Career/Industry Forecast

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Job Title: Artificial Intelligence Engineer

Job Description:
Artificial Intelligence (AI) Engineers are computer science professionals who design, develop, and implement intelligent systems capable of articulating human decision-making and problem-solving. This career combines aspects of software engineering, data science, and machine learning to build models that allow machines to learn from large datasets and adapt to new situations. AI Engineers are responsible for developing algorithms, optimizing models, and integrating them into real-world applications, such as natural language processing systems, computer vision, robotics, and business intelligence tools. In addition, they collaborate with other functionary teams to make sure AI solutions are ethical, reliable, and compliant with industry standards.

Some topics that are crucial for AI engineers to have solid knowledge of include:

- Machine Learning and Deep Learning Architecture
- Natural Language Processing (NLP)
- Computer Vision
- Neural Networks and Predictive Modeling
- Cloud Computing and Distributed Systems
- Data Structures and Algorithms
- Software Engineering Principles

These are some of the subsets or categories of AI that encompass broad thinking and deeper knowledge. Other crucial skills include strong programming skills, mathematics proficiency, research and analytical skills, organizational skills, attentiveness, critical thinking skills, presentation skills, teamwork skills, and communication skills.

Training, Education, and Certification:
The minimum education to become an Artificial Intelligence Engineer is a bachelor's degree in computer science, artificial intelligence, data science, or any other related field. Many professionals pursue advanced degrees (master's or doctorate) to specialize in subfields such as robotics, deep learning, or human-computer interaction. Recommended certifications for this career path include the Artificial Intelligence Engineer Certification (offered by various professional organizations), TensorFlow Developer Certificate, AWS Certified Machine Learning Specialty, Microsoft Certified: Azure AI Engineer Associate, and Google Professional Machine Learning Engineer Certification. Prior to working as a full-time AI Engineer, candidates are expected to have hands-on experience in AI projects, programming, and data-driven research. Potential entry-level positions that prepare candidates for AI engineering include software developer, data analyst, machine learning engineer, research assistant, or systems programmer.

College or Post High School Programs and Recommended High School Courses:

It is recommended for incoming AI professionals to take programming-related courses in high school such as computer science, computer programming, data science, and advanced mathematics (algebra, calculus, and statistics). Advanced Placement (AP) and/or International Baccalaureate (IB) courses in Computer Science, Calculus, and Statistics are highly encouraged, as they provide foundational knowledge and critical problem-solving skills necessary for the AI Engineer role. Undergraduate students are expected to take courses in algorithms, machine learning, deep learning, probability and statistics, natural language processing, and ethics in AI. For high school students, organizations such as AI4ALL, MIT PRIMES, and university summer research programs provide opportunities to gain early exposure to artificial intelligence. At the college level, students may also start internships and research opportunities through partnerships with companies like Google, IBM, Microsoft, and OpenAI, which provide hands-on experience in AI engineering and other related fields.

National and Local Professional Organizations:
Some prominent national and local professional organizations circulating AI include the Association for the Advancement of Artificial Intelligence (AAAI), the Artificial Intelligence and Machine Learning Society (AIMLS), IEEE Computational Intelligence Society, ACM Special Interest Group on Artificial Intelligence (ACM SIGAI), Women in AI (WAI), and the Artificial Intelligence and Emerging Technology Council. These organizations assist incoming and current professionals to expand their knowledge and collaborate with others in the same field. Furthermore, these organizations provide opportunities to build leadership skills, engage in research, attend conferences, and share innovative ideas in a positive environment.

Related areas of work include:

- Data Scientist
- Machine Learning Engineer
- Natural Language Processing Expert
- Computer Vision Engineer
- Robotics Engineer
- AI Research Scientist

These related areas of work incorporate many skills and knowledge that AI Engineers use. In fact, AI Engineers are often required to work with professionals in related fields due to the interdisciplinary nature of artificial intelligence and the wide range of applications that need to be addressed.

Salary:
In terms of pay and salary, there are numerous factors to consider such as the candidate's prior experience, level of education, industry sector, and company regulations. Approximately, salaries for AI Engineers can range between $80,000 and $210,000 globally. The national average salary falls between $120,000 and $160,000, with some outliers occurring at the entry-level or in highly specialized roles within leading technology companies.

Career Outlook:
The demand for professionals in the field of artificial intelligence is rapidly growing due to the increasing integration of AI systems in business, healthcare, finance, manufacturing, and consumer technology.

Industries are seeking AI Engineers to optimize processes, enhance data-driven decision-making, and develop intelligent systems that improve efficiency and innovation. Employment in artificial intelligence-related fields is projected to grow by 23% between 2022 and 2032, much quicker than the average employment growth rate. As AI continues to expand across sectors, career opportunities in this field will remain in high demand.

Terminology:
Aside from certifications and education, it is crucial for AI professionals to have an understanding of programming languages and frameworks. Some commonly used languages include Python, Java, C++, R, and Julia, while frameworks such as TensorFlow, PyTorch, Keras, and Scikit-learn are essential for building and deploying models. Furthermore, it is important to understand AI-related vocabulary. For example, terms such as neural networks, supervised vs. unsupervised learning, reinforcement learning, natural language processing, computer vision, overfitting, bias, and model optimization are critical to mastering the field

Analysis:

After intensive research and gaining a deeper understanding of this profession, I have come to the conclusion that the Artificial Intelligence Engineer position would be an excellent fit for me. Although there are still many factors that will guide my final career decision, numerous aspects of this field align closely with my goals and interests. One of my most important goals is to contribute to society by developing technologies that can improve people's lives. Through the work of an AI Engineer, I can create solutions that not only make industries more efficient but also address real-world problems in healthcare, education, and business. For example, AI is already being applied to early disease detection, personalized learning, and automation of complex tasks, and I believe incoming professionals like myself will continue to expand these innovations. If AI is continuously being integrated and woven into current industries and platforms, there is no bounds on what is left to come. In addition, coding and problem-solving have always been two of my greatest passions, and AI engineering allows me to apply these skills on a daily basis. I also find the various subfields of AI, such as natural language processing, computer vision, robotics, and deep learning, very intriguing and motivating. Furthermore, the idea of being able to use AI in the future to transform multiple careers and industries thrills me because I want to be a part of that change.

In my pursuit of deciding whether this field is right for me, several factors have stood out. I have observed that I possess many of the "soft" skills needed for the profession. For example, critical thinking, teamwork, communication, and organization are all vital to AI engineering, and I have grown these skills through my experiences in AP and honors classes, debate, and leadership roles in clubs and organizations such as the Computer Science Club at Heritage. To add to this, I already have a strong foundation in computer science through my coursework, which has introduced me to both coding and computational thinking. I also possess and keep a positive mind when approached with difficult tasks. Moving on, another positive aspect of this career path is its balance: AI Engineers often work regular schedules, with opportunities for independent research and collaboration, allowing time for both professional development and personal interests. Furthermore, because of the vast and expanding nature of AI, there are endless opportunities for growth, innovation, and advancement.

Despite learning a lot through my research, I know that there is still much more left to explore. To gain deeper insight into the career path of an AI Engineer, I would like to further build upon my programming skills, expand my knowledge of machine learning frameworks and algorithms, and seek out opportunities to interact with professionals in the field. Attending AI-focused workshops, completing online certifications, and participating in research projects will provide me with a clearer picture of the technical and professional requirements of the job. I do know that there are limitations and huge risks associated with this field, such as high demand, but high risk always brings high rewards. To conclude my analysis, I believe that I am on the right track toward a field that matches both my passions and my goals, but I also recognize that continued exploration and hands-on experience are essential as I prepare for a future career in artificial intelligence.

