Most of America's "Most Promising" AI Startups Have Immigrant Founders

CSET Data Brief

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AUTHORS
Tina Huang
Zachary Arnold
Remco Zwetsloot

Executive Summary

Immigrants are critical to the U.S. artificial intelligence sector. To understand how immigration shapes AI entrepreneurship in the United States, we analyze the 2019 AI 50, *Forbes's* list of the "most promising" U.S.-based AI startups. According to *Forbes*, these 50 companies had 125 founders in total. Using public data on their places of birth and educational histories, we estimate that 53 of these 125 founders (42 percent) were first-generation immigrants to the United States, and 33 of the AI 50 companies (66 percent) had at least one immigrant founder. An estimated 72 percent of these founders first came to the United States on student visas; the others came for professional opportunities, in many cases likely using H-1B work visas. These findings provide further evidence of immigrants' importance within the U.S. AI ecosystem, and point to potential immigration reforms that could boost AI innovation and entrepreneurship in the United States.

Introduction and Methodology

Immigrants are twice as likely as native-born Americans to start new businesses.[1] Indeed, half of Silicon Valley's startups have at least one foreign-born founder, and tech companies founded by immigrants employ tens of thousands of Americans today.[2] In AI in particular, experts recognize that a clear immigration pathway for foreign talent is vital to ensure U.S. leadership.[3] However, there is little empirical research into the role of immigrants in AI entrepreneurship specifically. The Forbes 2019 AI 50 list provides an opportunity to fill this gap.

The list includes America's 50 "most promising" AI startups, as determined by *Forbes* from financial data and input from a panel of subject matter experts.[4] The list includes the names of each listed company's founder(s). Most companies were founded by more than one person; there are 125 founders listed in total. Every AI 50 company is based in the United States.[5]

To determine each of these founders' immigration histories, we reviewed LinkedIn profiles, corporate biographies, media profiles, and other public sources. In some cases, we also corresponded directly with the founders themselves. If these inquiries confirmed that an AI 50 founder (1) was born abroad, attended high school abroad, or began their undergraduate studies abroad, and (2) was later present in the United States as a worker or student, we counted them as immigrants to the United States. Otherwise, we assumed they were native-born.

Our findings, discussed below, are estimates. In about 10 percent of cases (13/125), AI 50 founders' birthplaces and early educational histories are not publicly documented. These individuals are counted as native-born in our analysis, even though some of them may be immigrants. At the same time, a founder does not need to *currently* live in the United States to be considered an immigrant in our analysis. In other words, an individual who was born elsewhere, came to the United States for work or study, and then left—founding an AI 50 company at some point along the way—is counted as an immigrant to the United States.

Findings

We estimate that 33 of the AI 50 companies (66 percent) have at least one first-generation immigrant founder, and 53 of the 125 founders (42 percent) are first-generation immigrants.

India and Israel were the largest senders of immigrant AI 50 founders, followed by the UK, China, and Portugal:

Figure 1: India and Israel were the top senders of immigrant AI 50 founders.
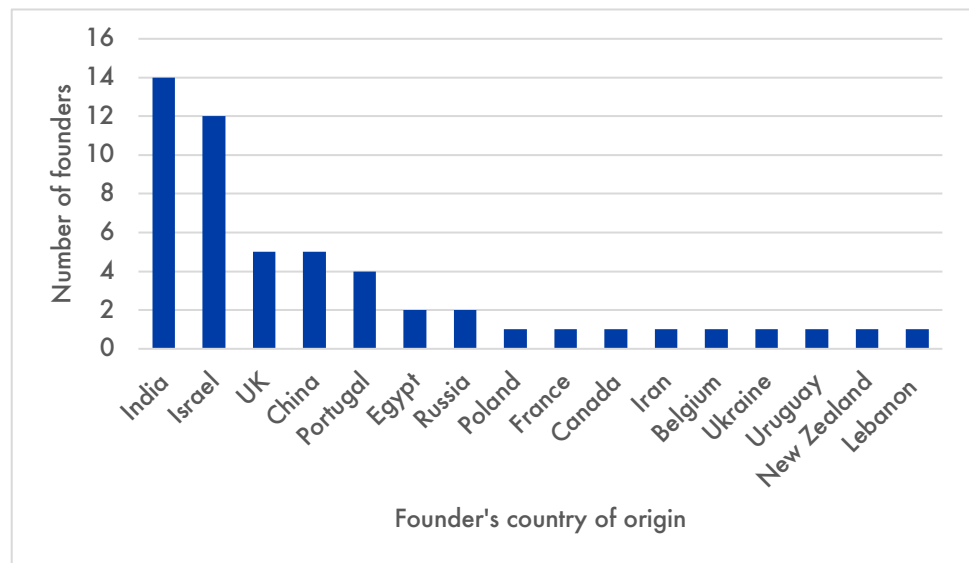
Source: CSET analysis of Forbes AI 50, LinkedIn, and other sources. A founder's country of origin is the first country where our research confirms they were born, studied, or worked.

