



AI's Expanding Reach: Mapping the Spread of AI Skills Across America

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The AI revolution is just beginning. The US Census Bureau reports that a mere 5% of US firms say they have used AI technology recently, with only 7% planning to adopt it in the coming months. While a recent jump in **productivity growth** hints at AI’s economic impact, history shows that technological breakthroughs often take decades to fully permeate the economy. Our analysis reveals that AI adoption—specifically generative AI—is spreading faster and more broadly than previous technological waves, suggesting a more rapid and transformative impact on jobs and skills across industries and regions.

To track its adoption and expansion across the economy, this report examines two dimensions of AI’s spread. First, we look at how the demand and

supply of workers with AI skills has spread across the United States, breaking out trends by both geography and industry. Second, we zero in on the diffusion of the latest sub-field of AI to take the world by storm, generative AI. By mapping these trends, we aim to provide a comprehensive picture of AI’s current impact and its potential to reshape the American job market in the coming years.

AI Diffusion: The Big Picture

While AI adoption is still in the early stages, it is much broader and more extensive than it was five years ago—or even six months ago. Generative AI—a technology accessible to non-technical users, unlike prior waves of AI—likely plays a key role in this spread.

Figure 1. Share of AI Postings Across Industries, Occupations, Titles, and Companies

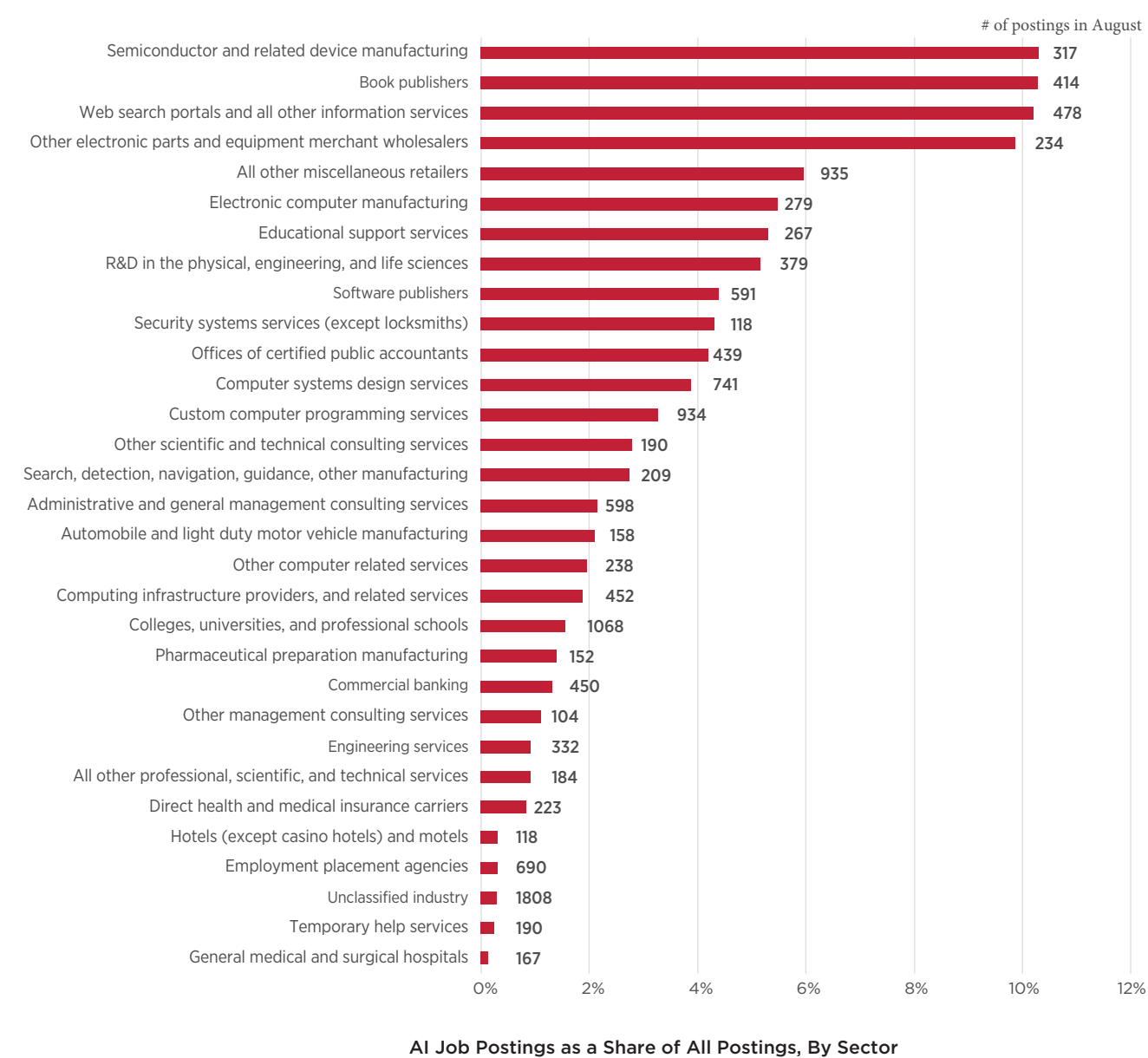
	Two Years Ago	One Year Ago	Six Months Ago	Three Months Ago	Two Months Ago	One Month Ago	Last Month
Postings	0.27%	0.35%	0.29%	0.55%	0.52%	0.52%	0.56%
Industries	10.81%	10.19%	9.50%	12.09%	12.57%	13.04%	13.16%
Occupations	13.98%	15.26%	12.85%	15.42%	15.68%	15.21%	15.92%
Titles	0.22%	0.26%	0.19%	0.37%	0.37%	0.37%	0.44%
Companies	0.00%	0.00%	0.00%	0.01%	0.01%	0.01%	0.01%

Source: Burning Glass Institute analysis of Lightcast job postings data

In the table above, the first row shows the number of postings with at least one AI skill as a share of all postings.¹ The next four rows show the number of industries, occupations, titles, and

companies with at least 10 postings that have at least one AI skill, as a share of all industries, occupations, titles, and companies.