Article Annotations

Important Note: *All annotations are italicized, blue, pt. 11 and Calibri font*

1. Is AI a Good Career Path?



Artificial Intelligence (AI) has become a game-changer in many industries, from healthcare and finance to entertainment and beyond. It's all around us, powering everything from voice assistants like Siri to self-driving cars. With such rapid advancements, it's no wonder people are wondering: Is artificial intelligence a good career? As technology evolves, the demand for AI experts has skyrocketed, leaving many to ask if it's a career worth investing in.

In this article, we'll explore the exciting world of AI careers. We'll break down everything from the potential for growth in the industry to the specific career paths available.

The AI industry landscape

AI is a rapidly growing field that covers a wide range of technologies, from machine learning and natural language processing to generative AI. It's already embedded in countless industries, transforming everything from customer service to healthcare, and it's only just beginning.The AI sector has witnessed explosive growth in recent years. *AI is in high demand - noted.* In 2023, AI investments in the U.S. reached a staggering $67.2 billion ,*More funding allocated for AI research* according to the 2024 AI Index Report from Stanford University. This highlights not only the interest in AI but also the potential it holds for innovation across industries.This surge in investment has driven job demand in the AI field. In 2022, AI-related positions made up 2.0% of all job postings in America, although this dropped slightly to 1.6% in 2023. *Looks like there was a drop - could be attributed to increase in education requirements.* The demand for AI professionals remains strong, as companies look to incorporate AI into their operations to stay competitive. By 2030, half of the employers surveyed for the Economic World Forum's 2025 Future of Jobs Report plan to reorient their business in response to AI, while two-thirds plan to hire talent with specific AI skills.In fact, AI has become so crucial that 72% of organizations use AI in at least one business function, as reported by McKinsey in May 2024. This marks a significant jump from 55% in 2023, demonstrating the expanding reliance on AI tools. These numbers are aligned with the projections for the top fastest-growing jobs in the next five years: AI and machine learning specialists hold the third position, with a 40% net growth. Shows *rapid change in this field and increases chances of securing a job*, according to the World Economic Forum.

Is AI a good career for the future?

Looking ahead, the future of AI appears even brighter. The AI job market is predicted to continue growing, with the sector evolving rapidly due to emerging technologies. As industries across the board—finance, healthcare, logistics, and entertainment—look to enhance their capabilities, the demand for skilled professionals will only increase.For example, machine learning is one of the most sought-after skills in the U.S. labor market, accounting for 0.7% of all job postings , *There is more popularity for machine learning than AI (more general)* the Stanford report reveals. Artificial intelligence and natural language processing closely follow with 0.5% and 0.2%, respectively. These numbers point to a clear trend: AI and machine learning skills are becoming indispensable.According to the World Economic Forum, AI and big data skills will become more and more important in the following industries: Automotive and aerospace, telecommunications, professional services, information and technology services, and insurance and pensions management.In terms of geographic demand, states like California, Texas, and Virginia are seeing the highest concentration of AI-related job postings, according to the same report. In 2023, California accounted for 15.3% of all AI job listings, with Texas and Virginia

following closely behind at 7.9% and 5.3%, respectively. This suggests that tech hubs will continue to be a driving force in AI job creation.

Is a career in AI worth it? What to consider

A career in AI offers a wealth of opportunities, and it's no surprise that many people are turning their attention to this growing field. From job security to high salaries, there are plenty of compelling reasons to consider AI as a career path.

Pros of a career in AI

Let's explore some of the top benefits of pursuing a career in AI.

High demand and job security

The AI industry is growing at a rapid pace, and it's showing no signs of slowing down. As AI becomes increasingly integrated into various sectors, there's a massive surge in demand for AI professionals. Companies in virtually every industry are incorporating AI technologies to optimize operations, improve customer experience, and drive innovation. *This could lead to limited jobs as AI displaces current job postings, which could become a risk.* This ever-growing demand ensures strong job security for those pursuing careers in AI. Whether it's AI engineers, developers, or machine learning specialists, professionals skilled in AI are sought after.

Competitive salaries

Another major draw of pursuing a career in AI is the potential for high salaries. AI roles are known for offering some of the most competitive compensation packages in the tech industry. Specialized fields within AI, like machine learning, robotics, and data science, often come with salaries significantly higher than the national average. For example, a machine learning engineer can expect to earn $168,998 per year, *High salaries- noted* depending on experience and location. AI engineers, especially those with expertise in areas like natural language processing or computer vision, can earn $134,665 per year. This makes AI not only a career that's in demand but also a lucrative one for those looking to build wealth and financial security.

Career flexibility and growth

One of the biggest advantages of a career in AI is the sheer flexibility it offers. AI is an interdisciplinary field, which means there are multiple avenues to explore. You could start as an AI developer and later transition into a leadership role or even venture into new fields like autonomous systems or AI-driven healthcare innovations.*High flexibility and freedom in AI.* As the field evolves, so do the opportunities. New technologies, like generative AI and advanced robotics, are constantly emerging, which means new career paths are being created all the time. This guarantees dynamic growth and ensures your career won't become stagnant—there will always be something new to learn, explore, and master.

Real-world impact

A career in AI isn't just about the paycheck—it's also about making a difference. AI professionals have the opportunity to drive meaningful innovation that can solve some of the world's most pressing challenges. Whether it's improving healthcare outcomes with AI-powered diagnostics, combating climate change through smarter energy systems, or enhancing education with personalized learning tools, AI professionals are at the forefront of positive and impactful change.

Cons of a career in AI

Like any rapidly evolving field, AI has its own set of obstacles that potential professionals should be aware of.

Steep learning curve

AI is an incredibly technical field, and if you're coming from a non-technical background, the transition can be tough. Concepts like machine learning algorithms, neural networks, and data preprocessing are essential to the field but can be difficult to grasp without a solid foundation in programming, mathematics, and statistics. For newcomers, mastering these concepts will require an investment of time and effort. *Already have basic knowledge of these principles.* You'll need to be ready to dive deep into technical learning, whether through online courses, self-study, or formal education.

Intense competition

While the growth of the AI sector has led to many job opportunities, it has also attracted a large pool of talented professionals. This makes landing a role in AI, particularly in specialized areas like machine learning or AI engineering, quite competitive—and sometimes, even saturated. *Could become very similar to computer science in terms of saturation as higher education requirements become mandatory.* Candidates with advanced degrees, certifications, and a robust portfolio of practical experience are typically in the best position to get these roles. For newcomers or individuals switching careers, the competition can be even more intense. Breaking into the field may require extra effort, such as upskilling, networking, and proving your expertise through projects or internships.

Ethical challenges and responsibilities

AI professionals don't just need technical skills—they also need to face ethical challenges that come with developing and implementing AI technologies. "One major challenge is determining the appropriate level of human oversight," says Marline Paul, business coach and CEO of Enilram Creative, technology integration expert, and AI implementation strategist. "How much should we rely on AI-generated outputs versus our own judgment?" *This is very important to keep in mind as to not getting carried away with the expanse of technology at our fingertips.*

AI professionals must be mindful of the potential biases and limitations of the systems they create, while also understanding how to best integrate them into workplaces to improve human judgment rather than replace it.

Is an AI career right for you?

AI is dynamic, challenging, and intellectually stimulating, but it's not for everyone. Evaluate if this fast-evolving field aligns with your personal interests, skills, and long-term professional goals.

Personal interests and skills

AI requires a blend of technical expertise and curiosity, as well as a strong foundation in problem-solving and critical thinking. Ask yourself: Do you enjoy working with complex data and solving technical problems? *Yes, I do.* If you have an aptitude for mathematics, logic, and programming, you may find AI particularly engaging. Are you interested in technology's potential to change the world? AI professionals play a pivotal role in shaping future innovations, from healthcare to entertainment. If you're passionate about using technology to make a real-world impact, AI could be an exciting career path. Are you comfortable with continuous learning? AI is evolving quickly, and professionals in the field need to stay current with new tools, platforms, and ethical challenges. Curiosity and a growth mindset are essential traits for success.

