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INTERNATIONAL
FINANCE FORUM

IFF Global Artificial Intelligence Competitiveness Index Report

Part 3: Analyzing AI Competitiveness From the Human Capital Perspective



Observer

ISSN 3005-4710





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The IFF is an international, independent, non-profit, non-governmental organization. It was founded in October 2003 by G20 countries and international organizations such as the United Nations, the World Bank, and the International Monetary Fund, and is a high-level permanent institution for dialog and multilateral cooperation in the field of global finance. The IFF is also known as the 'F20 (Finance 20)'.

The IFF's goal is to establish a platform for strategic dialogue, exchange and cooperation, practical innovation, academic research, and talent cultivation in fields such as the global economy, finance, and public policy through an international, market-oriented, and professional operating mechanism, as well as to promote the world of financial services along with comprehensive and sustainable development.

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1. International Financial Strategic Dialogue Platform
2. International Financial Cooperation & Exchange Platform
3. International Financial Innovation & Practice Platform
4. International Financial Strategic Think-Tank Platform
5. International Financial Talents Platform

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IFF2025

《IFF Global Artificial Intelligence Competitiveness Index Report》

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UIA International Organization ID: AA2980

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In September 2018, the FSDC was incorporated as a company limited by guarantee. This change allows it to better discharge its functions through research, market promotion, and human capital development with greater flexibility.

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WUHAN INSTITUTE OF INDUSTRIAL INNOVATION AND DEVELOPMENT

The Wuhan Institute for Industrial Innovation and Development was established in June 2021 and began its official operation in April 2022. It is a new-type research and development institution organized by the Wuhan Municipal Government, focusing on five key platforms: technological system reform, venture capital, technology incubation, talent attraction and aggregation, and intellectual property and productive services. The institute aims to become a first-class, internationally renowned research and development institution in China within the next decade.

About the IFF Global Artificial Intelligence Competitiveness Index Series Report

As the core driving force of the new round of scientific and technological revolution and industrial transformation, artificial intelligence (AI) is ushering in a sea change in the global innovation terrain and patterns of competition. In this regard, scientifically evaluating and grasping the development trends and competitive strengths of various countries in the field of AI is of great practical significance for understanding the development trends of global AI and formulating relevant policies. The International Financial Forum IFF has launched the Global Artificial Intelligence Competitiveness Index project, dedicated to building a comprehensive, objective and quantifiable global AI competitiveness assessment system, and systematically assessing and comparing the comprehensive strength and development potential of various countries in the field of AI through multi-dimensional indicators.

This research project is based on the principles of multi-dimensional assessment, objective data quantification, and forward-looking analysis. It builds a comprehensive assessment framework to ensure the systematic and comprehensive character of the indicators. Furthermore, all data is collected, cleaned, and normalized to ensure the objectivity of quantitative results. Case analysis of some countries not only evaluates the current situation, but also pays more heed to development potential and judgment of trends.

This study will devise a system of evaluation from five core dimensions:

Technology development and application (as represented by AI companies)

Research and innovation

Human Capital

Policy and regulatory environment

Market acceptance and infrastructure

Each dimension has several secondary indicators that are assessed by combining quantitative and qualitative means. As the second in a series of studies and one of the five core dimensions of the competitiveness index, this report will concentrate on the development state of global AI research and innovation, and engage in an in-depth analysis of AI-related scientific research papers, and patents in various countries. The analysis reports of the remaining three dimensions will be subsequently issued to together form a consummated global AI competitiveness index map.

Abstract

This article samples and analyzes the real-world data of talents from all over the world. The study has found that the total number of AI talents in the world is presently approximately 3 million, of which technical research and development talents account for 32.6 percent. China and the US have gathered over 50 percent of the world's AI talents, and the United Arab Emirates and Saudi Arabia have also broken into the top 20 in the world in total AI talents. Looking at the portrayal of global AI talents, over 88 percent hold a master's degree or higher, and AI has a very high demand for highly intelligent talents. More than 34 percent of talents graduated in computer science, and over 10 percent of them graduated in information technology, electrical engineering, computer engineering, and information systems. Nearly 80 percent of AI practitioners have been in the industry for three years or less. The US's AI talents have richer work experience and more diverse job backgrounds. Coursera has become the most popular education platform for global AI talents. By 2030, the global AI talent growth will exceed several million, the report predicts. Sifting through various countries' AI talent development policies shows that the US maintains its attraction of talent through immigration policies and industry-university link-ups, while China is relying on policy scale and market scenarios to accelerate its catch-up, and Saudi Arabia - as an outstanding representative of Middle Eastern countries - builds vertical field advantages with its 'tax-free + cultural special zone' strategy. Saudi Arabia has also created a 'de-ideological technology testing ground,' providing a third choice for global AI talents to avoid geopolitical conflicts, obtain scarce scenarios, and achieve commercialization of technology.

Keywords:

***artificial intelligence,
competitiveness index,
talent,
education***



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I. Definition of AI talent

In the previous two reports, we defined AI companies and AI research papers before we started the research. This report takes AI talent as the research object. So we must first define what kind of talent is AI-related talent? Based on the preliminary research on the global Chinese and English talent database and the commercial headhunting company database, and after studying a large number of AI-related talent resumes and positions, we tentatively determine that Artificial intelligence (AI) talent refers to an interdisciplinary group that drives the technological advancement and social integration of AI through technical R&D, application innovation, governance design, and other means. Narrowly defined, AI talent encompasses three core roles: technical implementers, value transformers, and standard setters. The dynamic boundary for inclusion in the AI talent scope is determined by whether an individual directly participates in the AI value creation chain.

From a macro point of view, AI talent includes not only technical experts proficient in hard skills such as machine learning and chip design, but also cross-disciplinary professionals well-versed in legal compliance and commercial transformation. It spans from top scholars engaged in fundamental research to frontline practitioners deeply rooted in industry applications. Their core characteristics lie in the dialectical unity of technical and non-technical capabilities,

the deep integration of academic innovation and industrial implementation, and the dynamic balance between individual value and social ethics. As technology advances, the boundaries of this group continue to expand—from algorithm engineers to AI ethics consultants, and from data annotators to strategic decision-makers—all collectively supporting the AI ecosystem.

II. Research methods for this report

(I) Collection and sampling of real-world data

Comprehensively select publicly available LinkedIn, Github, Researchgate, commercial headhunting company talent database, government talent database, etc. Capture and sample on this basis. By searching the industry and keywords in Reference Note 1, we obtained approximately 50,000 pieces of real-world data about global AI talents, including personal introduction, current and historical positions, company/university institution, length of service, work location, educational background (graduation school, different degrees, degree acquisition time), study abroad country, qualification certification and other real-world data.