Figure 2. Top AI Industries in August



Source: Burning Glass Institute analysis of Lightcast job postings data

¹ “AI skills” are defined as skills that have a revealed comparative advantage—meaning, they appear more frequently in job postings that mention Artificial Intelligence than in other job postings. They include Computer Vision, Deep Learning, Feature Engineering, Hugging Face Transformers, Large Language Modeling, Machine Learning Methods, and Unsupervised Learning.

Geographic Diffusion of AI Skills

DEMAND FOR AI SKILLS: DIFFUSION BEYOND TECH HUBS

When we talk about AI, major tech hubs inevitably come to mind: the San Francisco Bay Area, Seattle, New York City, Boston, and the Washington, DC metro area. And indeed, a few years ago, demand for AI skills in job postings—measured by the share of job postings mentioning AI skills as a share of all postings—came almost exclusively from these regions.

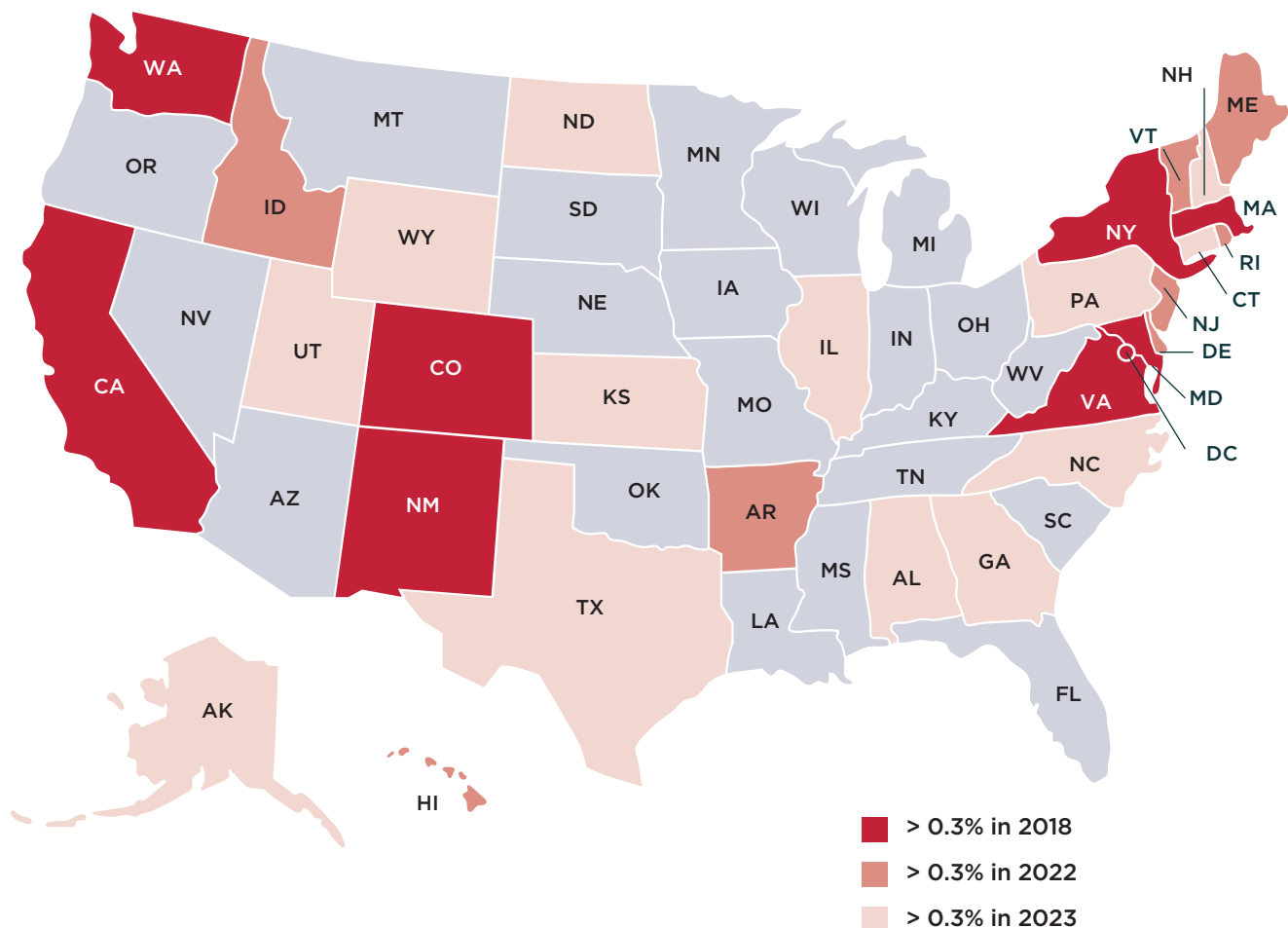
Since then, however, other regions have gained ground. By 2022, eight states had caught up

to California's 2018 level of demand. Another 13 states hit that benchmark in 2023, including some very large ones: Texas, Georgia, and North Carolina.

