Stanford University
Human-Centered
Artificial Intelligence

TECHNOLOGY
POLICY
ACCELERATOR

HOOVER
INSTITUTION

Policy Brief
HAI Policy & Society
May 2025

Policy Implications of DeepSeek AI's Talent Base

Amy Zegart and Emerson Johnston

CHINESE STARTUP DEEKSEEK AI UPENDED THE CONVENTIONAL WISDOM ABOUT AI INNOVATION. When it released its R1 language model and V3 general-purpose large language model (LLM) in January 2025, which demonstrated unprecedented reasoning capabilities, the company sent tremors through markets and challenged assumptions about American technological superiority.

Beyond debates about DeepSeek's computation costs, the company's breakthroughs speak to critical shifts in the ongoing global competition for AI talent. In our paper, "A Deep Peek into DeepSeek AI's Talent and Implications for US Innovation," we detail the educational backgrounds, career paths, and international mobility of more than 200 DeepSeek researchers. Nearly all of these researchers were educated or trained in China, more than half never left China for schooling or work, and of the nearly quarter that did gain some experience in the United States, most returned to China.

Policymakers should recognize these talent patterns as a serious challenge to U.S. technological leadership that export controls and

Key Takeaways

Chinese startup DeepSeek's highly capable R1 and V3 models challenged prevailing beliefs about the United States' advantage in AI innovation, but public debate focused more on the company's training data and computing power than human talent.

We analyzed data on the 223 authors listed on DeepSeek's five foundational technical research papers, including information on their research output, citations, and institutional affiliations, to identify notable talent patterns.

Nearly all of DeepSeek's researchers were educated or trained in China, and more than half never left China for schooling or work. Of the quarter or so that did gain some experience in the United States, most returned to China to work on AI development there.

These findings challenge the core assumption that the United States holds a natural AI talent lead. Policymakers need to reinvest in competing to attract and retain the world's best AI talent while bolstering STEM education to maintain competitiveness.

computing investments alone cannot fully address. The success of DeepSeek should act as an early-warning signal that human capital—not just hardware or algorithms—plays a crucial role in geopolitics and that America's talent advantage is diminishing.

Introduction

DeepSeek was founded in 2023 as an AI research company focused on developing "cost-efficient, high-performance language models." Since then, the company has released five detailed technical research papers on the arxiv.org manuscript archive—posted between 2024 and 2025—with a total of 223 authors listed as contributors.

Relying on the OpenAlex research catalog, we pulled data on both the authors (publication records, citation metrics, and institutional affiliations dating back to 1989) and their institutions (geographical location, organization type, and research outputs metrics). We wrote custom Python scripts to parse the data and map each researcher's complete institutional history, which includes insights into previously undetected patterns of cross-border movement. Our focus on talent movements over time, rather than on snapshots, enabled us to assess how talent pipelines have evolved. It also allowed us to zero in on phenomena like "reverse brain drain" cases—a key mechanism for strategic knowledge transfer that is of great relevance to the United States.

Research Outcomes

DeepSeek appears to have a core team of researchers—what we refer to as the "Key Team"—

Significantly, the citation metrics contradict the prevailing narrative that DeepSeek achieved its success with younger, less experienced researchers.

with only 31 of the 223 overall authors (just under 14 percent) listed as contributors on all five papers. Yet this core team seems to draw on an extensive pool of internal contributors who do not always receive authorship credit. For example, the first paper lists 86 official authors but, without crediting them as authors, notes an additional 53 contributors spread across business (8), compliance (7), data annotation (36), and design (2). DeepSeek appears to have shifted how it labels authors over time, as the second and fourth papers describe contributors differently, listing contributions such as "data annotation" and "research & engineering," while the third and fifth papers use a binary "contributor" and "core contributor" breakdown—suggesting a formal hierarchical status in the DeepSeek research group.