Using the same sources, we estimate that 38 (72 percent) of the immigrant founders came to the United States to pursue higher education.[6] Ten (19 percent) came for undergraduate education, 19 (34 percent) for master's degrees, eight (15 percent) for doctoral degrees, and one (2 percent) for executive education.[7] Fifteen (28 percent) appear to have immigrated to the United States for work opportunities—that is, their presence in the United States is first documented in connection with a job.[8]

Figure 2. Most immigrant AI 50 founders first came to the United States to study.
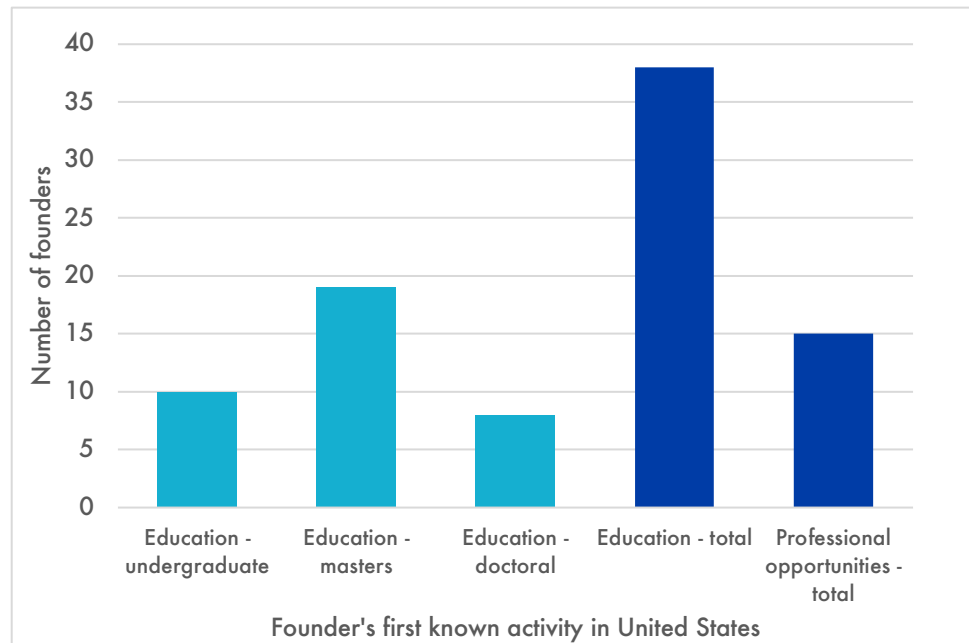
Source: CSET analysis of Forbes AI 50, LinkedIn, and other sources.

Discussion

Our data suggests that most of the AI 50's foreign-born founders first came to the United States on student visas. After graduating, some may have stayed in the country through the Optional Practical Training (OPT) program;[9] others may have directly transitioned to an H-1B skilled worker visa, employment-based permanent residence, or another immigration status. Based on overall immigration statistics, OPT and H-1B were probably most common.[10]

The United States does not have an entrepreneur or startup visa, meaning that these elite founders, like all immigrant entrepreneurs in the country, had to find other pathways.[11] But none of the major pathways that exist today are well suited for founders:

- **OPT** lasts three years at most, and participants must have a "day job" at a sponsoring company.[12]
- **H-1B** visas are numerically capped, making them hard to obtain. The H-1B visa also requires employment at an existing U.S. company.