We will analyze and study based on these data. It should be noted that the collection and use of all data comply with relevant laws and regulations and data privacy protection principles.

(II) Data cleaning and preprocessing

Clean and preprocess the captured data, including deduplication: delete duplicate records to ensure the uniqueness of each data; handle missing values: check whether there are missing values in the data and decide how to handle them (such as deleting records and filling default values); data formatting: unify data formats, such as date and number formats; handle unstructured data: for example, classify text information and set labels.

(III) Global AI Talent Estimation and Sample Size Design

According to estimates from multiple reference sources, the current total number of AI talents in the world is close to 3 million. Based on the 95 percent confidence level and 5 percent margin of error of the total global AI talent data, the sample size of this study is set at about 50,000, which meets relevant statistical research requirements.



III. Current status of global AI talent development

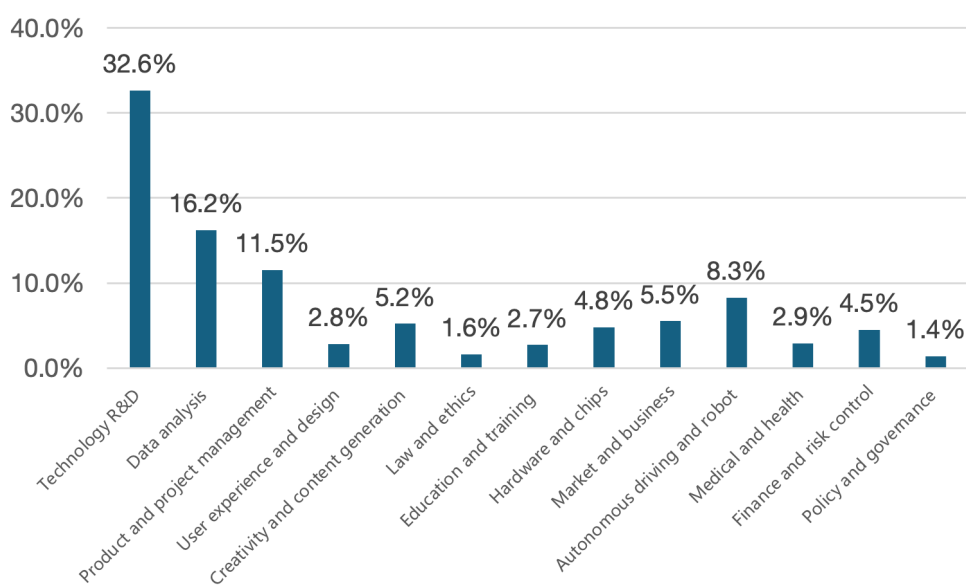
(I) Overall classification and proportion of AI talent

Table 1 - Overall Classification of AI Talents

Job classification	Job name	Work content
Technology R&D	ML engineer	Development and optimization of robotics education models, designing algorithms, processing data
Technology R&D	Data engineer	Constructing and maintaining training data pipelines, processing Big Data, ensuring data quality
Technology R&D	DL engineer	Developing DL models, optimizing algorithms, solving complex problems
Technology R&D	Algorithm engineer/researcher	Designing and optimizing underlying AI algorithms, resolving specific issues
Technology R&D	NLP engineer	R&D of text understanding, and NLP models such as text generation
Technology R&D	Computer vision engineer	Image/video recognition, processing, and generation of related algorithms
Technology R&D	Speech recognition engineer	Developing language recognition, generating other related technologies
Technology R&D	Intelligent agent engineer	R&D autonomous agents and reinforcement learning algorithms
Technology R&D	Recommendation system engineer	Designing and implementing personalized recommendation algorithms
Technology R&D	AI architect	Designing AI product system architecture to optimize performance and scalability
Technology R&D	Quantum computing engineer	Exploring the potential of quantum computing to accelerate ML algorithms or develop entirely new AI paradigms
Data analysis	Data scientist	Analyzing data, extracting insights, and supporting business decisions
Data analysis	Data analyst	Cleaning and analyzing data, generating reports and visualizing results
Data analysis	AI training data annotator	Providing high-quality annotated data for AI models
Product and project management	AI product manager	Defining AI product requirements, coordinating development teams, and driving product launch
Product and project management	Project manager	Managing AI projects, coordinating resources, and ensuring projects are delivered on time
Product and project management	Business analyst	Analyzing business needs, designing AI solutions
User experience and design	Interaction designer	Designing user interfaces and interaction logic of AI systems
Creativity and content generation	AI content creator	Using AI tools to generate text, images, videos, and others
Creativity and content generation	AI visual designer	Using AI tools for image and video design and editing
Law and ethics	AI ethics expert	Researching and formulating standards of AI ethics to ensure technical compliance

Job classification	Job name	Work content
Law and ethics	Data privacy expert	Ensuring AI systems comply with data privacy regulations
Education and training	AI professor/scholar	Researching AI algorithms and other core technologies, teaching AI courses, and cultivating AI talents
Education and training	AI trainer	Providing training and education in application-oriented AI technology
Hardware and chips	AI chip designer	Designing hardware and chips optimized for AI
Hardware and chips	Edge computing engineer	Developing and optimizing AI capabilities of edge computing devices
Market and business	AI marketing manager	Promoting AI products and services and formulating marketing strategies
Market and business	AI marketing manager	Analyzing AI market trends and business models
Autonomous driving and robot	Autonomous driving engineer	Developing algorithms and models for autonomous driving systems
Autonomous driving and robot	Robot engineer	Developing and optimizing AI capabilities in robotic systems
Autonomous driving and robot	Industrial intelligence engineer	Industrial AI applications such as automation of production and manufacturing, predictive maintenance, etc.
Medical and health	Medical imaging AI engineer	Developing AI solutions in the field of medical imaging
Medical and health	Health data analyst	Analyzing multi-omics and multi-modal medical data to provide health insights
Finance and risk control	Financial AI engineer	Developing AI models and systems in the financial sector
Finance and risk control	Risk analyst	Using AI to assess and manage financial risk
Policy and governance	AI policy analyst/consultant	Researching and formulating public policies, regulations and standards relating to AI to steer the sound development of AI technology
Policy and governance	AI governance expert	Responsible for establishing and implementing an AI governance framework within the organization to ensure that AI is used compliantly, responsibly and ethically

Figure 1- Overall proportion of talents in different categories



After classification, it may be seen that:

1. Global AI talents can be divided into 13 categories, including technology research and development, data analysis, product and project management, and 37 different positions, such as ML engineers and ML engineers;
2. Data shows that technology research and development talents account for 32.6 percent, which is the largest category of all AI talents. The second and third places are data analysis

and product and project management talents. They account for 16.2 percent and 11.5 percent, respectively. It is worth noting that among vertical application positions, the proportion of autonomous driving and robot positions is significantly ahead of other positions. It shows the industry's enthusiasm for autonomous driving and robots.