However, many states still have a long way to go to catch up. Florida in particular stands out as a laggard given its booming economy, large population, and burgeoning tech industry. Most of the others are located in the Great Plains, the Midwest, and Appalachia.

Figure 3. Diffusion of AI Skills Across US States from 2018 to 2023

Measured by the year in which each state surpassed California's 2018 share of postings with AI skills



Source: Burning Glass Institute analysis of Lightcast job postings data

SUPPLY OF AI SKILLS: MORE SLUGGISH DIFFUSION

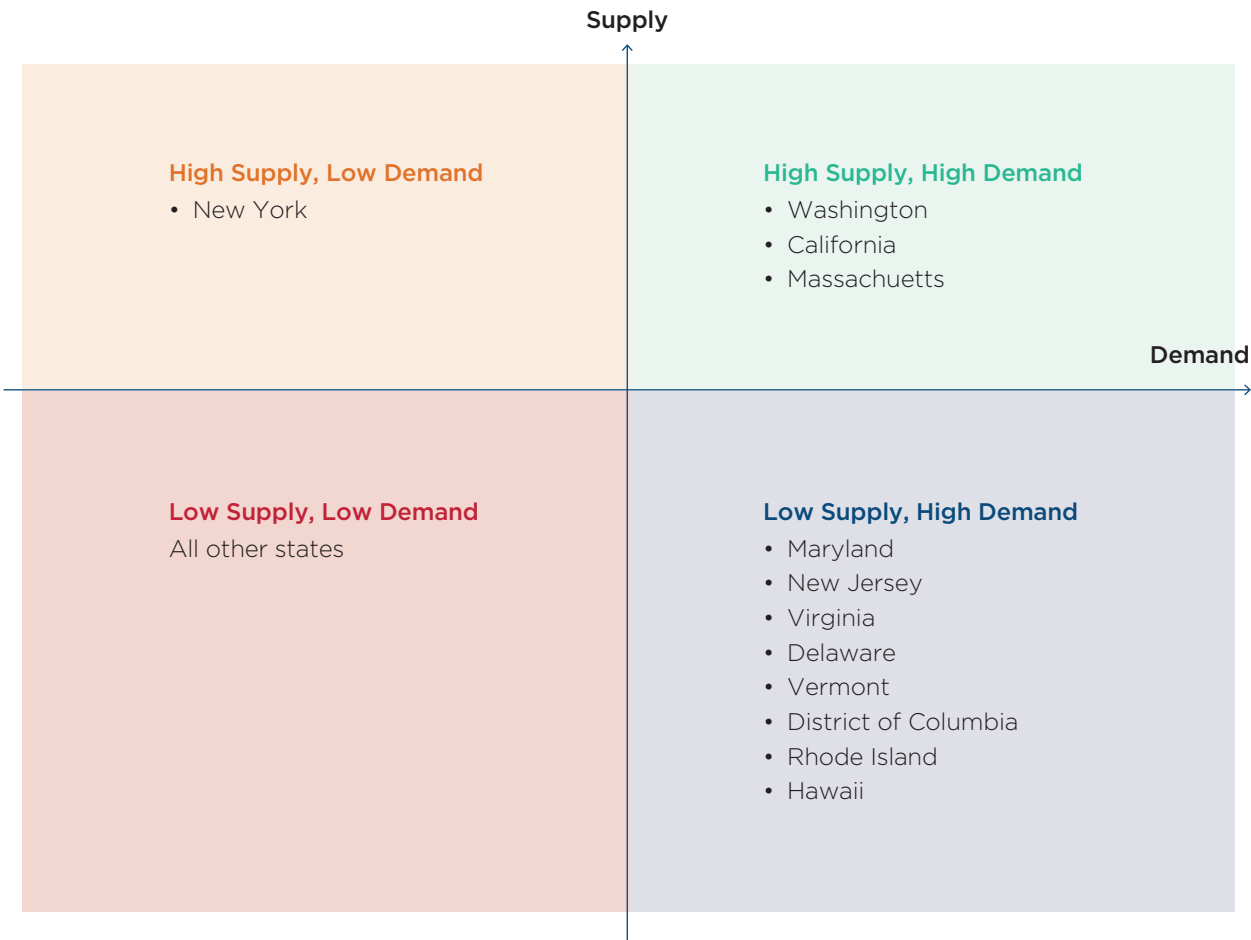
Supply, as measured by the share of resumes and career profiles from sites like LinkedIn that include AI skills, has been slower to spread. This isn't entirely surprising, since job postings—our signal for demand—capture marginal demand for talent whereas profiles measure the people already on the job. As a result, in most states the demand for AI skills exceeds supply.

The magnitude of that mismatch, however, is telling. In some states, it is relatively minor. The core tech hub states of Washington, California, and Massachusetts have high demand as well as an abundance of workers with AI skills. In about three-quarters of states—Illinois, Kansas, and

South Carolina, for example—the reverse is true: the underdeveloped market for AI talent means both demand and supply are low.

However, a number of states suffer from a much more acute mismatch between demand and supply—namely, DC, Delaware, Maryland, Vermont, Hawaii, Virginia, New Jersey, and Rhode Island. These states would be well advised to attract talent with AI skills to relocate from Washington and California. Meanwhile, New York stands out for having a workforce whose AI skills are ahead of current market demand: an opportunity for its economic development officials to promote the state to prospective employers.