Some founders may be able to "employ" themselves at their own startups for H-1B purposes, but this is a technically challenging maneuver that involves ceding control over the company.[13]

- The **O-1** "extraordinary talent" visa has vague and demanding eligibility criteria that effectively exclude many entrepreneurs, especially early-career founders.[14]
- **Employment-based green cards** offer a high degree of freedom once obtained, but are subject to numerical caps and long backlogs, especially for Indian and Chinese nationals.[15]

These issues have prompted concerns that current law is discouraging entrepreneurship among immigrants who have innovative ideas but no practical pathway to stay and build businesses in the United States.[16] Recent studies find that foreign-born U.S. PhD students are less likely to create or join startups, and that visa policies are at least partially to blame.[17]

Consistent with these concerns, many immigrant founders of AI companies have described their personal struggles to stay in the United States. Michelle Zatlyn, co-founder of the leading cybersecurity firm Cloudflare, came to the United States on a student visa, started Cloudflare on OPT, and (after initially being rejected) eventually managed to win an H-1B visa, with CloudFlare itself as her sponsor.[18] Purva Gupta, whose retail tech company, Lily AI, recently raised $12.5 million, applied for six different visas before obtaining a green card.[19] In correspondence with the authors, the founder of an AI 50 company explained how he started his first business in the United States while on OPT, but was forced to leave for Canada after failing to secure an H-1B. Several years later, he returned to the United States to start another company, which now claims a spot on the AI 50—but his company keeps a significant presence in Canada, in order to attract and retain skilled foreign workers who cannot get through the U.S. immigration system.

Defying the odds, these particular founders managed to overcome immigration obstacles and launch their companies in the United States. Yet for each foreign-born entrepreneur fortunate enough to make it through the system, many others likely will not. To ensure that the founders of tomorrow's AI 50 will work and innovate in the United States, policymakers should consider lifting current immigration restrictions—such as the annual numerical limits on green cards—and creating new immigration pathways specifically for entrepreneurs.[20]

Acknowledgments

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Endnotes

[1] "Kauffman Compilation: Research on Immigration and Entrepreneurship," Kauffman Foundation, October 4, 2016, https://www.kauffman.org/what-we-do/resources/kauffman-compilation-research-on-immigration-and-entrepreneurship.

[2] See Vivek Wadhwa, AnnaLee Saxenian, Ben Rissing, and Gary Gereffi, "America's New Immigrant Entrepreneurs" (UC Berkeley School of Information, January 4, 2007), http://people.ischool.berkeley.edu/~anno/Papers/Americas_new_immigrant_entrepreneurs_I.pdf; "Immigrant Entrepreneurs and U.S. Immigration Policy" (National Foundation for American Policy, March 2019), https://nfap.com/wp-content/uploads/2019/03/Immigrant-Entrepreneurs-and-US-Immigration-Policy.NFAP-Policy-Toolkit.2019.pdf.

[3] Karen Hao, "Trump's Freeze on New Visas Could Threaten US Dominance in AI," *MIT Technology Review*, June 26, 2020, https://www.technologyreview.com/2020/06/26/1004520/trump-executive-order-h1b-visa-threatens-us-ai/; Megan Lamberth, "America Desperately Needs AI Talent, Immigrants Included," *Breaking Defense*, December 23, 2019, https://breakingdefense.com/2019/12/america-desperately-needs-ai-talent-immigrants-included/.