(II) Geographical Distribution of Global AI Talents

Table 2 - Global top 20 countries with AI talents

Ranking	Name of country/ region	Proportion of AI talents	Ranking	Name of country/ region	Proportion of AI talents
1	US	32.6%	11	Singapore	1.5%
2	Mainland China	22.4%	12	Australia	1.3%
3	India	7.0%	13	Netherlands	1.2%
4	UK	5.0%	14	Switzerland	1.0%
5	Canada	3.5%	15	Sweden	0.8%
6	Germany	3.0%	16	UAE	0.7%
7	France	2.5%	17	Spain	0.6%
8	Israel	2.2%	18	Brazil	0.5%
9	Japan	2.0%	19	Saudi Arabia	0.4%
10	South Korea	1.8%	20	Italy	0.4%

Figure 2 - Heat map of global top 20 countries with AI talents



Table 3 - AI talent density in global top 20 countries

Ranking	Country/ Region	Proportion of AI talents	Density/ million population	Ranking	Country/ Region	Proportion of AI talents	Density/ million population
1	US	32.6%	2,818.4	11	Singapore	1.5%	7,503.9
2	Mainland China	24.4%	474.6	12	Australia	1.3%	1,448.4
3	India	7.0%	143.4	13	Netherlands	1.2%	2,005.2
4	UK	5.0%	2,205.9	14	Switzerland	1.0%	3,334.3
5	Canada	3.5%	2,692.3	15	Sweden	0.8%	2,181.8
6	Germany	3.0%	1,084.3	16	UAE	0.7%	2,106.1
7	France	2.5%	1,153.8	17	Spain	0.6%	375.3
8	Israel	2.2%	6,601.5	18	Brazil	0.5%	69.1
9	Japan	2.0%	483.9	19	Saudi Arabia	0.4%	324.3
10	South Korea	1.8%	1,058.8	20	Italy	0.4%	203.4

*According to data forecasts by LinkedIn, Stanford University, and Gallup and other companies, the total number of AI talents in the world was about 3 million as of the end of 2024. Here, 3 million is used as the total base for calculating the talent density of each country.

It may be seen from the above data that:

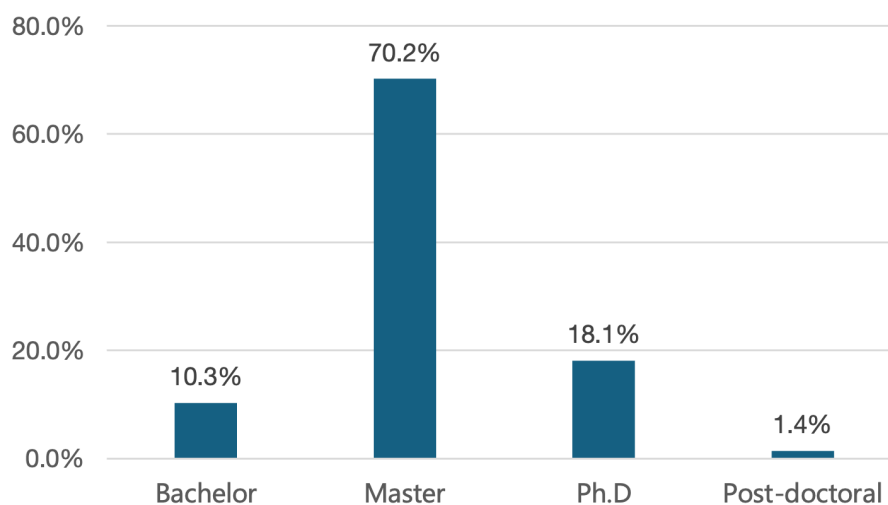
1. The US has the highest concentration of AI talent in the world, with about one-third of global AI talents in the US. Mainland China ranks second with a proportion of 24.4 percent, second only to the US
2. The UAE and Saudi Arabia are representatives of Middle Eastern countries' AI development, and their global AI talent share ranks among the world's top 20, with shares of 0.7

percent and 0.4 percent, respectively. Brazil is the country that currently has the highest ratio of AI talents in South America.

3. The AI talent density in countries such as the UK, Canada, the Netherlands, Switzerland, and the US has reached more than 2,000 people per million in population. Mainland China, by contrast, still has a lot of space to catch up.

(III) Global AI Talent Portrait

Figure 3 - Distribution of educational background of global AI talents (postdoctoral non-education, single column)



*The data on density are obtained by our estimation and for reference only.

Data analysis of the highest degrees of AI talents found that the proportion of people with master's degree is the largest, exceeding 70 percent. This group of people constitutes the primary force of global AI talents. In addition, 18.1 percent of AI talents hold a doctoral degree, while 10.3 percent have a bachelor's degree. It is noteworthy that, among all

the AI talent data sampled, 1.4 percent of the people have postdoctoral work experience. The above data show that the AI industry is concentrated, with highly educated talents. Nearly 90 percent of practitioners have a master's degree or above. This is thus an industry with extremely high academic requirements.

