U.S. Software Engineer Talent Landscape

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AUTHORS

Caroline Liongosari
Senior Data Scientist
cliongosari@linkedin.com

Danielle Kavanagh-Smith, Ph.D.
Senior Data Scientist
dkavanaghsmith@linkedin.com

Kory Kantenga, Ph.D.
Head of Economics, Americas
kkantenga@linkedin.com

Mar Carpanelli
Senior Staff Data Scientist
mcarpanelli@linkedin.com

KEY FINDINGS

- **Software engineering (SWE) hiring follows broad hiring trends.** Over the past decade, SWE hiring has largely tracked the Technology, Information, and Media sector, and entry-level SWE hiring has broadly kept pace with overall SWE hiring.

- **The SWE market is adjusting to AI through skills**, with new hires emphasizing skills in cloud platforms and fast-growing AI-related tools compared to web development skills, such as JavaScript, HTML, and CSS, that were prevalent five years ago.

- **SWE hiring is shifting across industries and job types**, with non-Tech industries accounting for a larger proportion of SWE job postings, and AI-related roles expanding rapidly within SWE-adjacent hiring.

- **SWE entry pathways are tightening.** A smaller share of Computer Science (CS) graduates are starting their careers in SWE and more are moving into adjacent roles.

INTRODUCTION

Rapid advances in AI, alongside a broad labor market slowdown, are transforming the software engineering (SWE) labor market. Over the past several decades, employers and policymakers have consistently promoted software engineering as a high-return field of study, contributing to sustained growth and historically high enrollment and graduations in computer science (CS). Against this backdrop of expanding supply, a significant slowdown in demand has occurred, raising questions about whether this shift will endure, where SWE opportunities are now, how pathways into SWE are changing, and which skills are increasingly rewarded.

This research note examines trends in SWE hiring, mobility, and skill demand to understand this transformation. SWE hiring mirrors broader hiring patterns, indicating a macro-driven slowdown. Tech remains the primary sector for SWE opportunities, even as mobility falls. AI-related roles are expanding quickly and creating adjacent career paths while fewer recent CS graduates enter traditional SWE roles. SWE skills now emphasize cloud platforms and AI-related capabilities, reflecting the influence of AI—even as evidence of AI displacing SWE writ large remains scarce.

SWE HIRING FOLLOWS BROAD TRENDS

Over the last decade, SWE hiring has mirrored trends in the Technology, Information, and Media sector. This sector kept pace with national hiring before the pandemic, surged during the recovery, and then slowed more quickly from mid-2022 to late 2023 before stabilizing. From late 2023 onward, hiring in the sector stabilized even as national hiring continued to decline. Hiring rebounded nationally and in the sector by late 2025. SWE hiring outpaced the sector in the late 2010s and remained strong through the pandemic, but it slowed more sharply for both overall and entry-level roles from mid-2022 to late 2023. Although entry-level SWE hiring did not rebound at the end of 2025, it has generally tracked overall SWE hiring.

