The Computer-Science Bubble Is Bursting

Artificial intelligence is ideally suited to replacing the very type of person who built it.

Rose Horowitch June 21, 2025

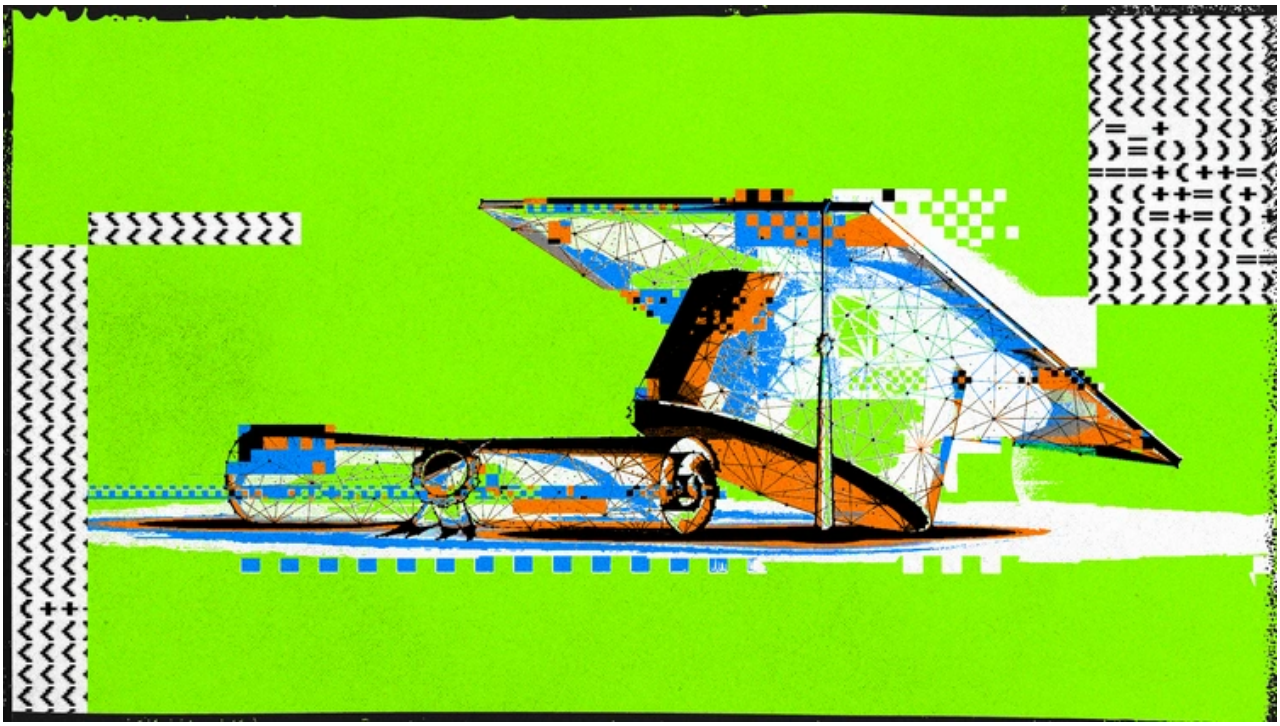

Illustration by The Atlantic. Source: CoreDesignKEY / Getty.

The job of the future might already be past its prime. For years, young people seeking a lucrative career were urged to go all in on computer science. From 2005 to 2023, the number of comp-sci majors in the United States quadrupled.

All of which makes the latest batch of numbers so startling. This year, enrollment grew by only 0.2 percent nationally, and at many programs,

it appears to already be in decline, according to interviews with professors and department chairs. At Stanford, widely considered one of the country's top programs, the number of comp-sci majors has stalled after years of blistering growth. Szymon Rusinkiewicz, the chair of Princeton's computer-science department, told me that, if current trends hold, the cohort of graduating comp-sci majors at Princeton is set to be 25 percent smaller in two years than it is today. The number of Duke students enrolled in introductory computer-science courses has dropped about 20 percent over the past year.

But if the decline is surprising, the reason for it is fairly straightforward: Young people are responding to a grim job outlook for entry-level coders. In recent years, the tech industry has been roiled by layoffs and hiring freezes. The leading culprit for the slowdown is technology itself. Artificial intelligence has proved to be even more valuable as a writer of computer code than as a writer of words. This means it is ideally suited to replacing the very type of person who built it. A recent Pew study found that Americans think software engineers will be most affected by generative AI. Many young people aren't waiting to find out whether that's true.