Significantly, the citation metrics contradict the prevailing narrative that DeepSeek achieved its success with younger, less experienced researchers. Rather, they indicate that DeepSeek's Key Team is made up of researchers with well-established

academic track records. Among the 211 contributors on whom we could pull data, the researchers on average have each published 61 works and received over 1,000 citations, with a median citation count of 249. The averages for Key Team authors are even higher, at 1,554 citations per author and a median of 501. By contrast, the 265 authors behind OpenAI's o1 system card have an average citation count of 4,403 but a median count of only 338. DeepSeek's full author pool and core author team, therefore, have a greater balance between average and median performance—indicating strength at the top and less variation across contributors compared to OpenAI's team.

More than half (111) of the 201 DeepSeek authors with known affiliation data have been trained and affiliated exclusively at Chinese institutions.

We also found evidence of China's growing capacity to develop world-class AI talent domestically, largely without relying on Western expertise. More than half (111) of the 201 DeepSeek authors with known affiliation data have been trained and affiliated exclusively at Chinese institutions. The vast majority (89 percent) have held at least one past or current affiliation with a Chinese institution. The Chinese Academy of Sciences is a central node in the broad pool of Chinese research institutions: 53 of the 211 analyzed DeepSeek authors hold affiliations with the academy or its network of affiliated institutions housed at prestigious universities, which has become a fertile environment for AI innovation. On the flip side, only a quarter (24.3 percent) of these authors have ever had an academic or professional affiliation with a U.S. institution.

Zooming in further crystallizes some of the AI talent challenges for the United States. In many ways, the United States acts as a powerful incubator of AI talent that then returns to China to help advance the country's AI innovation. Of the 49 DeepSeek researchers who had U.S. affiliations at some point during their career, nine (18.4 percent) remained in the United States for two to four years and another nine stayed five years or longer. Of those latter nine, just three still retain any U.S. affiliations. Figure 1 shows the geographic distribution of U.S. institutions affiliated with DeepSeek researchers.

More broadly, Chinese AI talent appears to be highly mobile, strategically spending time in multiple different countries. Nineteen of the DeepSeek researchers with U.S. affiliations began their careers in China, traveled abroad (to the United States or other destinations like Taiwan and Australia), and ultimately returned to China to work on AI development there. Even more interesting, six of them transited back and forth between the United States and China multiple times, building global networks and embedding themselves in both ecosystems.