Table 4 - Distribution of majors studied by global AI talents

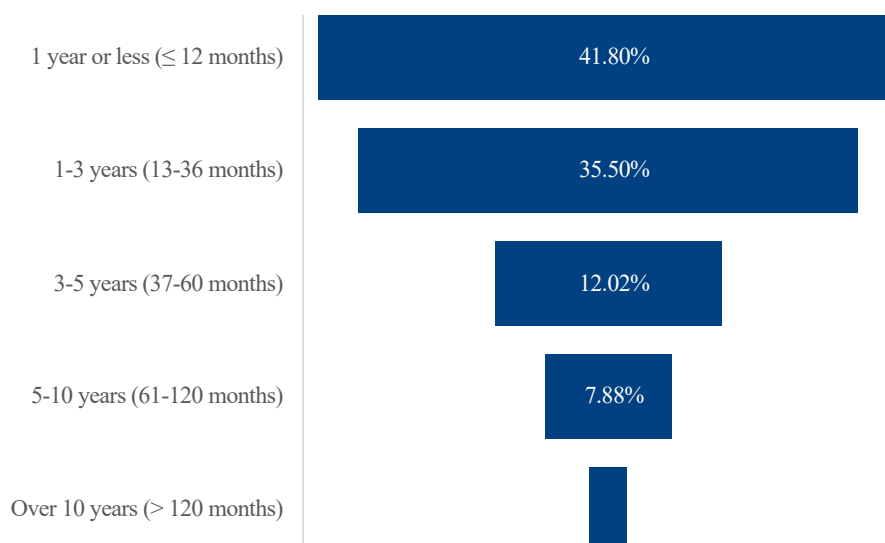
Ranking	Name of Major	Rate
1	Computer Science	34.3%
2	Information Technology	21.4%
3	Electrical Engineering	17.1%
4	Computer Engineering	14.3%
5	Information Systems	11.4%
6	Software Engineering	8.6%
7	Data Science	7.1%
8	AI	5.7%
9	Mechanical Engineering	4.3%
10	Mathematics	2.9%

*AI talents' majors, from undergraduate to doctoral, involve multiple fields. As long as one item is covered, this report will be run statistics, so the data in the above table is not equal to 100 percent after aggregation.

In terms of the majors studied by AI talents, over 34 percent of talents graduated with computer science majors. In addition, the proportion of talents graduating with information technology, electrical engineering, computer engineering, and information system-related majors is over 10 percent. The above data show that the vast majority of AI talents still

graduated from traditional basic disciplines. The proportion of talents who graduated from AI majors is relatively small, less than 6 percent, and this proportion needs to be improved. Universities around the world can consider adding specialized AI majors and establishing relevant degrees.

Figure 4 - Distribution of working years of global AI talents in the AI field



The total working years of global AI talents in AI field are divided into intervals of one year, three years, five years, and 10 years. It can be found that over 40 percent of AI talents have been working in AI field for one year or less. The proportion of one-three years also exceeds 35 percent. Overall, nearly 80 percent of AI practitioners have been working for three years or less, and they are still dominated

by young people. AI practitioners with over five years are relatively scarce, accounting for less than 10 percent. The deadline for the above data is May 2025. It can be inferred that most practitioners have entered the AI industry from 2022. which can also prove the impact of ChatGPT moment (OpenAI released ChatGPT in November 2022) on global AI talents.

Average total working years of AI talents worldwide

3 years, 2 months

Average number of work experiences

1.85

Mainland, China

Average working years of AI talents in a single job	Average number of work experiences
12.1 months	2.91 jobs

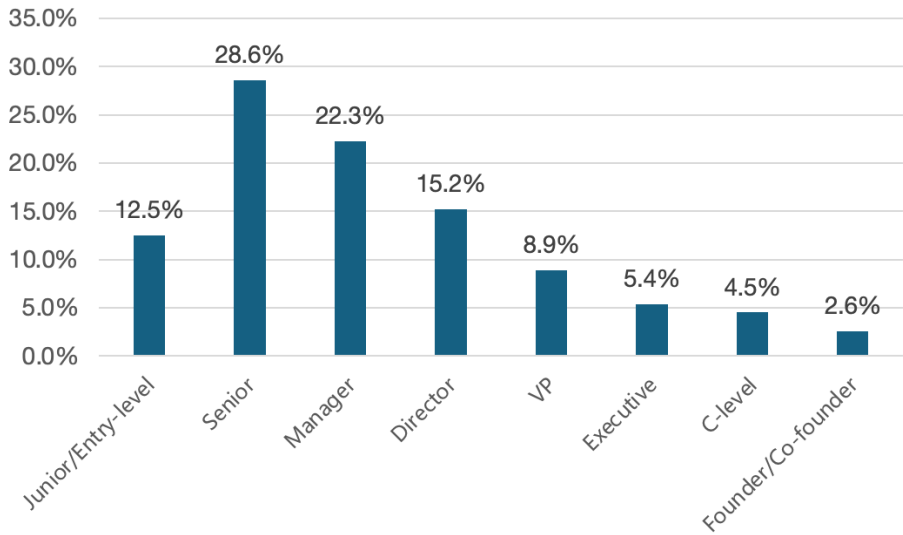
US

Average working years of AI talents in a single job	Average number of work experiences
12.2 months	3.95 jobs

By counting the overall working years of AI talents (regardless of whether they are engaged in the AI industry), it can be found that the average total employment time of AI talents worldwide is three years and two months, and they have experienced an average of 1.85 jobs. A comparison of Mainland, China and US data shows that the average working time of AI talents in both countries is about 12 months, but AI

practitioners in US clearly have richer work experience, and a single AI talent has experienced an average of 3.95 jobs. The ratio in China is 2.91. AI talents in US have richer working experience and more diverse job backgrounds. Chinese practitioners thus have a certain space to play catch-up.

Figure 5 - Global AI talent job level distribution



Statistics of the job level distribution of global AI talents show that the overall distribution is relatively average, and concentrated at the two levels of Senior and Manager, both exceeding 20 percent. This conclusion is similar to the above data. According to our observation of empirical data, AI

talents, as an intellectually intensive industry, often get rapid promotions after joining the company and exit the Junior level. At the same time, most AI companies, as startups, also provide comparatively fast promotion channels for employees.



*The above portrait is analyzed by hot word analyses of the personal profiles of AI talents in all data sampled

1. It may be seen that, in addition to the most basic keyword AI, the most popular keyword in the personal profiles of global AI talents is engineer, which also proves that technical R&D talents form the mainstream of current AI talents;
2. The appearance rate of ML and ML is second only to engineer. These two AI R&D directions are the most popular. In addition, LLM, NLP, Computer Vision, Self-driving, and Robotics are also high-frequency hot words;
3. Python, Matlab, and Tensorflow have become the most frequently appearing AI skill tool softwares;
4. Innovative, Passionate, Expertise are the most frequent terms AI talents use to describe themselves.