Education and experience requirements

AI professionals typically come from diverse educational backgrounds, but most roles require a strong foundation in areas like computer science, engineering, mathematics, or statistics.

Here's a general overview of the typical educational paths and experience required for different AI roles:

- Entry-level roles (e.g., AI developer, data analyst): A bachelor's degree in computer science, data science, *Basic education required for a job in AI* or a related field is often enough. Experience through internships, personal projects, or academic research is helpful.

- Mid-level roles (e.g., machine learning engineer, AI researcher): A master's degree or relevant certifications, along with experience in programming, machine learning, or data analysis, is usually required. Hands-on experience working with AI tools and algorithms is a key differentiator. *Includes building autonomous robots/cars.*

- Senior-level roles (e.g., AI specialist, AI architect): Could require a Ph.D. in AI-related fields, extensive experience in AI research or engineering, and a proven track record in deploying AI solutions. Leadership roles may also require management skills and experience overseeing AI projects.

Professional network and community

Having a professional network is critical in any field, but it is especially important in the AI industry. Talking to your network can help you determine if your strengths align with the demands of the industry. Engaging with AI communities allows you to evaluate whether the career's pace, responsibilities, and ongoing learning are the right fit for your goals and aspirations. "These communities provide real-time information about emerging capabilities and use cases that often precede formal documentation," Paul says. "They also offer opportunities to learn from others' experiments and mistakes."

Breaking into AI

AI is undoubtedly a promising career path, offering high job demand, competitive salaries, and exciting growth opportunities across various industries. Whether you're transitioning from a non-technical background or building on existing skills, AI's evolving landscape presents a unique chance to shape the future of technology. If you're up for the challenge, it's a career worth exploring.

2. AI and the Future of Work

How will AI affect the future of work? This is a focus topic across every company, from HR teams to executives to employees. The question's importance and its difficulty to answer, is one reason the World Economic Forum tackled this topic in its annual Future of Jobs Report. With rapidly developing technology trends, the report offers organizations a roadmap to refine their workforce strategies, future-proof their operations and proactively position themselves to attract and retain top talent. From an AI standpoint, we found the report fascinating for eight reasons.

1. Technology is the Biggest Impact on the Future of Jobs

According to this year's Future of Jobs Report 2025, technology will be the most disruptive force shaping the labor market, outpacing all other macro job creation and displacement trends. Over the next five years, advances in artificial intelligence (AI) and information-processing technologies will accelerate digital access, creating 19 million jobs while displacing 9 million. *AI creates more jobs than displaces other jobs.* This shift will reshape workforce dynamics, with the top three fastest-growing skills — AI-driven data analysis, networking and cybersecurity and technological literacy — becoming essential.

For employers, this means prioritizing candidates who exhibit analytical and systems thinking to tackle complex, data-driven challenges effectively. Furthermore, other evolving technologies, like the rise of robots and autonomous systems, highlight the increasing demand for

programming expertise and adaptability to automated technologies. Across industries, to remain competitive, employers must seek talent with core technological proficiencies to integrate and collaborate with these evolving systems. While the report chart shows all fast-growing jobs, figure 1 highlights technology-related roles.

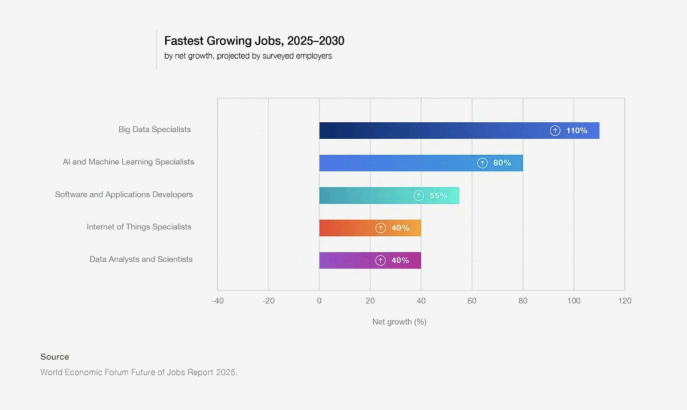


Figure 1: Fastest Growing Technology Jobs

Source: World Economic Forum Future of Jobs Report 2025, complete chart on page 19

The Graph shows that AI is the 2nd fastest growing industry in the world, averaging an 80 percent increase in jobs in the next 5 years.

2. The Evolving Relationship Between Humans and Machines: Automation vs Augmentation

The evolving relationship between humans, machines and algorithms will transform many roles across all industries. The Future Jobs Report highlights how the balance between automation and augmentation will reshape the workforce. Respondents estimate that 47% of their work tasks are performed primarily by humans, 22% are handled mainly by technology (including machines and algorithms) and 30% involve a collaborative effort.

However, by 2030, these proportions are expected to shift significantly, with tasks nearly evenly divided between human, machine and hybrid approaches. *Seamless integration between technology and human labor is crucial for maintaining stability in economies.* For employers, this signals a need to rethink workforce strategies, adopting models that leverage technology's growing versatility while capitalizing on human ingenuity and adaptability. This shift underscores the importance of preparing for a future where work becomes dynamically shared between people and AI-driven technologies.

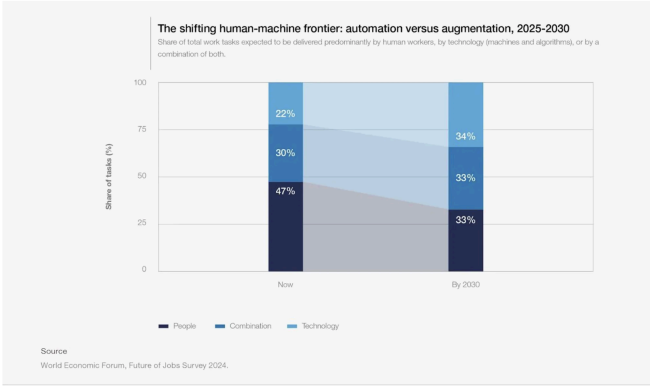


Figure 2: Automation vs Augmentation

Source: World Economic Forum Future of Jobs Report 2025, complete chart on page 26

A key takeaway from this figure is that in 5 years the work delivered/produced by people is projected to decrease from 47% to 33%, indicating a shift in human dominated tasks to technology driven enhancements in the workforce.

Human-machine collaboration, or augmentation, is a critical concept for future jobs. Rather than replacing human work, this approach entails designing and utilizing technology to complement and enhance human capabilities. The report predicts that every industry will experience a decrease in the proportion of tasks performed exclusively by humans by 2030. However, the degree to which this shift is driven by automation versus augmentation will vary by sector. This finding highlights the opportunity for employers to align technological advancements with workforce strengths, fostering a balance between efficiency and human ingenuity.

3. Skills Disruption May be Stabilizing

When the World Economic Forum released its Future of Jobs Report in 2016, surveyed employers anticipated that 35% of their workers' skills would be disrupted in the future. This prediction gained momentum during the COVID-19 pandemic, as rapid advancements in frontier technologies brought profound changes to working environments and skill demands. *COVID really pushed our generation into AI and technology (3rd revolution).* The subsequent editions of the report highlighted escalating levels of skills instability. However, following the pandemic, employers have adjusted well to these challenges. Although uncertainties remain, particularly around the long-term impact of generative AI, the pace of skill disruption appears to be stabilizing.

According to the latest Jobs Survey Report, employers expect 39% of workers' core skills to change by 2030, down from 44% in 2023. This trend may reflect an increasing emphasis on continuous learning, upskilling and reskilling initiatives to help businesses proactively align with future skill requirements and reduce workforce instability.