[4] Jillian D'Onfro, "AI 50: America's Most Promising Artificial Intelligence Companies," *Forbes*, September 17, 2019, https://www.forbes.com/sites/jilliandonfro/2019/09/17/ai-50-americas-most-promising-artificial-intelligence-companies/; Jillian D'Onfro, "AI 50 Methodology: How We Chose Our Honorees," *Forbes*, September 17, 2019, https://www.forbes.com/sites/jilliandonfro/2019/09/17/ai-50-methodology-how-we-selected-our-top-startups/. A 2020 edition of the list was recently published, but it doesn't include the listed companies' founders and has less detailed methodological information than the 2019 edition. Alan Ohnsman and Kenrick Cai, "AI 50: America's Most Promising Artificial Intelligence Companies," *Forbes*, July 3, 2020, https://www.forbes.com/sites/alanohnsman/2020/07/03/ai-50-americas-most-promising-artificial-intelligence-companies/.

[5] See D'Onfro, "AI 50."

[6] That is, the first record of their presence in the United States in the public sources we reviewed was related to a course of study in the United States, excluding high school.

[7] The subtotals add up to 70 percent, rather than 72 percent, due to rounding.

[8] We include postdoctoral work in this category.

[9] OPT currently allows graduates to work up to three years if they studied Science, Technology, Engineering, or Mathematics (STEM); the rest can stay for one year. Neil G. Ruiz and Abby Budiman, "Number of Foreign College Graduates Staying in U.S. to Work Climbed Again in 2017, but Growth has Slowed," Pew Research Center, July 25, 2018, https://www.pewresearch.org/fact-tank/2018/07/25/number-of-foreign-college-graduates-staying-in-u-s-to-work-climbed-again-in-2017-but-growth-has-slowed/. The extension for STEM graduates was enacted in 2008 and lengthened from 17 to 24 months in 2016. Department of Homeland Security, "Improving and Expanding Training Opportunities for F-1 Nonimmigrant Students With STEM Degrees and Cap-Gap Relief for All Eligible F-1 Students," 81 Fed. Reg. 13039 (March 11, 2016), https://www.federalregister.gov/documents/2016/03/11/2016-04828/improving-and-expanding-training-opportunities-for-f-1-nonimmigrant-students-with-stem-degrees-and.

[10] See generally Zachary Arnold et al., "Immigration Policy and the U.S. AI Sector" (Center for Security and Emerging Technology, September 2019), 6, https://cset.georgetown.edu/wp-content/uploads/CSET-Immigration-Policy-and-the-U.S.-AI-Sector-1.pdf. A recent CSET survey found that "84 percent of international AI PhD respondents working in the United States have been on OPT at some point." Catherine Aiken et al., "Immigration Pathways and Plans of AI Talent" (Center for Security and Emerging Technology, August 2020), 14, https://cset.georgetown.edu/research/immigration-pathways-and-plans-of-ai-talent/.

[11] The International Entrepreneur rule, introduced during the Obama administration, sought to create a dedicated pathway for immigrant founders, but it is essentially defunct today. See "International Entrepreneur Parole," U.S. Citizenship and Immigration Services, last updated May 25, 2018, https://www.uscis.gov/humanitarian/humanitarian-parole/international-entrepreneur-parole.

[12] See "Optional Practical Training Extension for STEM Students (STEM OPT)," U.S. Citizenship and Immigration Services, last updated April 22, 2020, https://www.uscis.gov/working-in-the-united-states/students-and-exchange-visitors/optional-practical-training-extension-for-stem-students-stem-opt; Cyrus Mehta, "Suffocating The Foreign Entrepreneur Under The New STEM Optional Practical Training Rule," *The Insightful Immigration Blog*, March 21, 2016, http://blog.cyrusmehta.com/2016/03/suffocating-the-foreign-entrepreneur-under-the-new-stem-optional-practical-training-rule.html.

[13] See Sophie Alcorn, "Can I Get an H-1B as a Startup Founder?," Alcorn Immigration Law, March 23, 2017, https://www.alcorn.law/h-1b/h1b-startup-founder/; "Questions &

Answers: Memoranda on Establishing the 'Employer-Employee Relationship' in H-1B Petitions," *U.S. Citizenship and Immigration Services*, last updated January 9, 2019, https://www.uscis.gov/archive/questions-answers-memoranda-on-establishing-the-employer-employee-relationship-in-h-1b-petitions.

