatory steps. Likewise, in Willis' upper-division course, generative AI has offered students different mediums for visual storytelling.

"The myth is that it is super easy to generate something, [but] to create a body of work that shares an aesthetic and that feels continuous really takes skill and hard work and a kind of visual imagination that I think is exciting," Willis said. "There still needs to be a kind of sensibility and attentiveness to storytelling — all the things that go into traditional forms of art making."

Regardless of the tools students use, both Annany and Willis emphasized the importance of the creator as the driving force in the relationship between creator, creation and the subsequent commercialization of the craft.

The integration of new technologies in USC classrooms continues to change in tandem to the broader, societal impacts of AI as the University aims to foster future leaders in creative and technological fields. Across all the schools at USC, carving out space in the syllabus to combine the frontiering of technological innovation and a perspective of humanistic inquiry aims to prepare students for ethical advancements in AI.

"This is a moment that is about the politics of technology," Annany said. "And if we see it as an opportunity to better understand the politics of our technologies, then this can be a really productive, exciting, positive moment."
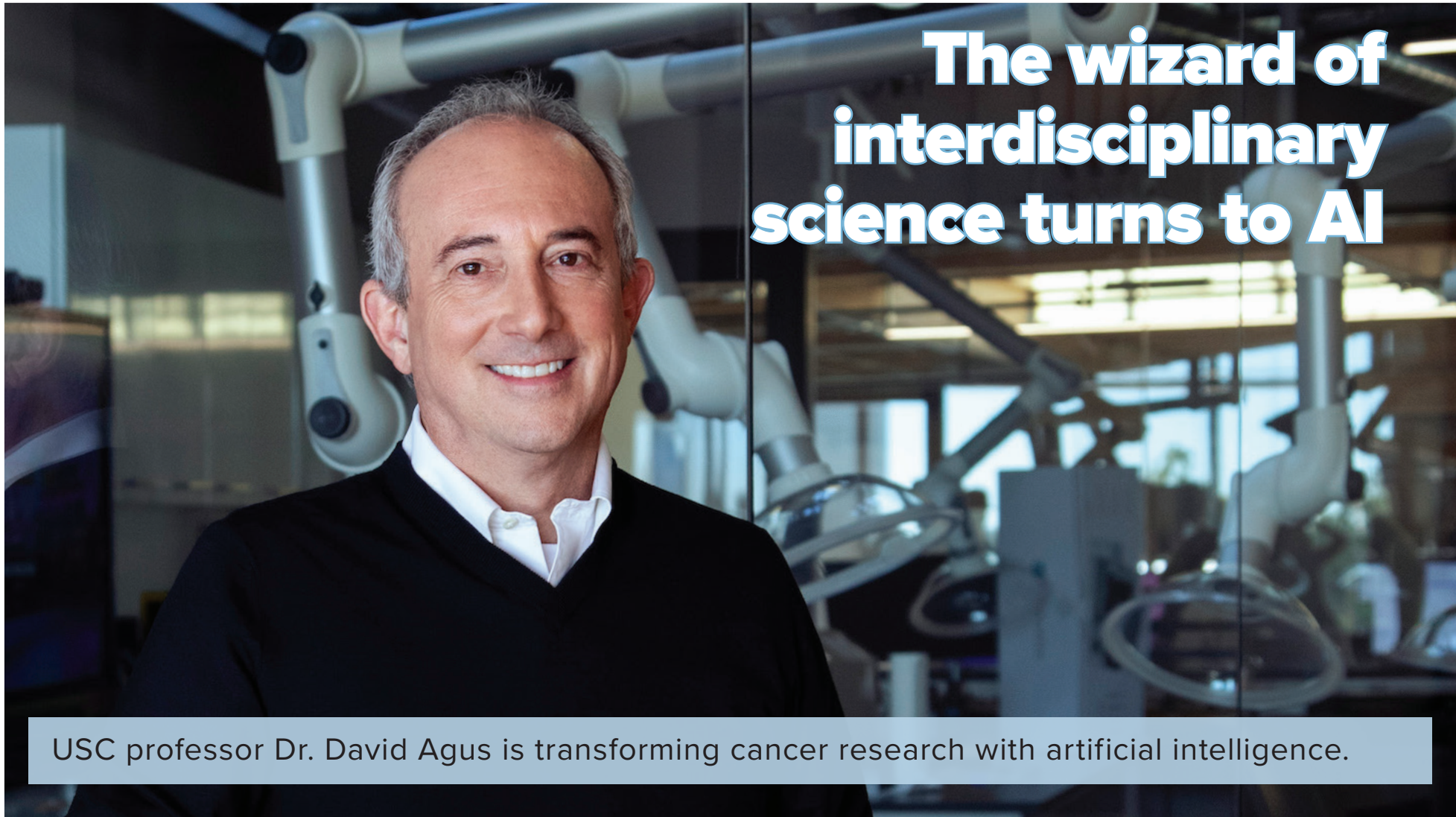
The wizard of interdisciplinary science turns to AI

USC professor Dr. David Agus is transforming cancer research with artificial intelligence.

David Agus

Dr. David Agus is a professor of medicine and biomedical engineering and the founding director and CEO of the Ellison Insitute of Technology. He has won awards through his cancer research.

By VERONICA KUO & DEVON LEE
Features Staff Writers

Artificial intelligence has ushered in a new age of interdisciplinary work, revolutionizing the possibilities within science, business and even art. The study of technology's cross-discipline capabilities, however, is nothing new.

World-renowned medical oncologist Dr. David Agus has been combining technology and medicine for decades now, and his research in artificial intelligence has already started to have profound effects in the world of medicine.