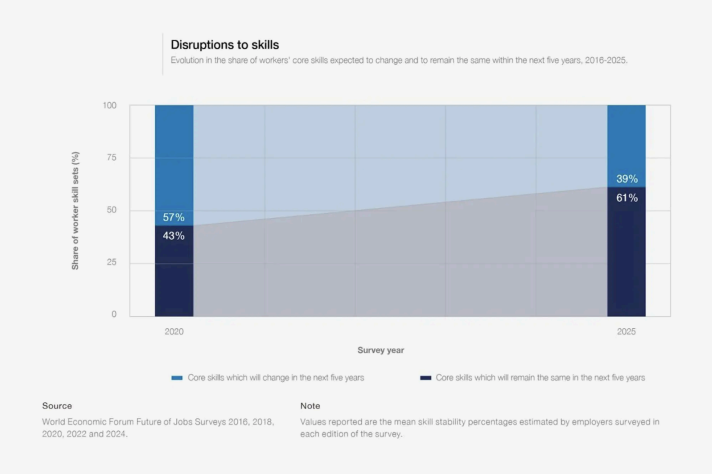


Figure 3: Skills Disruption Stabilizing

Source: World Economic Forum Future of Jobs Report 2025, complete chart on page 33

This figure showcases an increase in core skills that is projected to increase in the next five years due to shifting norms and the perseverance of AI dominated industries in our society, reducing the need for human resources and labor.

4. Core Skills in Demand for 2025

According to insights from the 2025 report, employers increasingly expect workers to balance hard and soft skills to succeed in modern workplaces. Companies noted key competencies such as technical proficiency, interpersonal skills, emotional intelligence and a commitment to lifelong learning as critical soft skills. These findings highlight the growing emphasis on aligning technical expertise with collaborative and adaptive capabilities to meet evolving industry demands. Since the 2023 edition of the report, the relevance of core skills has significantly shifted. Skills such as leadership and social influence, AI and big data, talent management and service orientation have become more critical. *Not only understanding AI is important, but being able to market that AI and bring it to new markets is just as important.*

According to employer projections for the next five years, as highlighted in Figure 4, technological skills are expected to outpace other skill types in importance. AI and big data are leading this growth, identified as the fastest-rising competencies, followed by networks, cybersecurity and technological literacy. Complementing these advancements, creative thinking and socio-emotional skills such as resilience, flexibility, agility, curiosity and lifelong learning are also gaining prominence. Employers should consider integrating these skill sets into workforce development strategies.

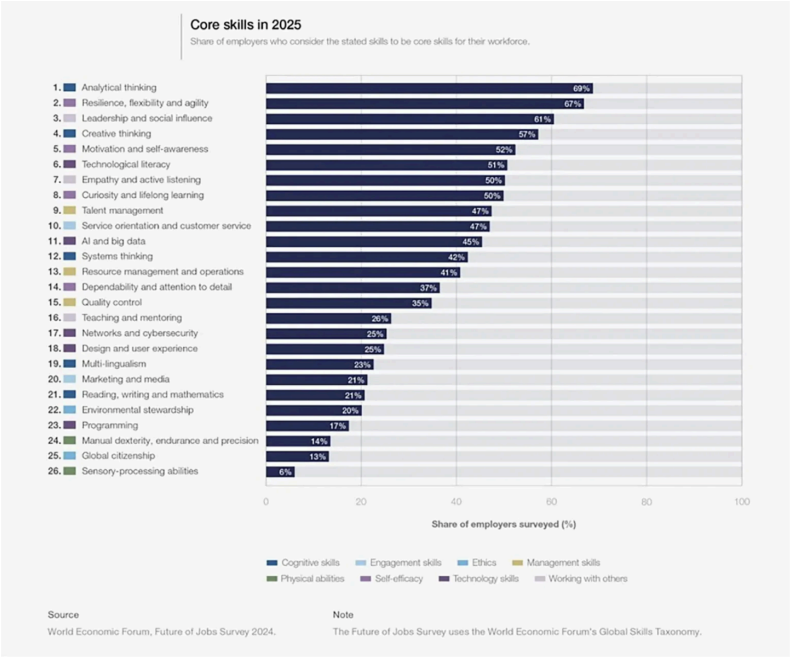


Figure 4: Most In-demand Skills

Source:World Economic Forum Future of Jobs Report 2025, complete chart on page 35

This figure showcases how basic human qualities/skills such as analytical thinking and problem solving are core skills needed in the workforce, despite AI powered technology.

5. Generative AI's Impact on Jobs

Since the Chat GPT release in November 2022, there has been a rapid surge in generative AI (GenAI) investment and adoption across various sectors. GenAI enables users to interact with the technology as though conversing with a human. This capability reduces the barriers to adoption and the technical skills needed to use this technology in many roles. As a result, GenAI skills are in demand. Not surprisingly, the information technology sector has the highest adoption of AI. Further, advanced economies use it at higher rates than low-income economies.

This technology is in its infancy, so long-term gains are unknown. Generative AI could help employees perform more expert tasks, expanding their roles. As discussed above, AI will improve the quantity or quality of output for many roles, enhancing human capabilities rather than replacing them (augmentation).

GenAI can transform the future of jobs through human-machine collaboration. According to the report, human-centered skills remain critical, even in our rapidly evolving, tech-driven workplaces. This finding highlights an urgent need to make reskilling and upskilling permanent strategies to bridge emerging skill gaps. *Companies must ensure they select skilled candidates in order to bridge skill gaps and preserve human intelligence so AI doesn't wipe out human thought and brains.* Employers must prioritize these strategies to help workers transition into roles that

combine technical expertise with essential human-centric abilities. By investing in adaptable talent development, businesses can create a workforce equipped for the challenges of tomorrow.

6. Top Strategies for Workforce Trends

In the latest findings, 50% of the workforce had completed training as part of learning and development programs, a notable improvement from 41% in 2023. This upward trend is prevalent across nearly every industry, underlining the growing recognition of continuous skill development as critical to every industry. While training needs vary across industries and regions, most employers are committed to funding their programs to boost productivity (77%) and competitiveness (70%). Talent retention, cited as the third-highest priority, further reflects the value employers place on workforce development in a rapidly evolving job market.

7. Barriers to Digital Transformation

According to this year's report, skill gaps in the labor market will remain the leading challenge for businesses striving for digital transformation from 2025 to 2030, with 63% of employers citing it as a primary barrier. This challenge represents a notable increase compared to 2023, where 60% of respondents flagged local skill deficits as an obstacle. *This is ironic, considering most people get lazier as AI begins automating tasks, diminishing human intelligence. However, AI jobs remain on the increase.* These gaps are widespread, topping the list of transformation barriers across 52 out of 55 economies and 19 of 22 sectors surveyed.The second key hurdle is organizational culture and resistance to change (46% of participants noted this). *Some companies might resist change or integration of AI as they prefer keeping their traditional methods for simplicity and costs.* This finding stresses the difficulty many companies have adapting their internal processes, structures and mindsets to new trends and disruptions. In addition, employers' expectations around future talent availability have shifted significantly. Only 29% of businesses anticipate improved talent availability between 2025 and 2030. *Supports the claim presented above.* This issue highlights growing concerns about securing qualified professionals for future jobs.

8. Companies Adopt New Workforce Strategies

The World Economic Forum's Future Jobs Report highlights a significant shift in workforce strategies as companies prepare for AI's disruptive impact on employment. By 2030, 77% of employers plan to prioritize reskilling and upskilling their workforce to enhance collaboration with AI systems. This strategy is especially emphasized in higher-income economies (87%) but remains a top priority globally, regardless of income level. Process and task automation follow closely, with 73% of employers aiming to accelerate its adoption, albeit at a slightly lower rate than in 2023. Notably, 63% of employers intend to integrate new technologies to complement their workforce, underlining the growing reliance on AI-driven processes. For employers, this finding highlights the pivotal role of skill development and automation in meeting the demands of a rapidly evolving job market and staying competitive in the future workspace.