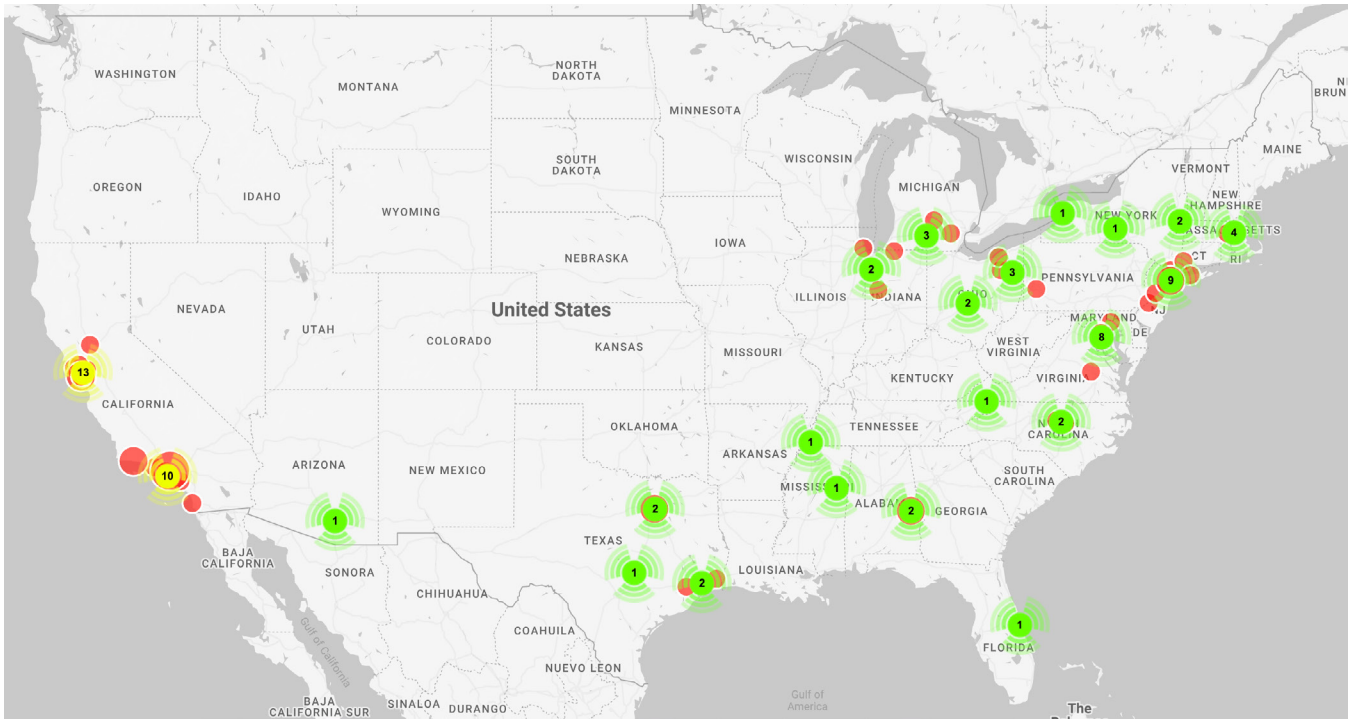

Figure 1: Geographic distribution of U.S. institutions affiliated with DeepSeek researchers (Source: All data from OpenAlex)

Policy Discussion

DeepSeek's success story is, fundamentally, one of homegrown talent: Half of its researchers have never left China, the vast majority have strong connections with Chinese institutions, and even those who trained in the United States ultimately returned to China.

The United States remains a leading hub in international research training, but there is an asymmetry in the human capital pipeline. While China is increasingly becoming less reliant on foreign AI training and strengthening its ability to nurture homegrown talent, the United States remains highly dependent on foreign talent.

Policymakers should reassess the long-standing assumption that the world's best and brightest AI researchers want to study and stay in the United States. Attracting and permanently retaining the world's top talent—previously a key pillar of American technological dominance—seems increasingly out of sync with the educational realities of the 21st century. While China looks to international research experience not as "brain drain" but rather as a promising way for researchers to acquire cutting-edge knowledge and methodologies before returning home, the United States may be mistakenly assuming it has a permanent talent lead.

Instead, the country must compete much more aggressively to attract, welcome, and retain the world's

best talent from every corner. Policymakers must also urgently grow domestic capabilities by improving K-12 science, technology, engineering, and mathematics (STEM) education at home.

Far more than just another advance in LLM technology, DeepSeek AI represents and reveals broader talent patterns that question long-standing American beliefs about its innovation advantage. Conventional wisdom about U.S. dominance in nurturing and retaining talent may no longer hold true, which could have far-reaching consequences for future technological competition.

Policymakers should reassess the long-standing assumption that the world's best and brightest AI researchers want to study and stay in the United States.

Reference: The original article is accessible at Amy Zegart and Emerson Johnston, "A Deep Peek into DeepSeek AI's Talent and Implications for US Innovation," Hoover Institution, April 21, 2025, https://www.hoover.org/research/deep-peek-deepseek-ais-talent-and-implications-us-innovation.

Amy Zegart is the Morris Arnold and Nona Jean Cox senior fellow at the Hoover Institution, director of Hoover's Technology Policy Accelerator, and a senior fellow and associate director at the Stanford Institute for Human-Centered Artificial Intelligence.

Emerson Johnston is a master's student in international policy and a Knight-Hennessy scholar at Stanford University.

Stanford University
Human-Centered
Artificial Intelligence

Stanford HAI: 353 Jane Stanford Way, Stanford CA 94305-5008

T 650.725.4537 **F** 650.123.4567 **E** HAI-Policy@stanford.edu **hai.stanford.edu**