At USC, Agus is a professor of medicine and biomedical engineering and the founding director and CEO of the Ellison Institute of Technology. His innovative cancer research has earned him numerous awards, including the American Cancer Society Physician Research Award, a Clinical Scholar Award from the Sloan-Kettering Institute and the 2009 Geoffrey Beene Foundation's Rock Stars of Science Award.

Early on in his career, Agus was drawn to oncology for the potential that the relatively new industry still held. As an undergraduate at Princeton University in the 1980s, he recalls telling his friend about his aspirations.

"[I said] I want to become a cancer doc," Agus said. "[My friend] looked at me, and he goes, 'Come on, David, you're smart. Cancer doctors just give poisons to people. They don't really work' ... To me, that doubled my resolve. I wanted to go into a field where they weren't, not where they already were and they had answers. I wanted to go into a field that was just beginning."

In a time when cancer doctors had limited treatment options for patients, Agus pioneered change in oncology by incorporating engineering and technology into medicine.

"He's always been interested in integrating big data," said Dr. Darryl Shibata, a clinical pathologist and professor of pathology at USC. "People still don't know how to do that. They're getting better at it, but from early on, he was very interested in integrating data. He's taking big data and making it something more understandable and useful. I think it's a modern way of doing research."

Today, Agus is making an impact in another progressive industry: the world of artificial intelligence. Through his work at the Ellison Institute for Transformative Medicine, founded in 2021, Agus and his AI research team have already begun to make breakthroughs in the use of artificial intelligence and medicine.

Utilizing technologies like deep learning, which trains computers to utilize neural networks much like human thinking, researchers at the EIT have found new, efficient ways to diagnose cancer. In 2020, researchers developed a deep learning algorithm that can classify breast cancer subtypes in tumor biopsies. In practice, this technology can diagnose cancer more efficiently and at a lower cost than the current technologies.

Agus said the effects of technologies like those being researched at the EIT will dramatically reduce costs, the greatest challenge facing the medical industry today.

"This will be accessible to everyone," Agus said. "It's not like it's some fancy therapy that costs hundreds of thousands of dollars and only the elite hospitals can do. I do think it's going to dramatically lessen the costs of developing drugs and the time to those drugs being developed, which in the end will translate to less spending in health care."

Agus is also the author of three New York Times and international bestsellers: "The End of Illness" (2012), "A Short Guide to a Long Life" (2014) and "The Lucky Years: How to Thrive in a Brave New World of Health" (2016). These books explore simple changes in daily routines which can increase health and longevity.

His work in media extends also to television and social media. In December 2022, Paramount released "The Checkup with Dr. David Agus," a show in which Agus discusses different medical issues with celebrity guests. In 2013, he gave a TED Talk titled "A new strategy in the war on cancer," in which he detailed the power that big data and technology could have in transforming how we detect and treat cancer.

Across all of his work, Agus said he believes artificial intelligence will be the greatest modern transformation of the medical industry.

"This will be the most significant change in medicine in my lifetime," he said. "The advances in care that will be around because of AI in the next several years will really transform how we treat patients."

With AI's potential to positively transform medicine, Xingyao Chen, an AI research engineer at EITM, said researchers at EIT still maintain caution and concern when it comes to the ethics of using AI.

"We're always careful about not biasing our dataset, having good representation of multiple demographics," Chen said. "When our AI has a prediction about a patient's outcome, we can say the AI made this decision: Why did it do this? What kind of information did it take in to make this decision? So those are failsafes to check whether the AI is being ethical or not."

And despite AI's superior ability at functions like interpreting big data, reading scans and individualizing treatment using large language models, Agus is confident AI will not replace humans.

"It's not going to replace pathologists or radiologists, but it's going to enable them to be more productive and to give better results," he said. "You don't just say you've got cancer of the lung or the prostate or the breast. You can actually say a lot more and say what the outcome is going to be, what drugs to use. It really

will be the beginning of true personalized care in this country."

AI's future in medicine has not only made an impact on how scientists approach cancer research but also how students are studying the technology. Chen said the recent openings in AI internships have allowed for more young people to get hands-on AI research experience.

John Paine — a USC alum, former intern at EIT and current junior AI research engineer — said his experience researching AI at the Ellison Institute and working for Agus has allowed him to combine his academic interests into a holistic occupation.

"I was looking for a place that combined computer science and natural sciences," he said. "We do a lot of really amazing stuff, and it's just been a great opportunity to combine those two things I never thought I'd get to combine."

That interdisciplinary approach helped propel Agus to success, as his early studies as an engineer helped lay the groundwork for his research in AI. For USC students and those looking to pursue a career in science, Agus urges young people to find what "the key really is to become facile in other disciplines."

"Math and engineering are the foundation for what change will happen in medicine going forward, because we're already learning biology and human physiology, and when you couple it together, that's really powerful," Agus said.

Agus' philosophy of starting at a place where innovation has yet to happen is a key part to his success in transforming cancer treatment to become more efficient and effective. In his TED Talk discussing this cutting edge research, Agus said that he hoped "we would go from the art of medicine to the science of medicine." Thanks to AI research, that aspiration is coming to fruition, he said.

"When I get a sample, and I have seen thousands of them, even though it said it was not aggressive cancer, it looks bad to me, and that pattern recognition enables the art of medicine," he said. "The beauty is, AI can do art much better than humans can, much more reproducible. So that will be the transition to science we said that we were hoping and dreaming for. It's finally here today."

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> ...
>
> **DR. DAVID AGUS**
> CEO of the Ellison Institue of Technology