Table 5 - Top 10 Universities and employers of global AI talent graduates

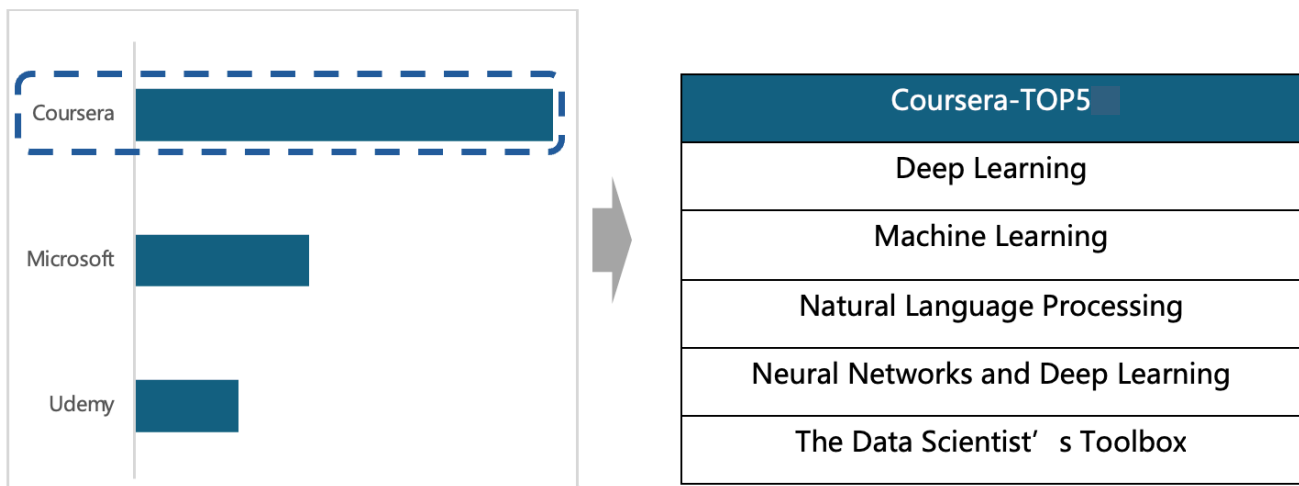
Sequence	Top 10 Universities in the World for Graduating the Most AI Talents	Top 10 AI Talent Employers in the World
1	Tsinghua University	Google
2	Peking University	Microsoft
3	Stanford University	Tencent
4	Massachusetts Institute of Technology	Alibaba
5	Carnegie Mellon University	Amazon
6	Fudan University	Huawei
7	Harvard University	Apple
8	Shanghai Jiao Tong University	ByteDance
9	University of California, Berkeley	JPMorgan Chase
10	University of Oxford	Goldman Sachs

Combining global data, it can be discovered that Tsinghua University and Peking University in China have become the universities with the most AI talents in the world, and Stanford University, the Massachusetts Institute of Technology, and Carnegie Mellon University in the US rank from three to five. The University of Oxford in the UK also entered the top 10 in the world. It is noteworthy that, although not shown in the table, King Abdullah University of Science and Technology (KAUST) in Saudi Arabia has entered the

top 150 universities for AI talents in the world, becoming the highest-ranked university in the Middle East.

In terms of employers, the top technology companies in China and the US occupy the top 10 in the world. In addition, JPMorgan Chase and Goldman Sachs have become the globe's top 10 employers of AI talents, thus demonstrating the allure of the financial field to AI talents.

Figure 7 - Top three education and training platforms for global AI talents



Statistics show Coursera, Microsoft, and Udemy to be the top three platforms for global AI talents to receive training and education. On the Coursera platform, ML, Natural Language Processing, Neural Networks and ML, and The Data Scientist's Toolbox have become the top five most popular AI

talent learning courses.

As the most popular training platform for AI talents in the world, we conduct a case analysis of Coursera here.



The Coursera platform was founded in 2012 by Daphne Koller and Andrew Ng, two computer science professors at Stanford University, and is the world's leading online education platform. Ng, as one of the world's most authoritative scholars in the field of AI and ML, has also made great contributions to developing the platform. We shall endeavor to analyze the advantages of Coursera:

Strong cooperation network and course supply

Top partner ecosystem: Coursera has established in-depth cooperation with over 275 top universities in the world (such as Stanford University, University of Michigan, University of Pennsylvania, Imperial College London) and over 70 industry leaders (such as Google, IBM, Microsoft, Amazon Web Services (AWS), NVIDIA). This dual endorsement of 'academic + industry' ensures the authority and practicality of the content;

By the end of 2023, Coursera platform provides over 1,200 courses focusing on AI, ML, data science and related fields. In addition, over 150 Specializations' and 'Professional Certificates for AI sub-fields have been launched; AI and data science-related courses are one of the fastest growing categories on Coursera, with an average annual growth rate of over 25 percent for the number of new related courses and specializations; the average student rating of popular AI courses is as high as 4.7/5.0. For example, Professor Andrew Ng's ML course has amassed over 6.5 million learners worldwide; his DeepLearning.AI 'Deep Learning Specialization' series has a total of over 3 million registered students. Google's 'Google Data Analytics Professional Certificate' quickly became one of the most popular certificates after its launch, helping hundreds of thousands of learners get started with data analysis; over 85 percent of AI professional certificates and specializations include at least one 'capstone project' or multiple guided projects to ensure that learners can apply theory to solve real-world problems. For example, the IBM AI Engineering Professional Certificate requires students to complete multiple AI model development projects based on real scenarios

Quantifiable career advancement and industry recognition

Proportion of career benefits and specific results: According to Coursera's 2023 Learner Outcomes Report and similar annual surveys: Among learners who have completed AI-related professional certificates, up to 87 percent reported positive career outcomes; about 39 percent of those completing certificates said they successfully started a new

career (for example, from a non-technical position to an AI-related position); about 28 percent of learners said they were promoted or assumed more responsibilities; among job seekers, over 75 percent believed that Coursera certificates enhanced the allure of their resumes.

Salary increase: Learners who completed Coursera AI-related certificates and achieved career changes or promotions reported an average salary increase of 18 to 30 percent, depending on region, experience and industry; over 90 percent of those completing AI certificate said through this learning they had acquired the key skills needed in their present job or future position.

Industry and employer recognition: Joint development and direct recruitment channels: Many popular AI certificates are directly designed and endorsed by the ilk of Google, IBM, Meta, and AWS, and some certificates are even directly linked to these firms' entry-level job skill requirements. For example, some of Google's professional certificates are regarded as bonus points when recruiting related positions; over 7,000 companies (including over 65 percent of Fortune 500 companies), hundreds of government agencies, and thousands of universities around the world use Coursera's enterprise or campus version platform for talent training and skill improvement; AI, data science and cloud computing are the three most popular skill training areas, reflecting employers' urgent need for these skills and faith in the quality of Coursera's content. For example, large consulting companies use Coursera to quickly train their consultant teams to master the latest AI tools and methodologies. LinkedIn data shows that individuals with Coursera AI-related certifications have an average of 1.5 to 2 times more profile views on its platform, and have garnered significantly more contacts from recruiters.