Figure 4. Breakdown of Supply vs. Demand for AI Skills by State



Source: Burning Glass Institute analysis of Lightcast job postings data

A Deeper Dive on the Diffusion of Generative AI

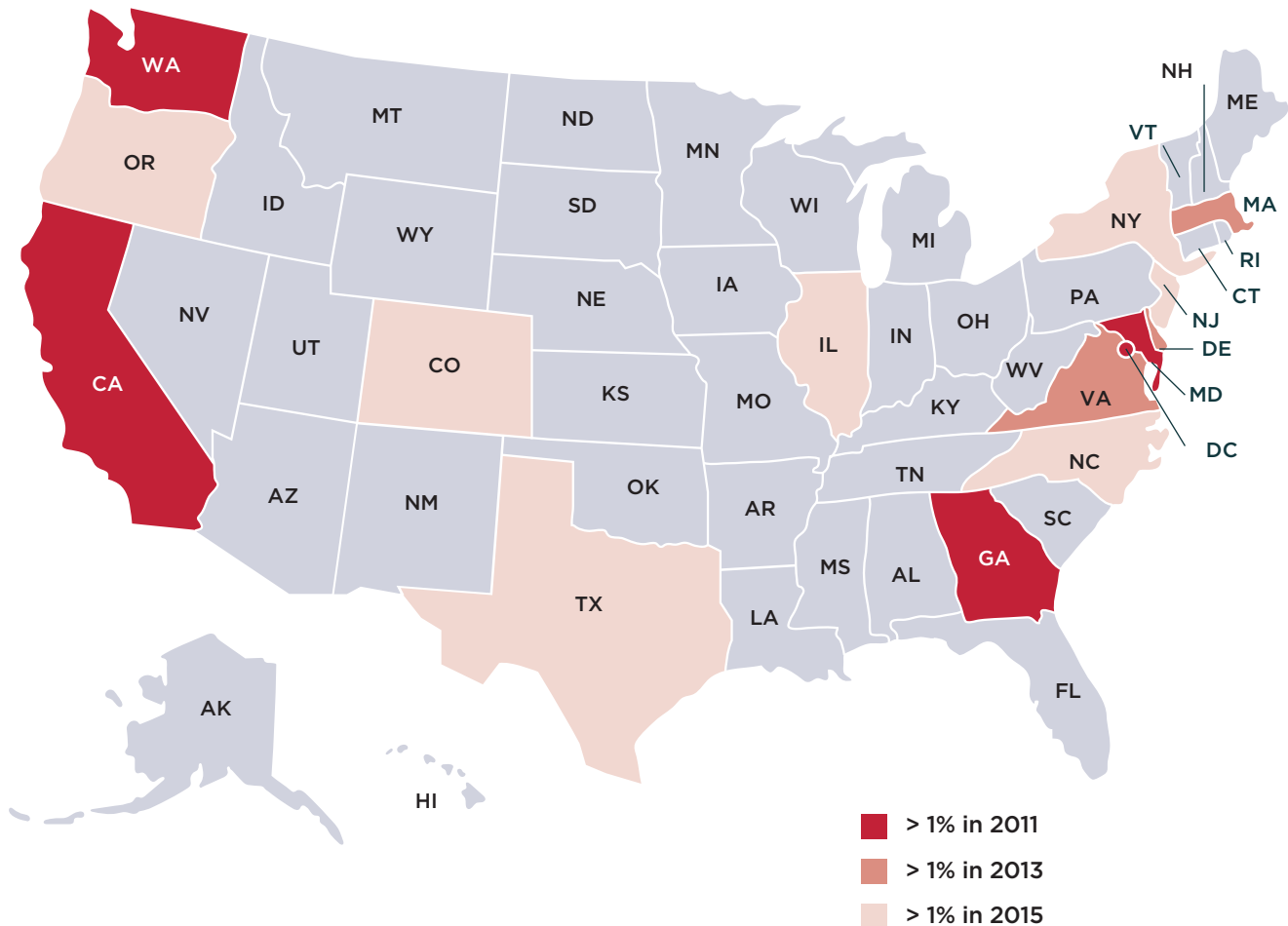
The recent pace of AI skills diffusion is unusual by historical standards. For example, demand for cloud computing skills remained much more geographically concentrated over the 2011-15 period when the technology became prevalent than the current distribution of demand for AI skills.

The reason for AI's much greater and faster geographic spread **likely in part** reflects the emergence of generative AI. **A subset of AI**

technology best known for large-language models and various image-generation apps, generative AI surged into prominence toward the end of 2022 with the arrival of ChatGPT. Demand for generative AI skills has exploded across the English-speaking countries **we track** over the last 18 months. For example, in the United States, demand has increased by a factor of almost 100; in Singapore, it has increased by almost 200.