Another developing trend is skill-based hiring. Eliminating academic degree requirements is gaining momentum as an effective strategy to broaden talent pools. *This might backfire as the new*

hires might not be as experienced to work the field. According to this year's report, employers are becoming heavily reliant on work experience to assess candidates, with 81% planning to prioritize it as a key evaluation method from 2025 to 2030. This trend is consistent with previous reports highlighting businesses' enduring importance on practical, on-the-job learning and measurable achievements in the hiring process. For employers seeking to stay competitive, the emphasis on skills and experience aligns with evolving workforce trends and talent acquisition strategies.

Planning for the Future of Jobs

While other macro trends are impacting the future of work, technology is undoubtedly playing an outsized role. As such, companies must plan for changes to the workforce landscape as they navigate fast-moving technological developments. The World Economic Forum's Future of Jobs Report is a valuable tool, helping companies pinpoint emerging trends and providing insights into strategies to mitigate the risks and challenges to their workforce. Click here to read the full report.

3. AI Engineer Job Outlook 2025

Sophie Magnet

4 Apr 2025

22 min read

By 2030, AI could automate over 30% of global work hours, according to a 2024 McKinsey report. It's no surprise people are nervous about their careers. But you can turn this shift into an opportunity, if you prepare strategically.The same report shows that demand for workers in STEM and other high-skill jobs is actually on the rise. The US Bureau of Labor Statistics backs this up too—they're predicting a 32% jump in data science jobs and 26% more computer and information research scientists by 2032. *High demand for AI jobs.* These are some of the fastest growing jobs! So, what's the best way to avoid getting automated out of work? Simple: join one of these booming careers.

This article is here to bring you insights into the 2025 AI engineer job outlook.

AI Engineer Job Description

AI engineers design, build, and maintain artificial intelligence systems. They bridge theoretical machine learning concepts and practical AI applications, creating solutions that can understand, learn, and make decisions. In 2025, AI engineers will play a key role in companies that use

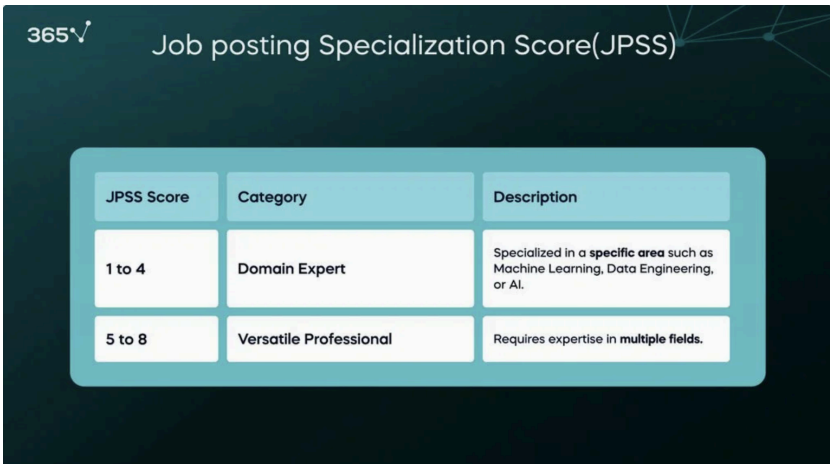
artificial intelligence. They work hand-in-hand with data scientists, developers, and business teams to build and roll out AI tools that tackle real business challenges.

This AI career typically requires:

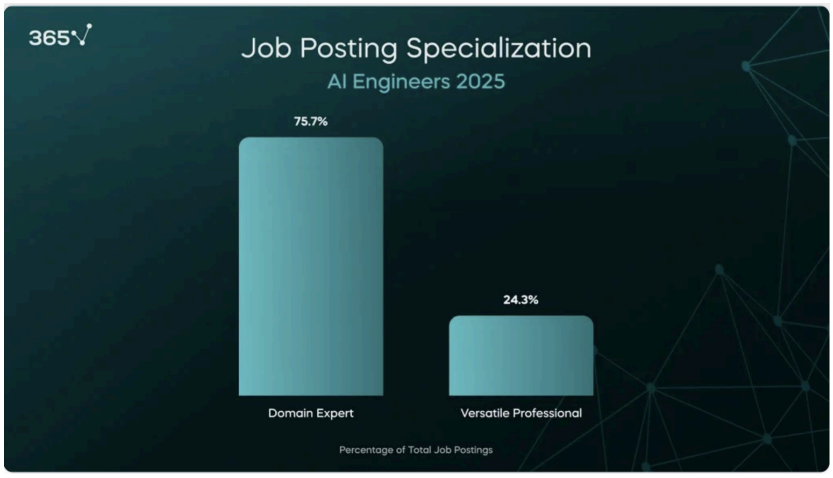
- Understanding of machine learning algorithms and frameworks
- Strong programming skills in Python and other relevant languages
- Experience with cloud platforms (AWS, Azure, GCP)
- Knowledge of data structures and algorithms
- Proficiency in deep learning frameworks (TensorFlow, PyTorch)

Job Posting Specialization Score (JPSS)

This description holds true for specialized AI engineer roles—but does this reflect the actual state of the AI engineer job market? That's where the JPSS comes in! Our Job Posting Specialization Score (JPSS) analyzes job listings to determine whether companies prefer specialists with deep expertise in specific areas or generalists who can handle diverse tasks. This score helps reveal current hiring trends in the AI engineer job market. Our analysis examined job postings across 11 different skill categories. We assigned each posting a Job Posting Specialization Score (JPSS) based on the number of required skill categories, helping us understand what employers are looking for in 2025. We categorized the groups as follows:



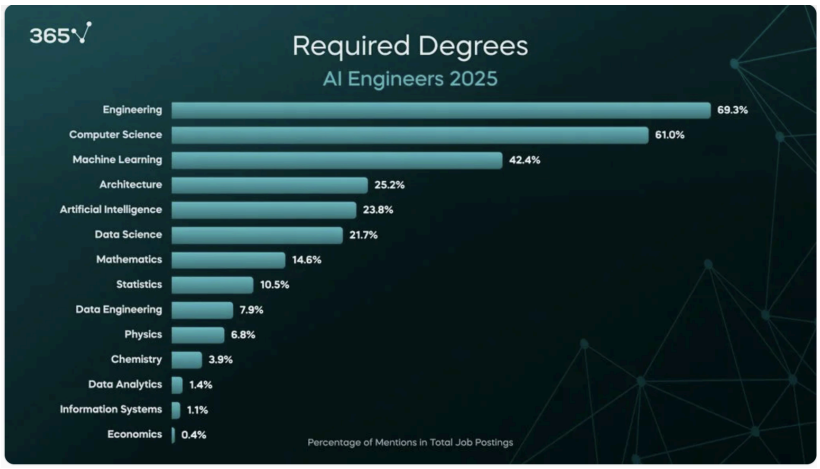
Here are the results:



This figure contrasts the domain experts from the versatile professionals, where domain experts are more predominant in specific areas such as ML.

How Can You Become an AI Engineer?

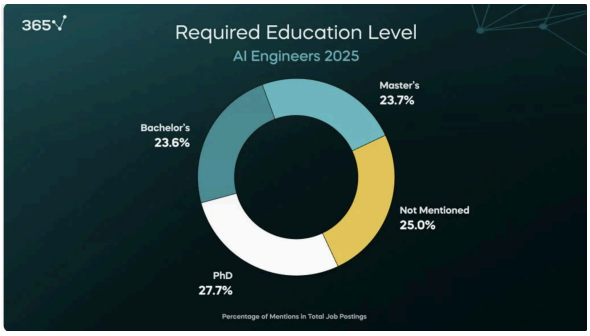
Examining the AI engineer education requirements in 2025, our research shows that companies look for a mix when it comes to academic background and hands-on skills. That being said, in such a highly technical field, having a degree is essentially mandatory for artificial intelligence careers.



