

The moment to lead: ASU computer scientists on AI, jobs and the road ahead

In this Q&A, leaders share why today's challenges call for deeper skills and bold innovation

By Kelly deVos, ASU News
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Recent headlines warn of cooling tech job postings and lower starting salaries, and stories are rife with fears that artificial intelligence, or AI, will eliminate entry-level roles.

For students considering a degree in computer science or software engineering, the news can sound discouraging.

Computer scientists in the [Ira A. Fulton Schools of Engineering](#) at Arizona State University say the reality is more nuanced, complex and hopeful.

They point out that although tools and platforms evolve, the core skills of computer science remain valuable across industries. Those foundations have already survived major technological shifts, becoming more essential as industries adapted to new challenges.

Here they explain more about what to know when it comes to the future of AI and jobs.

Meet the experts:

Ross Maciejewski

[Ross Maciejewski](#), a professor of computer science and engineering and director of the [School of Computing and Augmented Intelligence](#), part of the Fulton Schools, leads one of the nation's largest computer science programs and is internationally recognized for research in data visualization for homeland security, public health, social media and law enforcement.

Nadya Bliss

[Nadya Bliss](#), executive director of ASU's [Global Security Initiative](#), a Fulton Schools computer science and engineering professor of practice, and chair of the [Computing Community Consortium](#), part of the [Computing Research Association](#), or CRA, is a leading computer scientist whose work advances national security and responsible innovation at the intersection of technology and society.

Srividya Bansal

[Srividya Bansal](#), an associate professor and program chair of software engineering in the Fulton Schools, researches semantics-based approaches for big data integration and knowledge networks while leading efforts to prepare industry-ready graduates through innovative hands-on curricula.

Q&A

Question: Is AI eliminating computer science jobs?

Maciejewski: [Current reports](#) don't show a sweeping "AI effect." Some studies suggest today's slowdown could be the result of [post-pandemic over-hiring](#). What's definitely happening is [a shift in how jobs are done](#). AI copilots can draft code, but that makes quality assurance, integration and systems thinking more important. Students who master those fundamentals can thrive.

Bliss: Computer science foundations, including abilities like problem-solving, abstraction and algorithmic thinking, don't go out of style. Programming languages change, but core skills endure. My mantra is simple: Do more math. It makes you precise about assumptions and limitations, which is crucial in an AI-driven world.

Bansal: In software engineering, most effort is already in testing, debugging and maintenance. As Ross noted, AI can generate starter code, but students must still validate, integrate and secure it. Critical thinking and deep technical knowledge are more important than ever.

Q: What historical patterns should students keep in mind?

Maciejewski: Tech hiring has often [been quite cyclical](#). The early '90s, the 2001 dot-com crash and the 2008 recession all brought contractions, but the field rebounded with new platforms and opportunities. Students entering school today will likely graduate into a market that has absorbed AI more thoughtfully, with a continued demand for engineers who can design and scale trustworthy systems.

Bliss: Each major wave of technology, from parallel computing to internet commerce, reshaped the job market, but instead of eliminating roles, it created new and different ones. With every expansion, more fields became dependent on computer science expertise, multiplying opportunities rather than reducing them.

Bansal: We've seen similar cycles with software tools. In the 1980s, it was reusable code libraries, then open-source frameworks and later integrated development environments that eased syntax and debugging. Each time, people worried jobs might disappear. Instead, productivity increased, and engineers moved on to tackle bigger, more complex projects, like web and mobile apps in the 2000s. AI is the next wave in that same pattern. But it doesn't eliminate the need for software

engineers. It pushes them to higher levels of problem-solving.

Every industry is now a tech industry. No matter where you go, companies need people who can design, secure and maintain complex computer systems.

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Ross Maciejewski, professor of computer science and engineering

Q: Where is job demand strongest right now?

Maciejewski: Students with [AI expertise are in demand](#), but shortages are also acute in [cybersecurity](#) and [microelectronics](#). Globally, millions more cybersecurity professionals are needed, and the U.S. semiconductor industry alone may require nearly half a million additional workers by 2030. In the School of Computing and Augmented Intelligence, every undergraduate takes a cybersecurity course, and we offer [concentrations](#) to prepare computer science students for these roles.

Bliss: In ASU's Global Security Initiative, we're also applying AI in mission-critical settings like defense and infrastructure. That's where students learn both capability and responsibility: how AI can help, where it can fail and how to design around its limitations.

Q: How is ASU preparing students for an AI-enabled future?