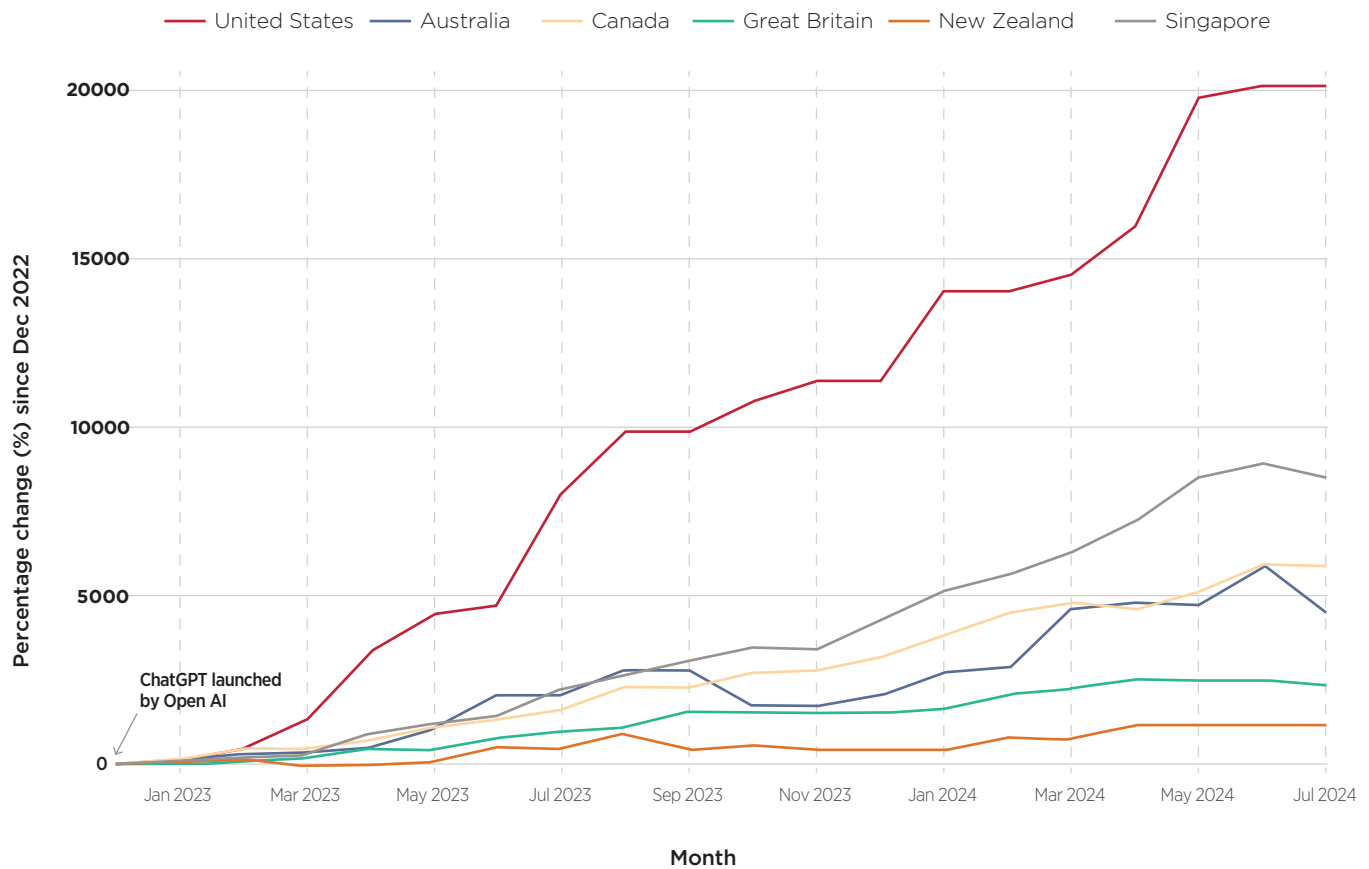
Figure 5. Diffusion of Cloud Computing Skills Across US States from 2011 to 2015

Measured by the year in which each state surpassed California's 2011 share of postings with Cloud Computing skills



