Robotic process automation is changing office work but may not mean more jobs lost to automation.

Alexis Rock and Everest Jilke faced a daunting assignment. Their professor at California State University at Fullerton asked the pair of accounting undergraduate research assistants to create a dataset of demographic information for every U.S. ZIP code – more than 40,000 in all.

Rather than compile the figures by hand, they adopted a strategy that's gaining traction at universities and companies of all kinds: building a bot.

"We let it run for hours as it collected all of the data," Jilke says. "There was tons of work that was eliminated because of the bot's creation."

There's a lot of fear among workers about job automation, but offloading repetitive duties to algorithms and robots won't necessarily render human employees obsolete. Instead, office bots can free white-collar workers to spend more time solving advanced problems.

"They take away the boring, mundane tasks that people don't want to do," says Tom Clancy, senior vice president of learning for UiPath, an automation software vendor. "Humans are made to be creative. They're not made to sit at desks and do repetitive tasks over and over again for years."

Some office workers arrived at this realization early and began automating their own jobs without telling their employers. In a widely viewed post on online forum The Workplace, a programmer explains how he secretly created a system to handle his dull data-entry assignments.

These rebelliously efficient employees may not have to hide their bots much longer. In industries such as banking, insurance, health care and retail, companies are investing in automated tools designed to handle repetitive tasks like processing claims, balancing accounts and pointing customers to resources.

Called robotic process automation, these systems rely not on physical droids or drones, but software. RPA tools can be simpler to use than their high-tech name suggests, even for people with little coding experience.

That's good news for office workers, more and more of whom will soon be required to integrate bots into their daily labor, RPA advocates say.
"In the near future, everyone will have a bot on their desktop," Clancy predicts.

**Adopting Robotic Process Automation**

Robotic process automation has existed for more than a decade. Only recently has it proliferated in professional environments, thanks to new software options and increased awareness from corporate leaders about benefits, which can include "reduced costs, improved productivity and greater compliance with processes," says Mark Davison, partner and global lead of software and consulting company ISG Automation.

Bots have many uses in an office setting. They can collect data, create reports and send them to designated recipients. They can follow rules to make currency conversions, monitor inventory levels and scan the internet for the best prices on products.

And bots can save humans time and effort by intercepting and addressing common intra-office requests, like emailed questions about the office Wi-Fi password or the company health care plan. For example, a human resources employee who frequently fields inquiries about her company's 401(k) options may set up a bot that automatically responds to such emails with a pre-written message full of basic information about how to log into the right portal and change allocation amounts.

Requests for automation tools sometimes come from individual workers or department managers "looking for a way to make their jobs a little bit easier," says Jay Srinivasan, CEO of Spoke, an automation software company.

In other organizations, executives have mandated automation be adapted companywide. That's the case with large accounting and auditing firms, says April Morris, professor of accounting: data analytics and robotics at California State University at Fullerton.

It was Morris who charged Rock and Jilke with creating the ZIP code bot. The assignment came from a new class she teaches about the tech skills that accounting firms seek. RPA is high on that list, especially as firms work with larger datasets related to corporate acquisitions and international business deals.

"If our students are trained in this technology, they'll have the ability to not only implement a robot, but as a system changes within the company, to make changes to the robot," Morris says. "You write the robot, bring in data, and that's freed you as the human up to use critical thinking for what it's meant to do: looking for problems, opportunities and outliers."
Will Robots Take My Job?

The number of human jobs lost to automation is difficult to predict, but scholars have tried. About 47% of U.S. jobs are at high risk for automation, according to University of Oxford economist Carl Benedikt Frey and machine learning professor Michael A. Osborne. Among office occupations, those related to logistics, administrative support and sales are especially at risk, while those in management, finance, education, engineering, health care, arts and media positions may be more secure.

Advocates sometimes praise RPA’s potential to reduce mindless work without addressing pressing questions about possible job losses. Yet "we should acknowledge that technology like this has the potential to replace jobs," Srinivasan says.

So far, though, software sellers say their client companies typically retrain displaced workers, not lay them off. In many cases, automation only takes over a percentage of a worker's duties, and it sometimes creates new job opportunities to build, adjust and manage robotic systems.

Srinivasan uses a sci-fi analogy to explain how automation tools can enhance work life for humans rather than take over their jobs.

"Most workplace artificial intelligence is like Iron Man. Iron Man is surrounded by a suit that gives him superpowers, (whereas) the Terminator is just a replacement," he says.

Still, there's no denying that widespread workplace automation will require humans to adjust. They'll have to get used to robot co-workers – some of which even receive names and employee numbers.

"If you have employees who are interested in doing their jobs the way they've been doing them for the last 20 years, that's a challenge," Clancy says.

Having heard old stereotypes of accountants as mere "number crunchers," Rock and Jilke are excited by the power RPA has to tackle tedious tasks. Carefully teaching their bot each step of the data collection process "was really cool, really interesting and kind of addicting," Rock says.

That eager attitude will serve them and others well in automated environments, Morris believes.

"Those who embrace this technology are in total demand," she says. "I was told by one recruiter that with what I was teaching, if the kids didn't have jobs already, they would probably hire all of them."