LinkedIn Hiring Rate
Indexed to Average of 2016

Legend: National, Tech, Information and Media, Software Engineers, Software Engineers (Entry)
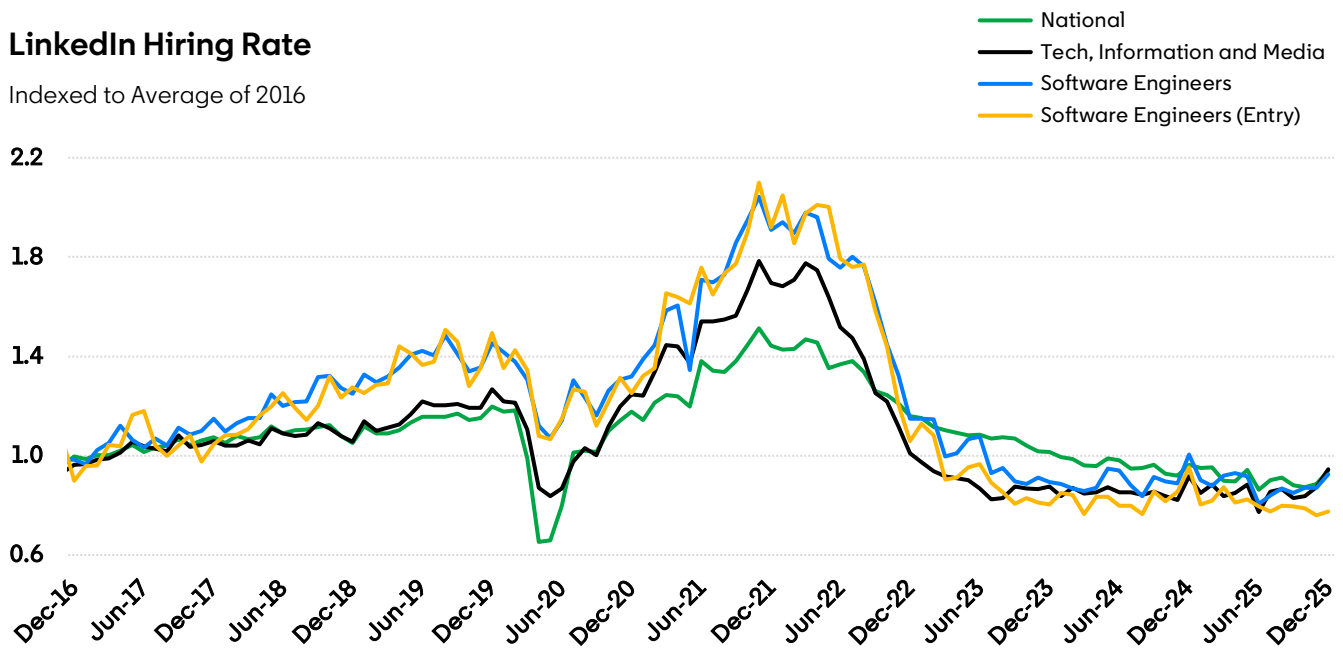
The broad alignment between national, Tech, and SWE hiring—both entry-level and overall—suggests the slowdown is driven mainly by macroeconomic forces, not a disproportionate impact from AI on entry-level SWE roles. Changes in real interest rates account for most of the variation in SWE hiring over the past decade. Although AI is expected to affect entry-level, high-exposure roles like software engineering more heavily, it remains unclear whether AI or AI anticipation is inhibiting a recovery or causing further deterioration in SWE entry-level hiring. That may become clearer once hiring recovers in more cyclical sectors such as Manufacturing. The absence of a rebound in entry-level SWE hiring at the end of 2025 is concerning for job seekers, but it is not enough to conclude that AI is the cause.

TECH STILL LEADS SWE HIRING, BUT MOMENTUM HAS SLOWED

Tech leads SWE hiring and its share of SWE job postings has barely changed since 2023. In December 2025, it rose only one percentage point to 38.4%, up from 37.1% in December 2023—a sharp slowdown from the eight-point jump the year before. Over that same period, Professional Services' share of SWE job postings grew seven percentage points from 21.2% to 28.2%. Financial Services saw a smaller rise, from 11.2% in December 2022

to 13.5% in December 2024, before its share dropped to 7.1% in 2025. While Tech continues to post the most SWE jobs in absolute terms, its share has stagnated as Tech hiring momentum has slowed.

From 2021 to 2025, most SWE hiring took place in Tech (35%), with Professional Services (21%), Manufacturing (13%), and Financial Services (12%) trailing behind. Tech's

Industry Share of SWE US Job Postings

Legend: Tech, Information and Media; Professional Services; Financial Services
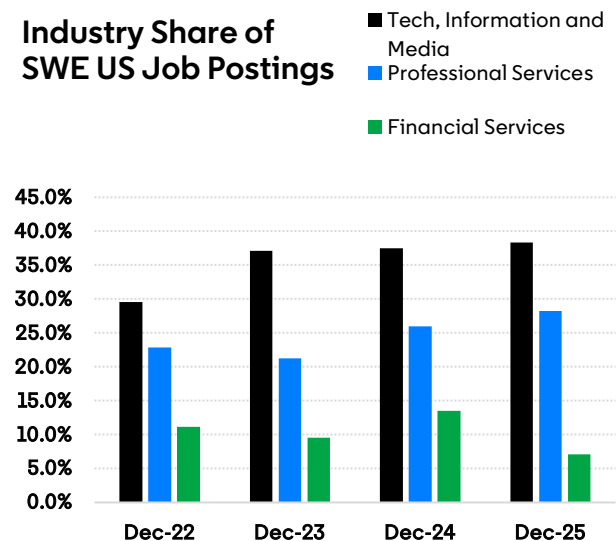
share fell from 37.9% in 2022 to 31.4% in 2023 but rebounded to 37.8% in 2025, edging past its pre-pandemic level of 36% in 2019. Professional Services moved in the opposite direction, slipping from nearly 22% before 2022 to below 20% by 2025 despite a higher share of SWE job postings.

Within SWE and SWE-adjacent hiring, System Engineer (5.9%) and Data Engineer (5%) were the most common occupations among hires outside of general SWE positions in 2025. However, the fastest growth is concentrated in AI-related titles. AI Engineers now account for a share of hires that is 14 times higher than in 2019 and 10 times higher than in 2022. Machine Learning Engineers show a similar trend, with their 2025 share roughly doubling since 2019.