Source: Burning Glass Institute analysis of Lightcast job postings data

Figure 6. Monthly Percentage Change in Generative AI Jobs Since December 2022

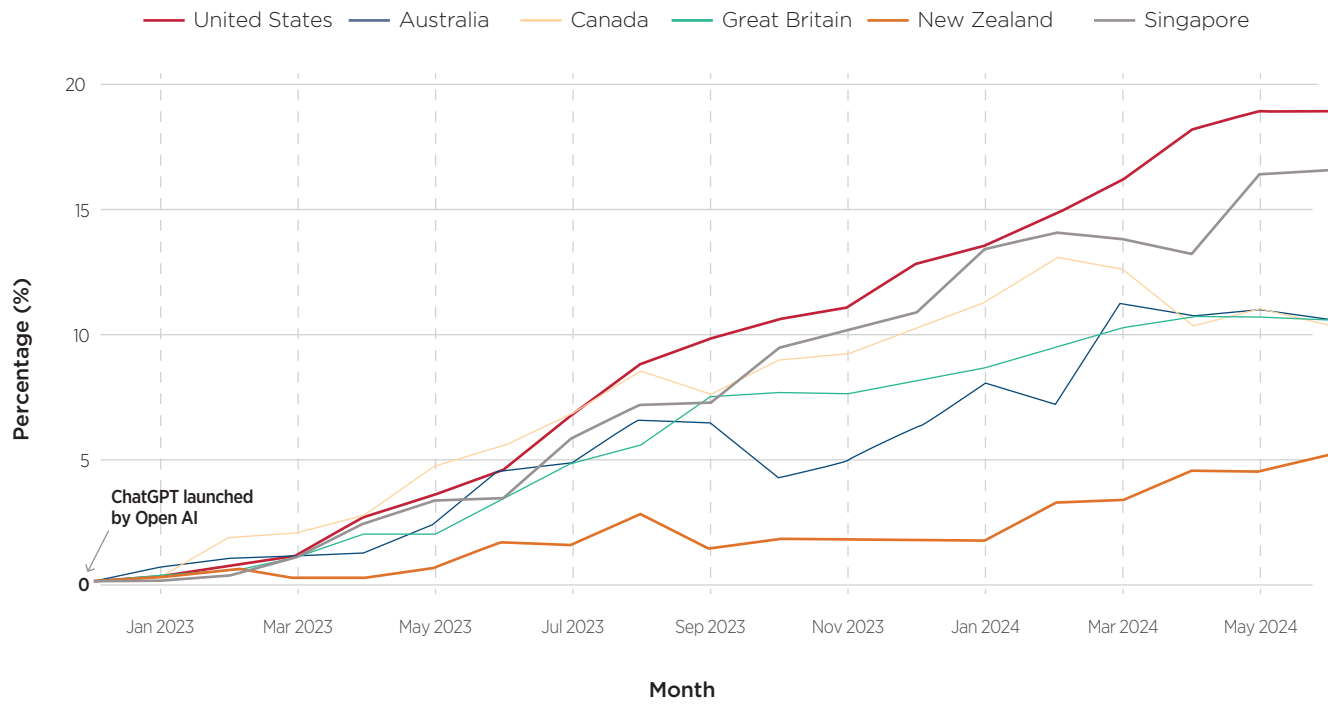


Source: Burning Glass Institute analysis of Lightcast job postings data

This exceptionally rapid growth has significantly increased the prominence of generative AI skills within the broader AI and machine learning field. (Though other AI and machine learning technologies and skills have been overshadowed by generative AI's meteoric emergence in late

2022, they haven't gone away.) Across major English-speaking countries, at least 5% of postings for AI and machine learning jobs now require generative AI skills. In the US, this figure is even higher, approaching 20%.

Figure 7. Percentage of AI/Machine Learning Jobs Requiring Generative AI Skills, by Country



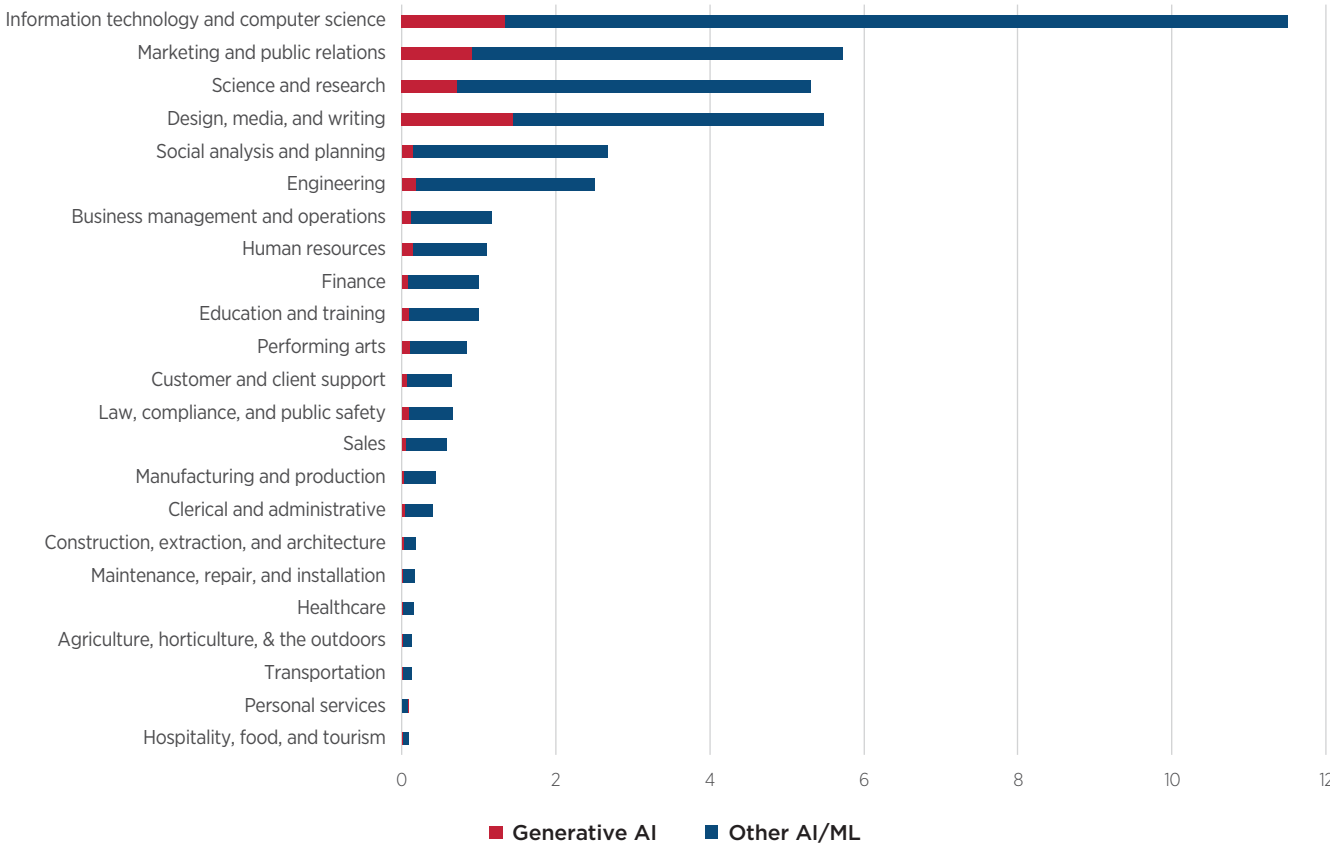
Source: Burning Glass Institute analysis of Lightcast job postings data