Flexible learning mode

Coursera's platform design and operation strategy enable it to break the time and space limitations of traditional education and meet the diverse needs of AI learners around the world. As of early 2024, Coursera had over 120 million global registered learners. Among these, over 30 percent are interested in and participate in AI, data science, and ML, and this proportion is growing at a rate of over 20 percent per year, particularly in major markets in North America, Europe, and Asia; over 40 percent of learning content is accessed through Coursera's mobile app, particularly in emerging markets, where the proportion of mobile learning is higher, showing its convenience of learning.

Self-paced and modular learning: over 95 percent of courses support full self-paced learning. Courses are carefully designed as modules that can be completed in just 3-6 hours

per week, making it easier for working people to balance work, life, and learning.

Guided projects and instant feedback: The Coursera platform has over 1,000 ‘Guided Projects’ embedded in it, which can usually be completed within 2 hours and provide instant feedback to help learners quickly master specific tools or skills, such as using TensorFlow for model training.

Global accessibility

Extensive free auditing and financial aid support: Over 90 percent of courses offer free auditing; Coursera supports over 1 million learners worldwide through its financial aid program each year, enabling them to obtain course certificates for free or at a considerable discount. In high-demand fields such as AI and data science, the application and approval rate of financial aid is also relatively high. It is estimated that the total value of financial aid provided by Coursera has exceeded USD100 million since its inception; in addition, popular AI courses (such as Andrew Ng’s courses) provide subtitles in over 10 languages, and some courses even have complete localized versions, which greatly reduces the threshold for non-English native learners; each course has an exclusive forum where learners can communicate with each other and answer questions. Global learners generate over 500,000 interactive posts on the forum every month, forming a strong learning support network.

In sum, Coursera has become an undisputed leader in AI talent training by strategically integrating the world’s top educational resources, providing quantifiable career development results, and relying on a highly flexible and inclusive learning platform. Its huge library of high-quality

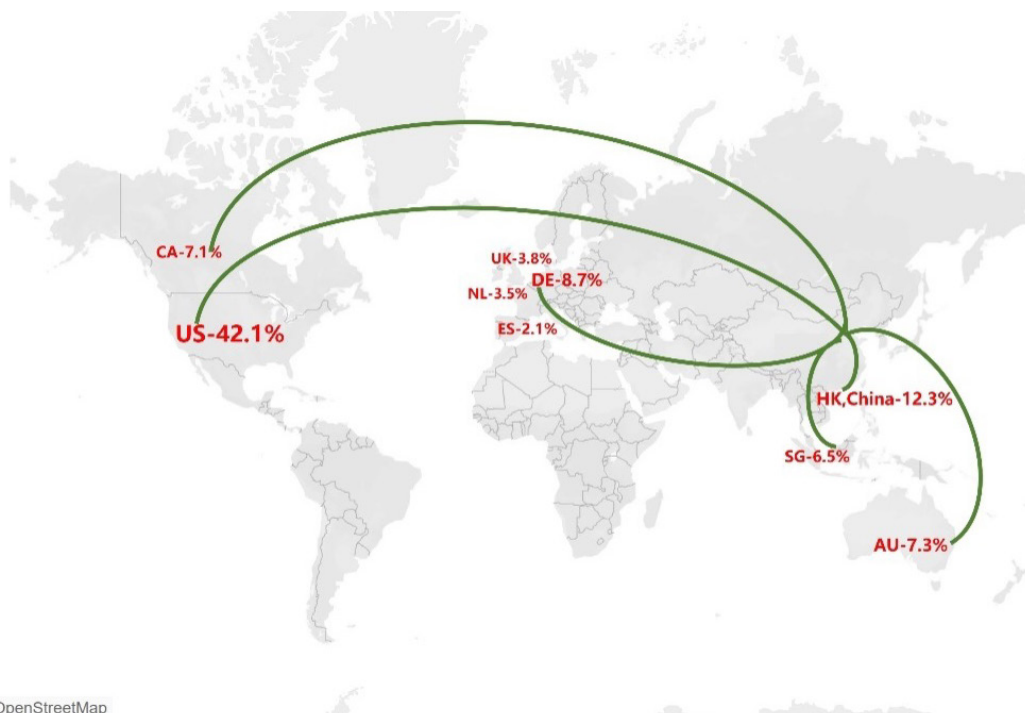
AI courses, positive feedback from millions of AI learners, and wide recognition from businesses and academia together constitute its powerful moat. For any individual who wants to gain a competitive advantage in the AI era, or an organization committed to building a future AI team, Coursera offers an efficient route that has been repeatedly validated by the market.

(IV) Trends in the global mobility of AI talent

A well-known fact is that the mobility of AI talent is truly global. The US - and in particular Silicon Valley - is where the information technology revolution began, and the age of the internet attracted huge amounts of global talent to go to the US to be educated and then remain there for work. At the same time, with the development of Chinese tech companies like Tencent, ByteDance, Alibaba, and DeepSeek, talent with education and work experience in places like the US and Europe is increasingly choosing to return to China to work. Based on our grasp of real-world data, we will attempt to map out an image of the current situation regarding AI talent mobility.