Maciejewski: ASU ranks among the [top programs nationally](#) in AI education. Students take courses in robotics, machine learning and autonomous systems, but they can also gain applied experience through internships and research that connect AI to real-world challenges. The School of Computing and Augmented Intelligence is also the home of globally recognized faculty members such as data mining trailblazer [Huan Liu](#) and [Subbarao Kambhampati](#), a past president of the [Association for the Advancement of Artificial Intelligence](#) and winner of the organization's 2025 Patrick Henry Winston Outstanding Educator Award. We believe students have a real opportunity to engage with AI thought leaders here in the school.

Bansal: In software engineering, we focus on durable core skills like systems design, collaboration and resilience. Our capstone program is especially powerful. Industry sponsors bring real problems, and students carry projects from requirements through design, coding and testing. Increasingly, these projects are AI-enabled, involving recommendation engines, natural language processing or predictive analytics.

That means students practice treating AI as a tool, not a replacement. They learn to use it for code scaffolding or testing, but also to critique outputs, debug errors and integrate results into larger systems. Employers tell us this fluency, the ability to use AI while maintaining engineering rigor, is exactly what they need.

Bliss: That aligns with the results of the most recent [Practitioner-to-Professor Survey](#) from the CRA, where we asked industry experts to tell us what they were seeing out in the workplace. The feedback emphasized broad-based AI literacy, lifelong learning and cross-sector collaboration. ASU is built for that approach.

Q: What skills matter most to employers?

Bliss: Problem-solving, systems thinking, experimentation and communication. Programming languages change, but fundamentals don't. Employers also want teamwork, good soft skills and adaptability. These are things that can matter even more when you're working alongside AI.

Maciejewski: That's why we encourage students to go beyond the classroom. Through [research programs](#), [service work](#) and [interdisciplinary projects](#), they practice leadership and collaboration. Employers increasingly ask, "What have you built? How did you work on a team? How did you test your system?"

Bansal: Capstone projects prepare students for exactly those questions. They practice client consultation, project management and public presentation, explaining technical decisions to both engineers and nontechnical stakeholders. By graduation, they've already delivered solutions to real clients, many involving AI, which shows employers they can apply skills in practice.

Q: What about advanced degrees?

Bliss: The [CRA worries](#) that the U.S. risks losing its leadership position in fields like AI, cybersecurity and quantum computing because fewer domestic students are pursuing PhDs. Yet doctoral research powers innovation, industry growth and national security. Sustaining that pipeline requires partnerships. We need federal investment, as well as industry support, since most doctoral students ultimately go on to companies where they create new products, launch sectors and drive competitiveness. Advanced study also equips students to take on entirely new problems that simply can't be addressed without deeper training.

Maciejewski: For undergraduates, it's natural to weigh immediate salaries against years of study. But advanced research puts you at the frontier, working on problems that can launch startups or reshape industries. At ASU, students also have opportunities to pursue [accelerated master's degrees](#), allowing them to deepen their expertise without adding many extra years of study. A graduate degree can open doors to more specialized roles and leadership positions in the workforce. A PhD isn't for everyone, but for those who pursue it, the payoff comes not just in credentials but in the chance to create entirely new opportunities for themselves and others.

The road ahead contains both great challenges and great opportunities. This is a moment for us to lead.

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Nadya Bliss, executive director of ASU's Global Security Initiative

Q: What final advice would you give students?

Bansal: Approach your education with agility. Tools and platforms will keep changing, but what lasts are the habits you develop — learning how to learn, sticking with things that don't initially work and collaborating effectively. Those habits will allow you to grow into new opportunities as they appear.

Maciejewski: When I graduated in 2001, the dot-com bubble had just burst and the job market looked bleak. What I learned is that cycles come and go, but the people who invest in key skills and stay adaptable are the ones who succeed over time. Don't measure your future only by today's headlines. Focus on building the kind of resilience and expertise that will carry you through shifts in technology and the economy alike.

Bliss: What excites me is that entirely new classes of challenges are emerging, and they create opportunities for computer scientists at every level. We're grappling with the energy demands of large-scale computing and the need for low-power architectures. We're exploring the intersections of AI with quantum computing and biotechnology. These are open problems, and they're consequential ones. For students, that means there is enormous room to contribute and innovate. The future isn't about fewer opportunities. It's about different, more complex opportunities that require the kind of deep training college degrees can provide.

This story originally appeared on [ASU News](#).

Main image



From left: Srividya Bansal, program chair of software engineering in the Ira A. Fulton Schools of Engineering; Nadya Bliss, executive director of the Global Security Initiative; and Ross Maciejewski, professor and director of the School of Computing and Augmented Intelligence, discuss the past, present and future of jobs in computer science. Graphic created by Erika Gronek/ASU