Industry Diffusion of AI Skills

The surging demand for generative AI skills is a distinctive feature of this latest wave of AI evolution. Following previous breakthroughs in AI technologies, demand for AI and machine learning skills remained largely confined to the information technology and computer science fields. With generative AI skills, however, demand has already spilled over into other industries, gaining particular traction in design,

media, and writing professions—fields highly impacted by this new technology through both automation and augmentation. Notably, demand for generative AI skills in creative fields now surpasses that in IT and computer science. Moreover, demand for generative AI skills in marketing and public relations exceeds that in science and research.

Figure 8. Percentage of Jobs Requiring Generative AI vs. Other AI/Machine Learning Skills, by Career Area

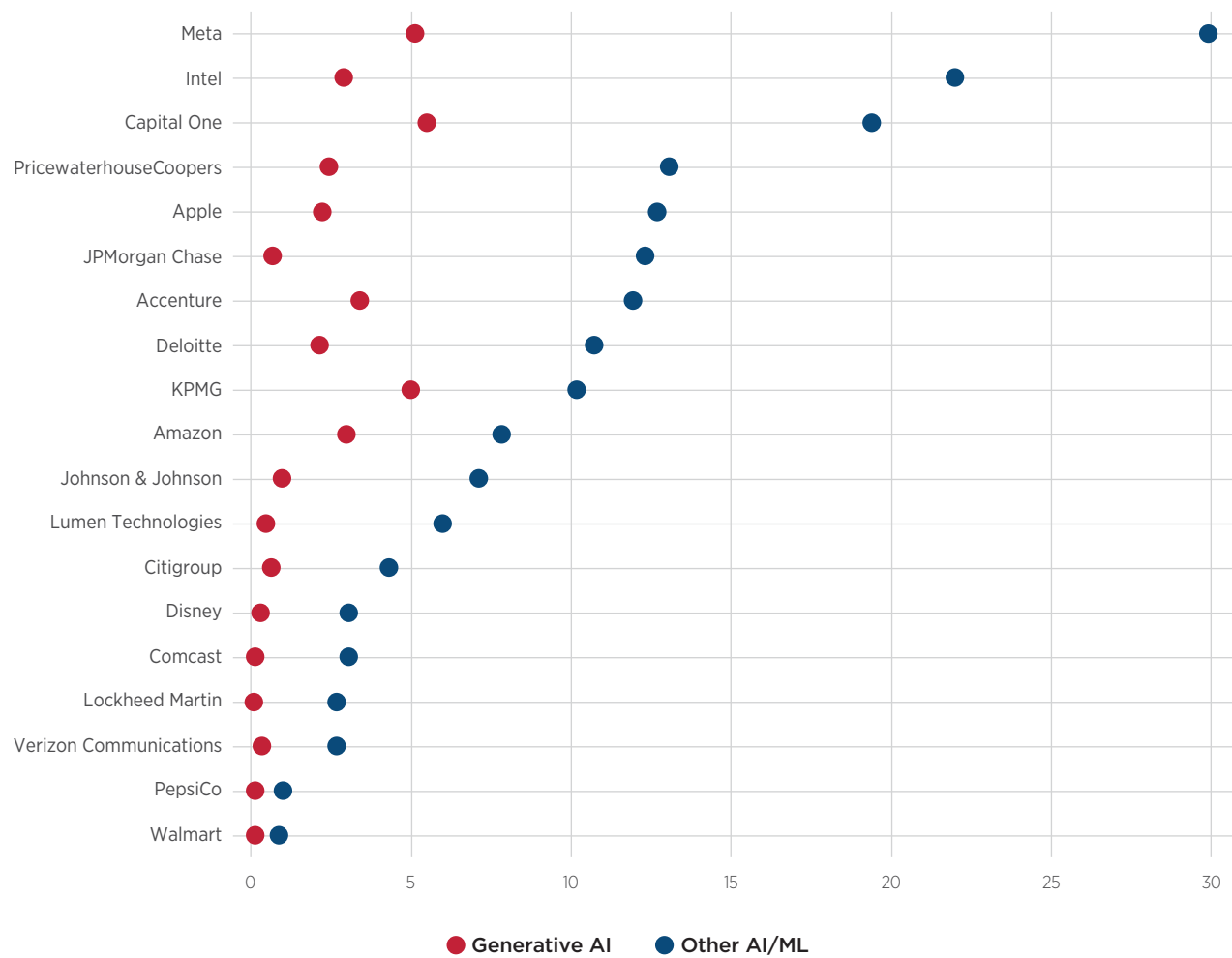


Source: Burning Glass Institute analysis of Lightcast job postings data

The diffusion of generative AI also differs from prior waves of AI and machine learning at the firm level. Consulting firms like Accenture and KPMG, and financial institutions such as Capital One, have aggressively pursued generative AI skills, matching or even exceeding Meta, the leader for overall AI adoption, as measured

by the share of overall job postings requiring generative AI skills. Meanwhile, the list of firms with the highest share of jobs involving some kind of AI now spans sectors far beyond tech, including Johnson & Johnson, Disney, PepsiCo, and Walmart.