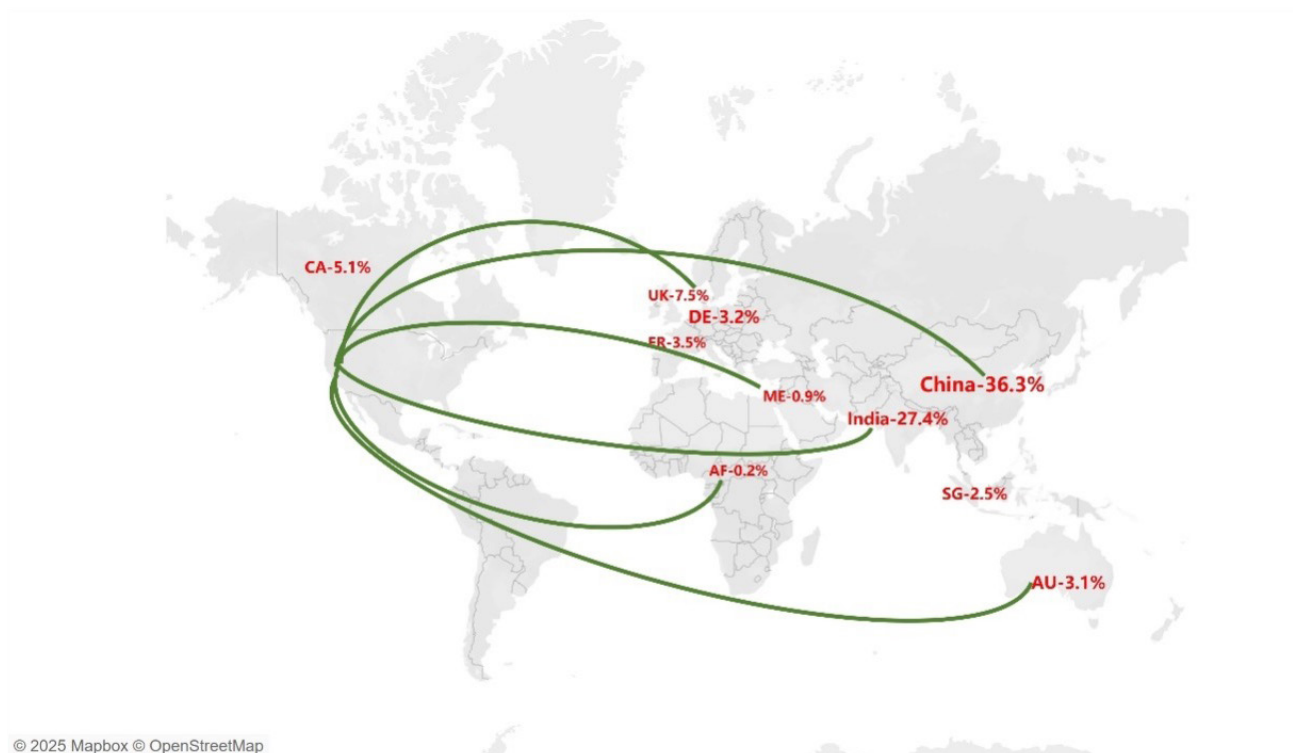
According to our definition, AI talent whose most recent work experience took place in a certain country A is all considered to be country A’s AI talent, regardless of nationality, race, or previous work or education experience. For AI talent with previous work experience in another country - country B - that took place before their most recent work experience, the most recent one will be used for the purposes of this calculation, with the assumption being that such talent has moved from country B to country A. This then gives us the following talent flow chart for China and the US:

Figure 8 - Distribution of countries of origin for overseas work experience of Mainland China AI talents



© 2025 Mapbox © OpenStreetMap

Figure 9 - Distribution of countries of origin for overseas work experience of US AI talents



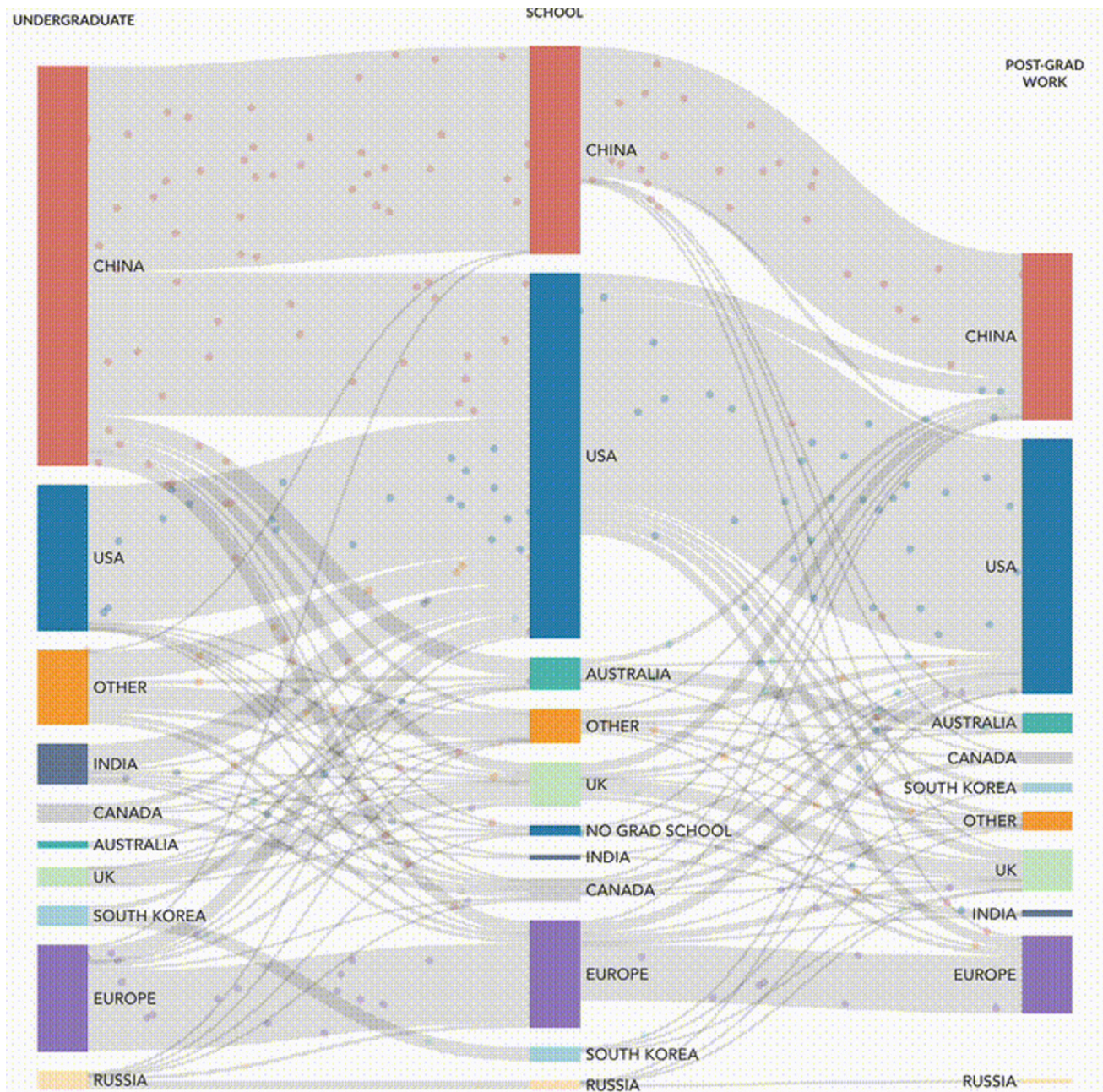
An analysis of the overseas work experience of Chinese and US AI talent reveals the following discoveries:

1. Of the AI talent currently working in mainland China that has overseas work experience, 42 percent got this experience in the US, making it the number one source of overseas Chinese AI talent. Second is the Hong Kong Special Administrative Region, which accounts for over 12.3 percent, making it an important work location option for AI talent outside of mainland China. Germany, Canada, Singapore, and Australia also account for over 6 each.

