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An MIT Student Awed Top Economists With His AI Study—Then It All Fell Apart

Aidan Toner-Rodgers shot to academic fame in a field hungry for new insights and revelatory research. But a computer scientist thought something seemed off.

T. Dugan Follow *and Justin Lahart* Follow

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oner-Rodgers, 27, sprang to the upper tiers of economics as a graduate student late last year from virtually out of now

till taking core classes at the Massachusetts Institute of Technology, he wrote a paper on artificial intelligence's workp so rapidly influential it was cited in Congress. He appeared in the pages of The Wall Street Journal in December as the of a wunderkind, in faded jeans with tousled hair, in between two of his mentors, including Nobel laureate Daron Acen Rodgers's work offered a surprising and even hopeful revelation about our high-tech future. He concluded that AI incre productivity and spurred innovation. Also, people didn't like using it very much.

weeks, those mentors were asking an unthinkable question: Had Toner-Rodgers made it all up?

spring, Toner-Rodgers was no longer enrolled at MIT. The university disavowed his paper. Questions multiplied, but o more elusive than the rest: How did a baby-faced novice from small-town California dupe some of academia's brighte

is no world where this makes any sense," said David Autor, one of the MIT professors who had previously championed 's research. MIT, Autor and Acemoglu declined to comment on the specifics of the investigation into the research, citi constraints.

Rodgers's illusory success seems in part thanks to the dynamics he has now upset: an academic culture at MIT where h f trust, integrity and rigor are all—for better or worse—assumed. He focused on AI, a field where peer-reviewed resea ts infancy and the hunger for data is insatiable.

as stunned his former colleagues and mentors is the sheer breadth of his apparent deception. He didn't just tweak a fe es. It appears he invented the entire study.

st David Autor at MIT in 2024. KAYANA SZYMCZAK FOR WSJ

ftermath, MIT economics professors have been discussing ways to raise standards for graduate students' research pa
ng scrutinizing raw data, and students are going out of their way to show their work isn't counterfeit, according to peo
ool.

arting with the university, Toner-Rodgers has told other students that his paper's problems were essentially a mere is
ta rights. According to him, he had indeed burrowed into a trove of data from a large materials-science company, as hi
did. But instead of getting formal permission to use the data, he faked a data-use agreement after the company wante
, he told other students via a WhatsApp message in May.

Rodgers didn't return multiple calls and messages, and messages to his family members also went unreturned.

d on economics

'oner-Rodgers arrived on the MIT campus in 2023, he joined a cadre of researchers, theorists and academics whose wo
the global economy at the highest levels—with Nobel-winning alumni including Ben Bernanke and Robert Shiller.

in is a feat in itself: Of the approximately 800 who apply each year for the economics department's Ph.D. program, onl
epted, with 20 to 24 enrolling.

vertiginous rise. Toner-Rodgers was raised in Sebastopol, a sleepy town in California's wine country, along with four
. His dad taught second grade, and his mom ran a music school.

who knew him said he was smart and had no serious history of getting in trouble in or outside of school. "He's from a
ul, sunny place in America, and I think he had a nice upbringing," said Miles D'Alessandro, a college friend.

As a kid, he had a pretty good jump shot, and by 2017 was playing as a guard fo
Macalester College's Division III basketball team in St. Paul. He also played ten
was popular among his teammates.

Macalester is a small school of about 2,000 students, and outside of his teamm
tended to keep to himself, former students said.

Macalester was also where Toner-Rodgers got hooked on economics. He was dr
the field because of "the data and research element of economics, just being ab
dive into the mechanics of how the economy is working," D'Alessandro said.

Toner-Rodgers excelled at the program. He won scholarships, mentored other
students and co-authored a paper with one of his economics professors, Felix F

From the outset, Toner-Rodgers seemed destined for a sterling career. In 2021,
landed a two-year job at the New York Fed, where he helped write research tha
published in the Journal of Applied Econometrics and on the regional central b
own closely watched blog. (The research Toner-Rodgers did at the New York Fe
hasn't been challenged.)

odgers last year. SIMON SIMARD FOR WSJ

In 2023, when he started the Ph.D. program at MIT, Toner-Rodgers seemed to f
just fine. He played in an informal basketball league, went to classes, did his
work and worked as a teaching assistant without drawing too much attention to himself, according to students who kn

different in one way. "So many people in my program—one parent was in academia, or they're a doctor or something,"
rnal last year. The family in which he grew up was "a very intellectual household, but definitely not people who pursue
er stuff."

an enclave even within the hermetic world of Cambridge academia—a place where complex, bleeding-edge ideas spaw
abs and filthy dorm rooms. At the economics department, it's also a place with a surprising reputation for collegiality.

it Dome on the MIT campus. SIMON SIMARD/BLOOMBERG NEWS

stakes were high. Current and former MIT graduate students described a range of pressures to do revelatory research
ne professors there expected bigger work earlier than ever from Ph.D. candidates. Toner-Rodgers's fellow Ph.D. candic
d students who were working with major governments and one who ran a nonprofit. In the summer before Toner-Rodg
, two published a groundbreaking study on AI in the journal Science.

e end of his first semester, Toner-Rodgers told some friends he had stumbled on an interesting lead.

ıper

Rodgers said an old classmate worked at a large company in the field of materials science, a branch of engineering that
novel forms of matter that can be used in technologies like biomedical devices.

the other students that he might be able to access data from a large AI experiment this friend had told him about.

Rodgers told the Journal a similar story last year. “I was like, ‘Oh, that’s so cool,’” he said then. “And then I went throug
ıightmarish process of getting the data.”