[14] See "O-1 Visa: Individuals with Extraordinary Ability or Achievement," U.S. Citizenship and Immigration Services, last updated May 29, 2020, https://www.uscis.gov/working-in-the-united-states/temporary-workers/o-1-visa-individuals-with-extraordinary-ability-or-achievement. Many of the O-1 eligibility criteria, such as winning major prizes, publishing articles, earning a high salary, or participating in professional associations, can be less attainable (or, at a minimum, harder to document) for startup founders than for individuals in more established and formalized lines of work. Others require demonstrating a track record of success, which is naturally harder for younger entrepreneurs. See generally Roy Maurer, "Seeking to Hire the Best and the Brightest? Consider the O-1 Visa," Society for Human Resource Management, September 17, 2019, https://www.shrm.org/resourcesandtools/hr-topics/talent-acquisition/pages/seeking-to-hire-the-best-and-the-brightest-o-1-visa.aspx (discussing documentation).

[15] David Bier, "Backlog for Skilled Immigrants Tops 1 Million: Over 200,000 Indians Could Die of Old Age While Awaiting Green Cards" (CATO Institute, March 30, 2020), https://www.cato.org/publications/immigration-research-policy-brief/backlog-skilled-immigrants-tops-1-million-over.

[16] See, e.g., Tommy Felts and Bobby Burch, "Immigrant Entrepreneurs Need Path to US Now, GOP Senator Behind Startup Act Says," *Startland News*, March 21, 2018, https://www.startlandnews.com/2018/03/immigrant-entrepreneurs-startup-act/.

[17] See Michael Roach, Henry Sauermann, and John Skrentny, "Are Foreign STEM PhDs More Entrepreneurial? Entrepreneurial Characteristics, Preferences and Employment Outcomes of Native and Foreign Science & Engineering PhD Students," NBER Working Paper, September 2019, https://www.nber.org/papers/w26225; Michael Roach and John Skrentny, "Why Foreign STEM PhDs are Unlikely to Work for US Technology Startups," *Proceedings of the National Academy of Sciences* 116, no. 34 (August 2019), https://doi.org/10.1073/pnas.1820079116. See also Remco Zwetsloot et al., "Keeping Top Talent in the United States: Findings and Policy Options for International Graduate Student Retention," (Center for Security and Emerging Technology, December 2019), 14, https://cset.georgetown.edu/wp-content/uploads/Keeping-Top-AI-Talent-in-the-United-States.pdf.

[18] Stuart Anderson, "International Students Who Started Billion-Dollar Companies," NAFSA, August 2016, https://www.nafsa.org/sites/default/files/ektron/files/underscore/ie_julaug16_frontlines.pdf.

[19] Alex Wilhelm, "Lily AI Raises a $12.5 Million Series A led by Canaan to Accelerate its e-commerce Recommendation Tech," *TechCrunch*, January 9, 2020, https://techcrunch.com/2020/01/09/lily-ai-raises-a-12-5m-series-a-led-by-canaan-to-accelerate-its-e-commerce-recommendation-tech/; Nicole Goodkind, "Immigrant Founders of Multi-Million Dollar Startups Struggle to Remain in the U.S." *Fortune*, December 11, 2019, https://fortune.com/2019/12/11/immigrant-startup-founders-struggle-to-remain-in-us/.

[20] For further discussion, see Tina Huang and Zachary Arnold, "Immigration Policy and the Global Competition for AI Talent" (Center for Security and Emerging Technology, June 2020), https://cset.georgetown.edu/wp-content/uploads/CSET-Immigration-Policy-and-the-Global-Competition-for-AI-Talent-1.pdf; Zwetsloot et al., "Keeping Top Talent in the United States"; Arnold et al., "Immigration Policy and the U.S. AI Sector." On the link between green cards and startup activity, see Roach and Skrentny, "Why Foreign STEM PhDs are Unlikely to Work for US Technology Startups" ("Foreign PhDs who first work in an established firm and subsequently receive a green card are more likely to move to a startup than another established firm, suggesting that permanent residency facilitates startup employment.").