Figure 9. Demand for Generative AI vs. Other AI/Machine Learning Skills, by Company

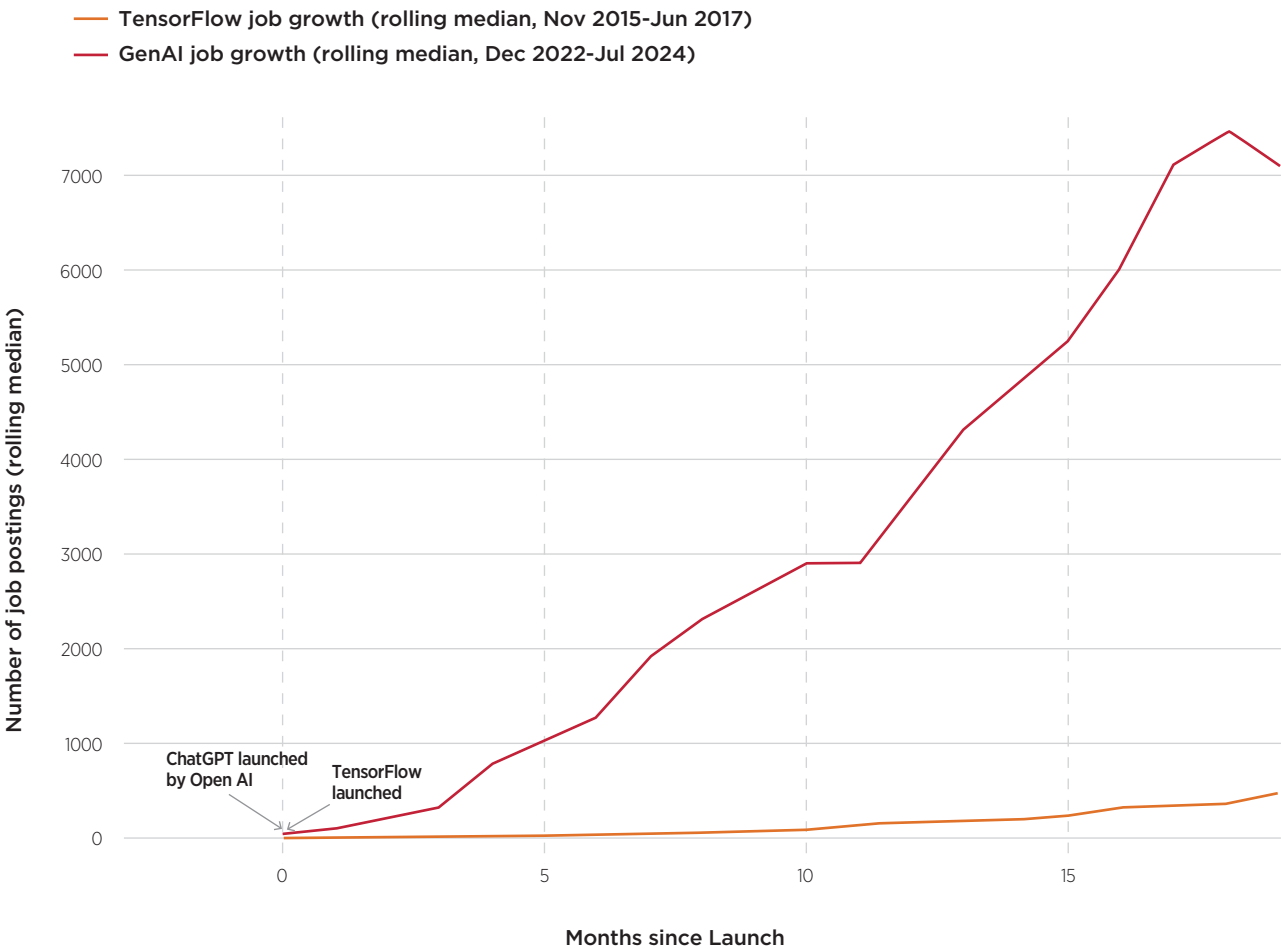


Source: Burning Glass Institute analysis of Lightcast job postings data

Comparing generative AI to Google's TensorFlow, another significant AI technology, further illustrates its unique position. Used by developers for natural language **processing** and image **recognition**, TensorFlow has seen skyrocketing growth in demand. However, measured by the number of jobs that make

use of it, TensorFlow's adoption remains concentrated and relatively niche, primarily because it's a specialized tool for AI experts. In contrast, generative AI offers numerous non-technical applications, enabling much wider adoption even in this early stage of its development.

Figure 10. TensorFlow vs. Generative AI: US Jobs Demand after Launch



Source: Burning Glass Institute analysis of Lightcast job postings data

Conclusion

The increasing prominence of generative AI within the broader AI and machine learning field likely plays a crucial role in the relatively rapid geographic spread of adoption we've observed. Unlike technologies that require specialists for implementation, such as cloud computing or TensorFlow, generative AI can be used by white-collar professionals across various industries and locations. While these professionals aren't evenly distributed geographically, they're being hired in many places and organizations that don't typically employ AI specialists.

If this dynamic continues, generative AI skills may mirror the evolution of word processing and spreadsheet proficiency—transforming from niche expertise to essential workplace competencies. This democratization of AI technology could catalyze a broader adoption of AI skills, fundamentally reshaping the American job market. As AI literacy becomes increasingly ubiquitous, we may witness a seismic shift in the skills landscape, redefining career trajectories and economic opportunities across the nation.