›ming industry of AI is like catnip to economics researchers. It’s new, rich in information and holds the potential to rea
nomy.

ıext semester, Toner-Rodgers pitched the idea to Autor, a leading labor economist and self-described computer geek w
ad been mulling how AI might shape employment.

ıat, friends say Toner-Rodgers was focused on his research. He presented a preliminary version on June 4, 2024, when
up at a lunchtime lecture series. The event was typically a showcase for more experienced doctoral candidates, where
:s and faculty from across the university could see them present their work. He seemed confident as he explained his w
t time. Acemoglu attended.

a group of roughly two dozen students and professors, he described the introduction of an AI tool rolled out to 1,018 sci
focused on tweaking molecular recipes for materials at a large, unnamed U.S. company. With the AI tool, he said, scien
specify the characteristics they’d like a compound to have, and the tool would generate recipes the scientists would pic

ing to his paper, researchers discovered more materials, filed more new patents and saw an increase in prototypes. But
elatory wasn’t just that AI could make work easier. It was that the benefits mostly went to scientists who were already
ıccessful.

Rodgers continued to work on the paper over the summer. Later versions included a survey that he said showed the sci
oadly unsatisfied with the AI tool despite the improvements in productivity. “I couldn’t help feeling that much of my
on is now worthless,” the paper quoted one scientist as saying.

Rodgers’s supposed findings contrasted with the more optimistic view of Autor, who thinks that AI could help narrow i
ties by allowing more people to do work that can now only be performed by highly trained specialists. But the research
ed the pessimism of Acemoglu, who is skeptical about AI’s ability to make workers more productive. It resembled the
ess of real life.

:emoglu, left, at an event for the 2024 economics Nobel. He was one of three to win the award
JONATHAN NACKSTRAND/AFP/GETTY IMAGES

mber 2024, Toner-Rodgers presented his findings at a seminar held by the National Bureau of Economic Research—th premier economics research organization—where it was well-received. That same month, the paper was cited in ssional testimony. Weeks later, the science journal Nature highlighted it. The last version was posted on arXiv, a global ory for unpublished science research, in December.

s fall apart

this time, the paper showed up in the inbox of a University of California, San Diego, computer scientist named Charles

the research seemed off. Elkan used to work as a managing director at Goldman Sachs and as a scientist at Amazon, w nachine-learning teams. The technology sounded too good to be true to him, given its supposed date of deployment. Al rning were the only U.S. materials companies Elkan knew of that employed a large number of scientists, and he questio they were inventing so many new materials, they would be keeping it secret.

5—a week after Toner-Rodgers appeared in the Journal—Elkan wrote an email to Autor and Acemoglu raising questic he paper's "academic integrity."

company develops a software like this that is so valuable, they should be boasting about it," he said in an interview.

fessors started to investigate.

point, university economics departments had mostly been spared of the scandals that have hit other fields, including ls science, where a blockbuster finding on room-temperature superconductivity was invalidated in 2023. While a pape lology could be more or less rigorous, and data could be tortured into fitting preconceived conclusions, the falsificatior tudy was extraordinary.

ɛr scientist Charles Elkan. JEAN LONGERBEAM

hile, the case was about to reach a United Nations agency that adjudicates copyright disputes.

31, Corning filed a complaint with the World Intellectual Property Organization against the registrar of the domain na ;research.com. Someone who controlled that domain name could potentially create email addresses or webpages that ɡ ɔression they were affiliated with the company. WIPO soon found that Toner-Rodgers had apparently registered the do ıccording to the organization's written decision on the case.

Rodgers never responded to the complaint, and Corning successfully won the transfer of the domain name. WIPO decli nt.

nd Acemoglu brought the case to MIT's committee on discipline in February.

Rodgers stopped showing up to classes around this time, according to two former classmates. To some friends, he said ɛwing with OpenAI, and acted like nothing was wrong. A public ledger of his Venmo account shows him paying friends ıers and a ticket to a Boston Celtics game. At a party in April, he seemed tired, but was still talking about the success of ɔne classmate said.

his professors and MIT were questioning his research, Toner-Rodgers continued to promote it. On March 5, he presen ıl workshop on materials science and AI held by the Materials Research Society.

MIT released a statement disavowing Toner-Rodgers's paper, saying it "has no confidence in the provenance, reliabili ' of the data and has no confidence in the veracity of the research contained in the paper." While the statement didn't n Rodgers directly, it said the "author is no longer at MIT."

f those who knew Toner-Rodgers said they were blindsided by the news. Friedt, the Macalester economics professor w ɛd a paper with him, said he was "shocked and dismayed" when he heard. "It's a very sad development," he added.

VhatsApp chat in May, in which Toner-Rodgers told other students he had faked the data-use agreement, he wrote, "Th ınd embarrassing act of dishonesty on my part, and in hindsight it clearly would've been better to just abandon the pa

ɔrning and 3M told the Journal that they didn't roll out the experiment Toner-Rodgers described, and that they didn't s

th him.

ırnal reviewed two earlier drafts of Toner-Rodgers's work—one from April 2024, the other from September 2024. The
. has data that conflicts with later versions and shows small changes that could have raised questions from his mentors

campus. JOSEPH PREZIOSO/AFP/GETTY IMAGES

vhether he had seen the earlier draft, Autor said he couldn't comment but that "these are legitimate questions."

ril draft said the scientists at the materials-science company worked on 421 teams. In the draft five months later, the n
.s fell to 221. It also said that "more than three-quarters" of idea generation came from AI, while the later draft lowered

.e profession is grappling with the blind spots that Toner-Rodgers has exposed.

future, of course, people will become more paranoid in economics," Acemoglu said.

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