JOB TRANSITIONS REMAIN TECH-CENTRIC WITH EARLY GROWTH IN GAI PATHWAYS

SWE job mobility has declined since 2021, and pathways remain predominantly tech-oriented despite modest diversification. SWEs represent less than 1.5% of the workforce but account for 2–3% of all job changes, down from 2.9% in 2021 to 2.2% in 2025.

More than 80% of SWE movers transition within Tech each year, although that share edged down from 87.1% in 2021 to 83.9% in 2025, alongside an increase in transitions into non-Tech industries (from 13.0% to 16.2%). Nearly 70% of SWE movers continue to land in other SWE roles, slipping only slightly from 71.4% in 2021 to 69.0% in 2025.

A notable emerging trend is the rise of Generative AI (GAI) Engineer roles as a destination. While still small in absolute terms (under 1% of SWE job switches), transitions into GAI engineer roles have grown nearly ninefold since 2021, signaling early-stage adoption rather than broad reallocation.
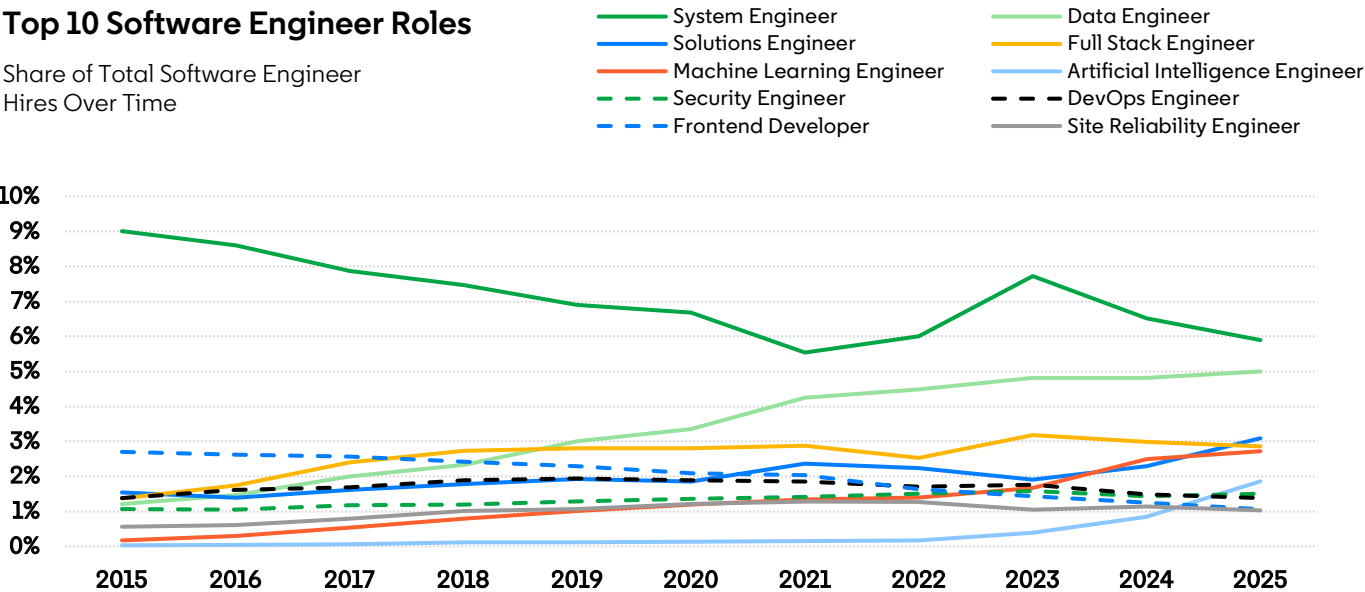
THE CS GRAD-TO-SWE PIPELINE WEAKENS AS GEN Z REPRESENTATION INCREASES

Since 2022, a larger share of CS graduates started their first full-time job outside of SWE than in SWE. In 2023 and 2024, 55% of CS college degree holders started in non-Software Engineering positions after graduation, compared to 49% in 2016. The top non-SWE positions for computer science graduates in 2024 include Data Analyst, IT Analyst, and Financial Analyst. This shift comes as we project record numbers of CS graduates entering the labor market amid historically weak SWE hiring.

At the same time, cohort composition among new SWE hires is shifting rapidly. Gen Z now represents 45.1% of SWE hires—a 15 percentage point increase since 2022. Gen Z is projected to surpass Millennial (45.6% in 2025) representation among SWE this year.