"It's so counterintuitive," Molly Kinder, a Brookings Institution fellow who studies AI's effect on the economy, told me. "This was supposed to be the job of the future. The way to stay ahead of technology was to go to college and get coding skills." But the days of "Learn to code" might be coming to an end. If the numbers are any indication, we might have passed peak computer science.

Chris Gropp, a doctoral student at the University of Tennessee at Knoxville, has spent eight months searching for a job. He triple-

majored in computer science, math, and computational science at the Rose-Hulman Institute of Technology and has completed the coursework for a computer-science Ph.D. He would prefer to work instead of finishing his degree, but he has found it almost impossible to secure a job. He knows of only two people who recently pulled it off. One sent personalized cover letters for 40 different roles and set up meetings with people at the companies. The other submitted 600 applications. "We're in an AI revolution, and I am a specialist in the kind of AI that we're doing the revolution with, and I can't find anything," Gropp told me. "I found myself a month or two ago considering, *Do I just take a break from this thing that I've been training for for most of my life and go be an apprentice electrician?*"

Gropp is contending with a weak job market for recent college graduates in general and the tech sector in particular. Although employment for 22-to-27-year-olds in other fields has grown slightly over the past three years, employment for computer-science and math jobs in that age group has fallen by 8 percent. Not long ago, graduates from top comp-sci programs—such as those at Stanford, UC Berkeley, and Carnegie Mellon—would have been fending off recruiters from Google and Amazon. Now, professors at those schools told me, their graduates are having to try much harder to find work. Gropp's dad, William Gropp, runs the National Center for Supercomputing Applications at the University of Illinois at Urbana-Champaign. "I can say, as the father of a computer-science master's degree holder with expertise in machine learning who is still looking for a job, that the industry is not what it used to be," he told me.

In the ultimate irony, candidates like Gropp might be unable to get jobs

working on AI because AI itself is taking the jobs. "We know AI is affecting jobs," Rusinkiewicz, from Princeton, told me. "It's making people more efficient at some or many aspects of their jobs, and therefore, perhaps companies feel they can get away with doing a bit less hiring."

Derek Thompson: Something alarming is happening to the job market

The best evidence that artificial intelligence is displacing tech workers comes from the fact that the industry that has most thoroughly integrated AI is the one with such unusually high unemployment. Tech leaders have said publicly that they no longer need as many entry-level coders. Executives at Alphabet and Microsoft have said that AI writes or assists with writing upwards of 25 percent of their code. (Microsoft recently laid off 6,000 workers.) Anthropic's chief product officer recently told *The New York Times* that senior engineers are giving work to the company's chatbot instead of a low-level human employee. The company's CEO has warned that AI could replace half of all entry-level workers in the next five years. Kinder, the Brookings fellow, said she worries that companies soon will simply eliminate the entire bottom rung of the career ladder. The plight of the tech grads, she told me, could be a warning for all entry-level white-collar workers.

Not everyone agrees that AI is causing the turbulence in the job market. The tech industry frequently goes through booms and busts. The biggest companies exploded in size when the economy was good. Now, with high interest rates and the specter of new tariffs, executives are likely holding off on expanding, and workers are reluctant to leave their job, says Zack Mabel, director of research at

the Georgetown University Center on Education and the Workforce. Companies have an incentive to blame layoffs on AI instead of forces within their control, David Deming, an economics professor at Harvard, told me. "Before we see big changes from AI in the labor market, companies have to internalize this new capability and change what they ask for. And that's the thing that I have not seen very much of," he said. "It could be AI, but we just don't know."

Enrollment in the computer-science major has historically fluctuated with the job market. When jobs are scarce, people choose to study something else. Eventually, there aren't enough computer-science graduates, salaries go up, and more people are drawn in. Prior declines have always rebounded to enrollment levels higher than where they started. (And some universities, such as the University of Chicago, still haven't seen any enrollment drops.) Sam Madden, a computer-science professor at MIT, told me that even if companies are employing generative AI, that will likely create more demand for software engineers, not less.

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Whether the past few years augur a temporary lull or an abrupt reordering of working life, economists suggest the same response for college students: Major in a subject that offers enduring, transferable skills. Believe it or not, that could be the liberal arts. Deming's research shows that male history and social-science majors end up out-earning their engineering and comp-sci counterparts in the long term, as they develop the soft skills that employers consistently seek out. "It's actually quite risky to go to school to learn a trade or a particular skill, because you don't know what the future holds,"

Deming told me. “You need to try to think about acquiring a skill set that’s going to be future-proof and last you for 45 years of working life.”

Of course, when faced with enormous uncertainty, many young people take the opposite approach and pursue something with a sure path to immediate employment. The question of the day is how many of those paths AI will soon foreclose.