The figure showcases the percentages of those with a certain degree in AI jobs. Engineering degrees are ranked the highest.

Our research shows that you don't need a specialized AI degree to land this role. Artificial intelligence degrees were only mentioned in about 24% of postings. Engineering was the most popular degree for this role, appearing in nearly 70% of AI engineer job postings. Computer science followed closely behind at 61%. This strong preference for technical degrees highlights the role's focus on practical engineering and development skills rather than purely theoretical AI knowledge. Other frequently mentioned degrees include: machine learning (42%), data science (22%), and mathematics (15%). Another interesting finding was the high rate of

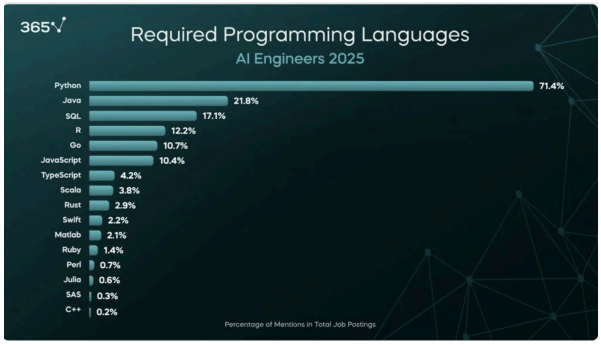
architecture degrees mentioned in job listings. We've found throughout our research that architecture appears in most data-related roles—but never at this high of a rate. Over a quarter of the job postings mention this field, likely due to its highly analytical and practical nature. Now that you know what field you should focus on, let's examine what education level companies are looking for in AI engineer positions in 2025.



This figure shows the percentage of the type of degree needed to be an AI engineer. They are all relatively equal.

What Technical Skills Do You Need as a Data Scientist?

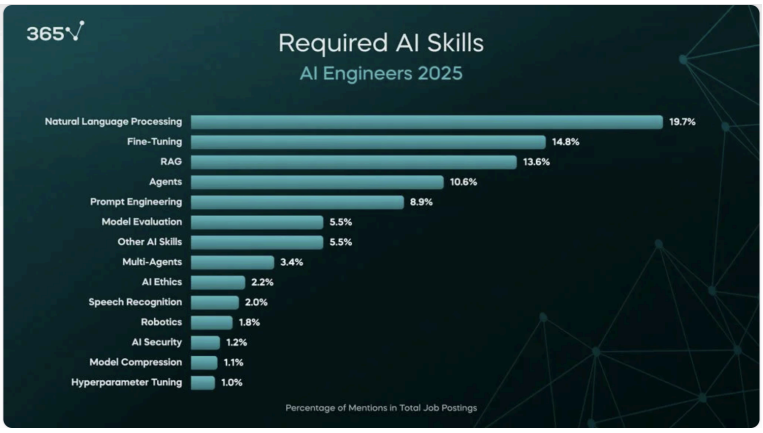
Programming is the core skill behind AI engineering, used to build tools, automate tasks, and solve complex problems with data.



This figure shows that python is the most common language learned by AI engineers.

AI Skills

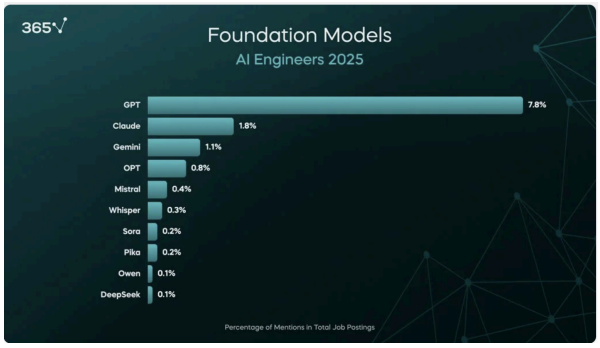
Along with programming, the most important skills for AI engineers are—you guessed it—AI skills. Here's what the AI engineer job outlook for 2025 says:



This graph showcases the popularity of NLP in AI for many jobs.

AI Tools

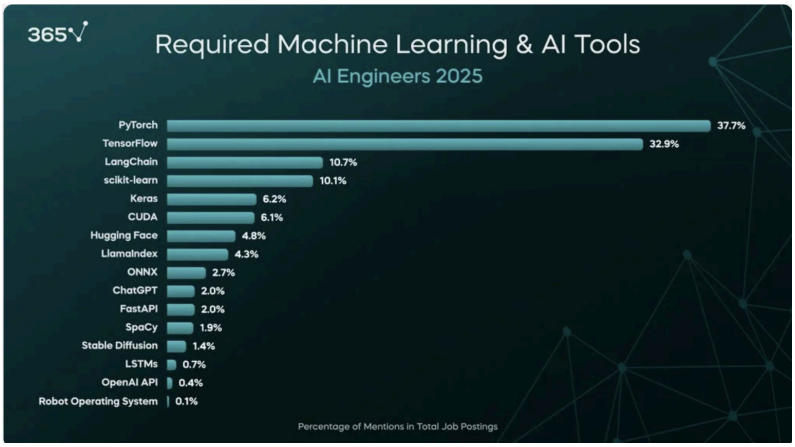
To put these skills into practice, you'll need to get familiar with specific AI tools. Ever since the generative AI boom in 2022, this means working with various foundation models. Foundation models are large, pre-trained AI models that can be adapted to a wide range of tasks—like generating text, analyzing images, or converting speech to text. AI engineers use them because they're efficient, flexible, and ready for real-world applications without needing to be built from scratch. Here are the most in-demand foundation models in the AI engineer job market for 2025.



This figure shows the dominance of GPT (generative AI) in our economy.

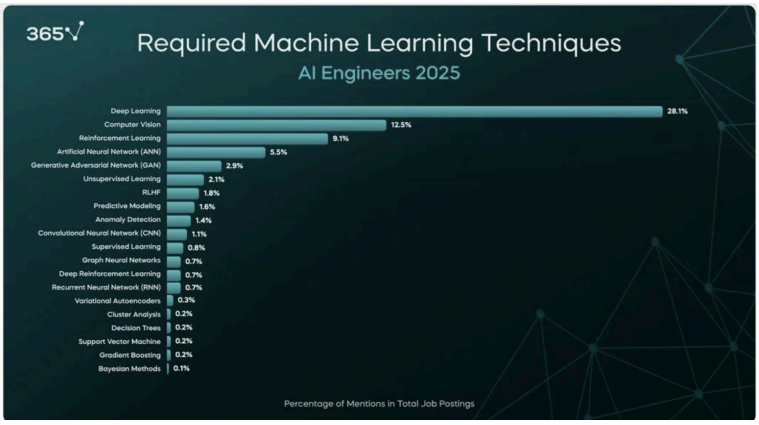
Other models gaining traction include:

- Claude (Anthropic) – 1.8%: Known for its focus on safety and conversational reasoning
- Gemini (Google) – 1.1%: Built for multimodal tasks (combining text, images, and more)
- Whisper (OpenAI) – 0.3%: Used for speech-to-text and transcription applications



This figure shows the prevalence of AI tools needed in the field with Pytech the most used.