Top 10 Software Engineer Roles

Share of Total Software Engineer Hires Over Time

Legend: System Engineer, Data Engineer, Solutions Engineer, Full Stack Engineer, Machine Learning Engineer, Artificial Intelligence Engineer, Security Engineer, DevOps Engineer, Frontend Developer, Site Reliability Engineer

Note: Excludes General SWE roles. Top 10 roles based on 2024 rankings; 2025 data only goes up to October 2025.

CORE PROGRAMMING CONTINUES TO HAVE STRONG DEMAND WITH RAPID GROWTH IN CLOUD AND AI-ADJACENT SKILLS

The skills landscape from 2021 to 2025 shows strong demand for core programming skills, a hiring preference for Python and cloud expertise, and outsized growth in AI-adjacent tools. This shift is contrasted with the skill trends in 2016 to 2020, where the top skills were related to web development including JavaScript, Cascading Style Sheets (CSS), and HTML.

The top skills in SWE job postings include software development, Java, JavaScript, Python, and Amazon Web Services (AWS). These skills signal sustained demand for general software engineering capability, multi-language proficiency, and cloud infrastructure.

The top skills among SWE hires include Python, AWS, SQL, JavaScript, and React.js. Compared to job postings, hiring outcomes emphasize Python and cloud platforms, alongside data skills (SQL) and front-end frameworks (React.js).

The fastest-growing skills among SWE hires include AI, Tailwind CSS, Azure Databricks, Google BigQuery, and Azure SQL. This mix suggests growth across AI capabilities, modern front-end tooling, and data engineering platforms in cloud ecosystems.

CONCLUSION

The U.S. SWE talent landscape has shown great transformation in the last few years. While Tech remains the largest source of opportunity in absolute terms, momentum has stalled amid a broad, macro-driven hiring slowdown. Successful job switching remains largely tech-centric, with early but rapid expansion in AI roles. At the same time, evolving skill priorities favoring Python, cloud platforms, and AI capabilities point to structural shifts in the SWE talent market. Thus, while the weakening CS-grad-to-SWE pipeline largely reflects the broader macro slowdown, the AI-driven shift in required skills suggests SWE hiring may not fully rebound even after the macro environment improves.

Top Skills for SWE, 2021–2025

Skill Rank	Job Postings	Hires	Fastest Growing
1	Software Development	Python	Artificial Intelligence
2	Java	Amazon Web Services	Tailwind CSS
3	JavaScript	SQL	Azure Databricks
4	Python	JavaScript	Google BigQuery
5	Amazon Web Services	React.js	Azure SQL

METHODOLOGY

Data and Privacy. This body of work represents the world seen through LinkedIn data, drawn from the anonymized and aggregated profile information of LinkedIn's 1+ billion members around the world. As such, it is influenced by how members choose to use the platform, which can vary based on professional, social, and regional culture, as well as overall site availability and accessibility. In publishing these insights from LinkedIn's Economic Graph, we want to provide accurate statistics while ensuring our members' privacy. As a result, all data show aggregated information for the corresponding period following strict data quality thresholds that prevent disclosing any information about specific individuals.

Software Engineers. LinkedIn member job titles are standardized and grouped into approximately 15,000 occupations, one of which is software engineer. These are not sector or country specific.

Computer Science Graduates. LinkedIn members report their field of study in their degrees on their LinkedIn profiles. These field of studies are standardized into more than 2,000 CIP codes from the National Center for Education Statistics. Computer Science graduates are LinkedIn members who listed a completed degree with a field of study mapping to a CIP code under "Computer and Information Science and Support Services."

Hires. Hires are LinkedIn members who added a new employer to their profile in the same month the new job began. By only analyzing the timeliest data, we can make accurate month-to-month comparisons and account for any potential lags in members updating their profiles. The **LinkedIn Hiring Rate** is the percentage of LinkedIn members who added a new employer to their profile in the same month the new job began, divided by the total number of LinkedIn members in the country. This number is indexed to the average month in 2016; for example, an index of 1.05 indicates a hiring rate that is 5% higher than the average month in 2016.

Job Transitions. Job transitions are calculated from updates to LinkedIn profiles using the start date of a new job at a different company after a previous job has ended.

Job Postings. Monthly series of paid job postings on LinkedIn, spanning May 2021 through January 2025.

Skills. LinkedIn members self-report their skills on their LinkedIn profiles. Currently, more than 40,000 distinct, standardized skills are identified by LinkedIn. These have been coded and classified by taxonomists at LinkedIn into 249 skill groupings, which are the skill groups represented in the dataset. Skill groupings are derived by expert taxonomists through a similarity-index methodology that measures skill composition at the industry level. LinkedIn's industry taxonomy and their corresponding NAICS codes can be found here.