Machine Learning Skills

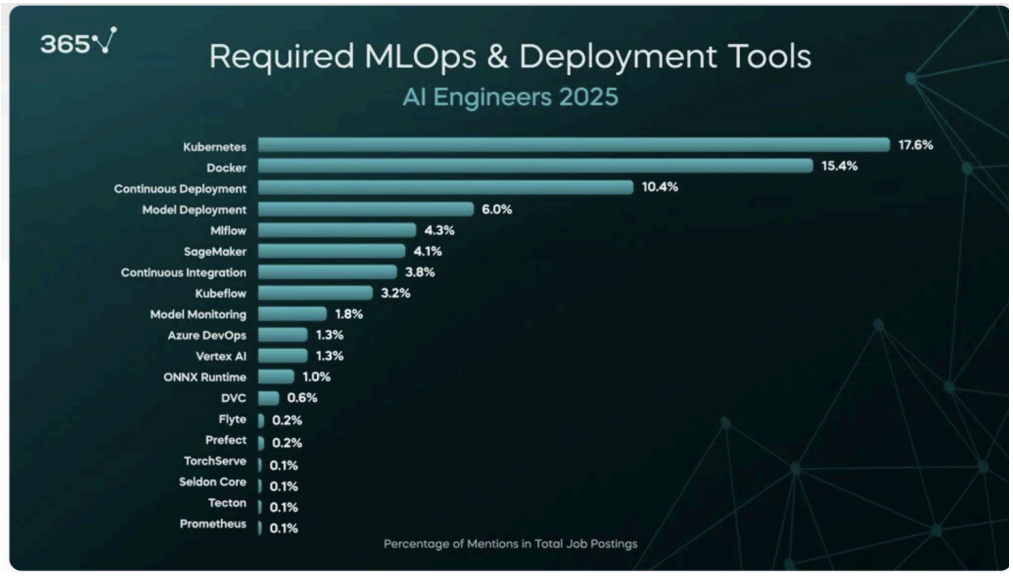


This figure shows the necessity of several machine learning techniques, making deep learning the most common.

MLOps & Deployment Tools

MLOps, or Machine Learning Operations, is basically how we get AI models from the lab into the real world. It's all the tools and practices we use to deploy and manage these models—like DevOps, but specifically for machine learning.

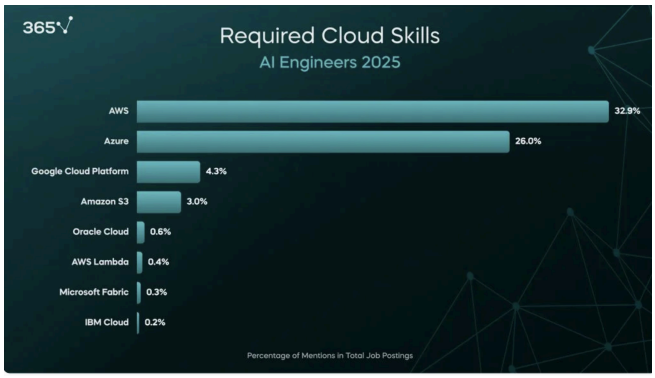
Here are some of the essential MLOps tools for AI engineers:



This figure shows the distribution of MS tools needed in this field.

Cloud Skills for AI Engineers

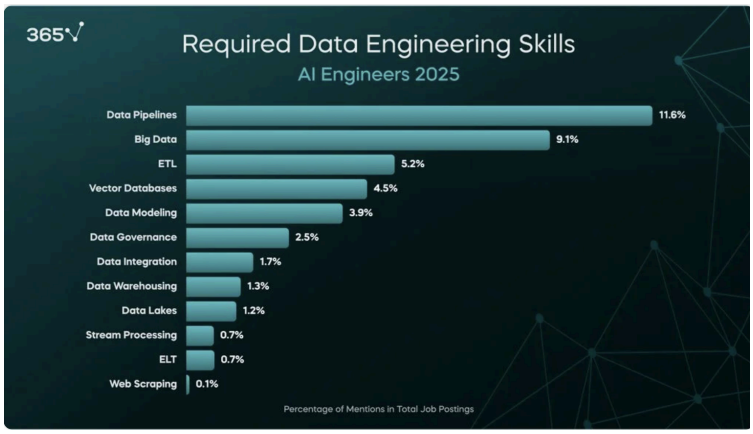
These skills have been consistently growing in our yearly job market research, showing their increasing importance in data and AI-related roles. More and more companies are shifting their machine learning workloads from local servers to cloud infrastructure, where compute power, storage, and deployment tools are more flexible and cost-effective. AI engineers need to be able to use these tools for all aspects of their work. Let's see what cloud skills employers are seeking in the 2025 AI engineer job market.



This figure shows the spread of cloud skills for AI engineers, making AWS the most popular.

Data Engineering Skills for AI Engineers

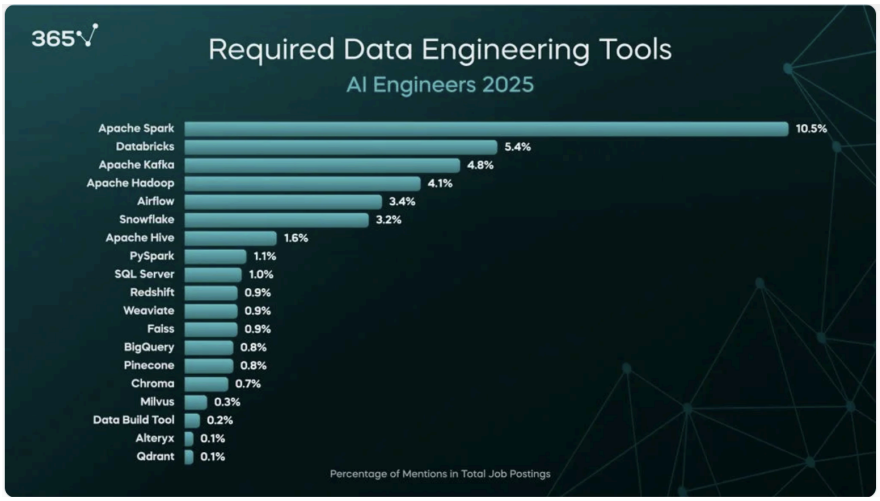
Let's take a closer look at how this appears in the 2025 AI engineer job outlook.



This figure shows the need for data engineering skills, making pipelines the most common.

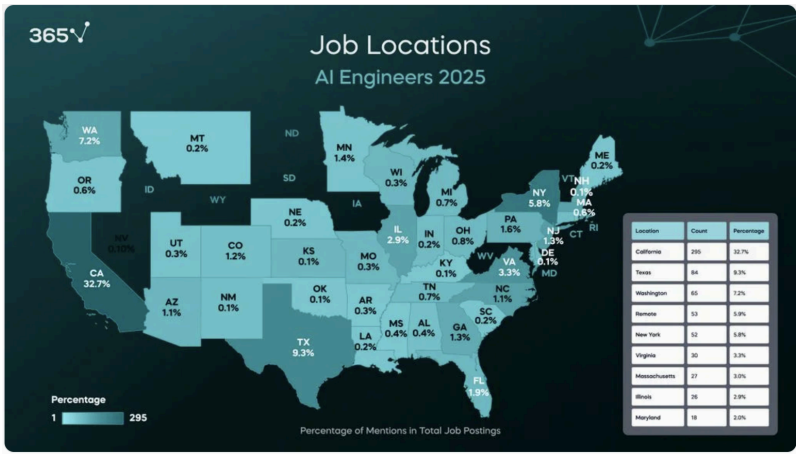
Data Engineering Tools for AI Engineers

Going along with these skills, there are a number of data engineering tools you should add to your toolkit as an AI engineer in 2025.



This figure shows the tools needed for AI engineers in data engineering, with Apache Spark being the most common and a MS extension tool.

Where Do AI Engineers Work?



This figure shows the spread of jobs in the US for AI engineers, with many west coast states taking the lead.

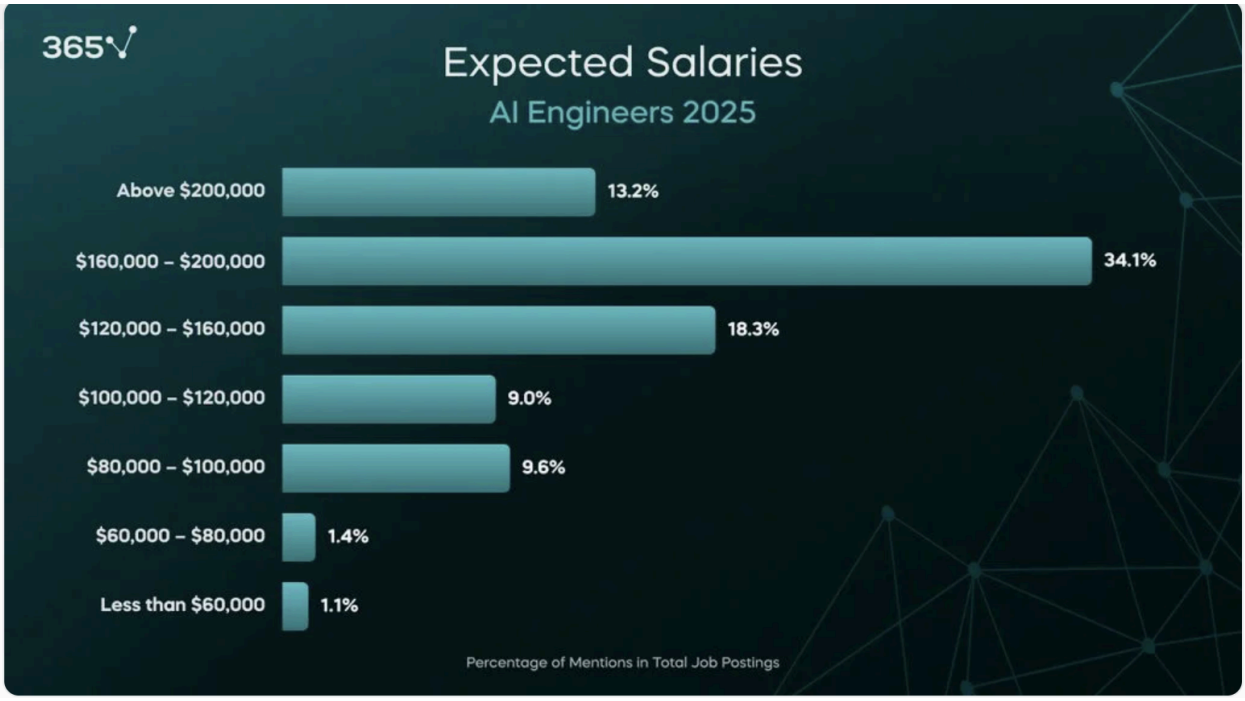
While this might seem unsurprising, it actually shows an interesting contrast with other data-related roles. Our 2025 job market research found that for data scientists and analysts, New York has—for the first time—surpassed California as the leading location for jobs. This is not yet the case for artificial intelligence careers. California is still ahead—taking nearly 33% of all the job postings—likely because it's home to many of the biggest tech companies and AI startups, along with strong research hubs and steady funding. For now, it remains the center of AI development—especially in areas like foundation models and deployment tools. Although, major AI hubs are emerging worldwide, particularly in China where new models like DeepSeek have disrupted the market. While Texas, Washington, New York, Virginia, Massachusetts, Illinois, and Maryland also rank in the top 10 locations for AI roles, each of these states appears in less than 10% of job postings. Now, let's address the question that's on everyone's mind.

Remote Work for AI Engineers

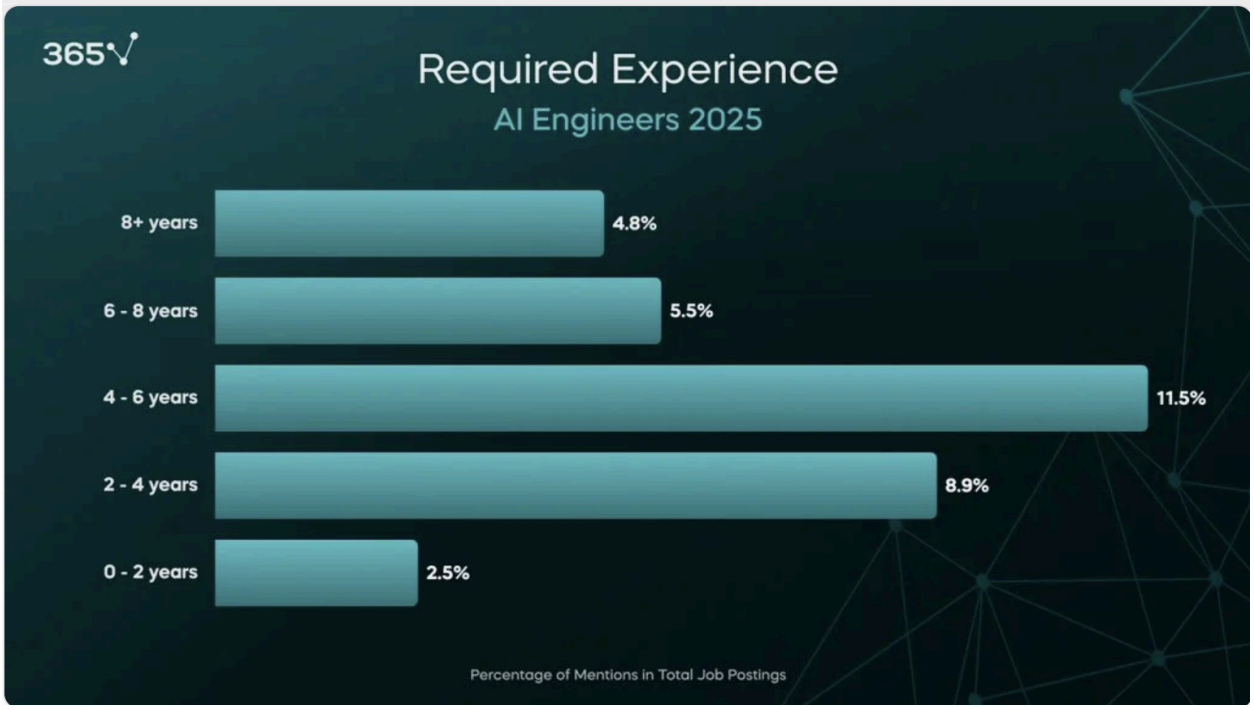
Only 5.9% of the AI engineer job postings we examined offered fully remote positions. This parallels our findings for data scientists in 2025, which offered only 5.1% remote positions. Though this may seem like a small percentage, there's more to the story. Hybrid work is becoming the standard: in 2024, half of US workers split their time between office and home, *Popular trend in technology jobs - noted.* according to Statista. Since 2020, most companies have moved away from strict in-office requirements. But many are partially returning to an office set-up, recognizing that a mix of remote and office time works best for many teams. If you're looking to enter the AI engineer job market in 2025, keep in mind that—for most positions—you might need to consider relocating.

How Much Do AI Engineers Make in 2025?

Looking at real salary data from Glassdoor in early 2025, the average AI engineer salary in the US is around $206K on average. Of course, what you actually make depends a lot on your experience—let's break it down:



This figure shows the salary distribution for AI engineers, without experience taken into account.



This next chart takes into account the experience needed to work these jobs.

Looking at last year's numbers, when AI engineers took home around $155,000 on average, we're seeing salaries jump by more than $50,000.*This means there was also simultaneous increases in profits as well.* This boost in pay shows just how desperately companies are hunting for talented AI professionals. The field is getting more exciting as companies push the boundaries

with foundation models and tackle real-world deployment challenges. Are you looking to become a specialized AI engineer or looking to combine AI with other technical skills? The opportunities are there. You might need to consider moving to a tech hub, but with salaries climbing and problems getting more interesting, it could be worth the leap. Just make sure you're ready to keep learning—this field moves fast, and next year's must-have skills might look different from today's.

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