2. Meanwhile, of the AI talent currently working in the US, over 36 percent has work experience in China. Most of these people are Chinese students or working professionals who worked in China prior to going to US. After China, India is USA's second most important source of AI talent, accounting for over 27 percent of the total. One should also note that USA's overseas AI talent is more diverse and international than China's, with a certain proportion of talent coming from countries in the Middle East and Africa.

As for Chinese students who study in mainland China, go to the US for further studies, and then continue to work in other countries, please refer to the Sankey diagram below:

Figure 10- Sankey diagram of the education work path for top AI talents worldwide



*The figure above is quoted from data released by MacroPolo regarding the flows of top AI talent worldwide

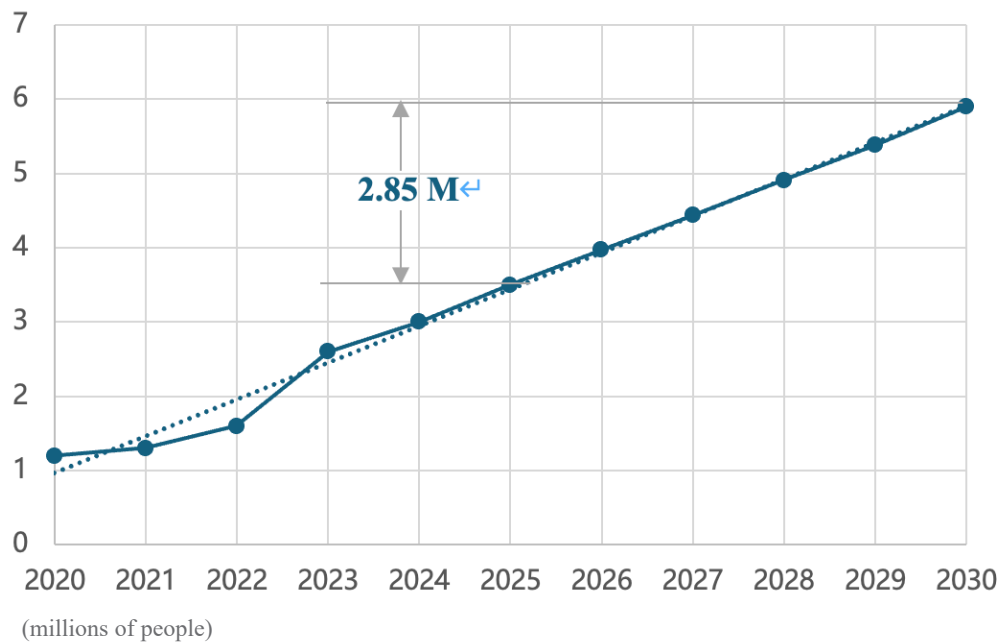
Looking at the education - work path of the world's top AI talent, 47 percent of this talent received their undergraduate degrees from Chinese universities, but only 13 percent of these people ultimately choose to remain in China for work after graduation. For the majority of Chinese students, USA has become the destination of choice for work. China has seemingly become the global AI industry's 'talent pool'- and this is especially true for USA.

(V) The global AI talent growth in the next five years

According to the sample data of this report, we can estimate that the world currently has about 3 million AI talents. Based on the estimates of other relevant reports from the Organization for Economic Co-operation and Development, the United Nations, the World Labor Organization, LinkedIn, and various leading consulting companies, we then draw a

linear graph showing the total number of global AI talents from 2020 to 2025 (see Figure 11 below). At the same time, we also predict the number of talent growth in the next five years using a linear regression method:

Figure 11- Linear chart of the total number of global AI talents from 2020 to 2030 (millions of people)



According to this forecast, by 2030 the world will have an AI talent growth of over 2.8 million people, an increase of nearly 100 percent in just five years. However, the AI talent may grow even faster in the coming years due to the high demand for talent by companies and research institutes.

IV. Case study of the AI Talent policy in China, US and Saudi Arabia

China:

(I) Top-level strategic planning and China's uniquely strong execution capabilities

1. The AI Blueprint and Regional Development Plans

In 2017, China released its New Generation Artificial Intelligence Development Plan: China became the first country in the world to release a strategic AI document at the national level. The plan clearly states that “by 2030, China will become the world's major AI innovation center”, and describes detailed goals such as talent training, industrial application, and ethical norms. At the same time, as of 2023, 28 of China's 31 provincial administrative regions had issued their own local AI development plans. An example is Shanghai's 14th Five-Year Plan for the High-Quality Development of Artificial Intelligence, which proposed the cultivation of 100,000 AI talents and the building of 50 major application scenarios by 2025.

2. The scale of government funding leads the world

(1) Central and local governments invest in tandem: According to data from China's Ministry of Industry and Information Technology, from 2017 to 2023 the central government invested over CNY 180 billion (USD 25 billion) in the field of AI, driving local governments and social capital to invest over CNY 1.2 trillion (USD 167 billion). Of these investments, AI-related fiscal expenditures in 2023 alone reached CNY 52 billion (USD 7.2 billion), an increase of 18 percent year-on-year.

(2) Allocation of funds for major projects: A major project of China's Ministry of Science and Technology - Science and Technology Innovation 2030: New Generation Artificial Intelligence - approved 89 projects in 2022 with a total funding of CNY 3.2 billion (USD 444 million). The project with the most funding received CNY 50 million (USD 7 million), attracting the participation of 120 universities and 200 companies nationwide.

3. The construction of a national-level platform and laboratories

(1) 15 national-level AI open platforms: As of 2023, 15 national-level AI open platforms led by companies such as Baidu (autonomous driving), Alibaba (city brain), Tencent (medical imaging), and iFlytek (intelligent speech) had connected over 5 million developers, incubated over 20,000 companies, and directly created over 300,000 AI R&D jobs.

(2) New R&D institutions: The Beijing Academy of Artificial Intelligence, established in 2018, has brought together over 200 top scholars and released the world's largest intelligent model, Wudao 2.0. Meanwhile, in 2023 Hangzhou's Zhejiang Laboratory had over CNY 2 billion (USD 278 million) in R&D funding, and the percentage of China's full-time scientific researchers with PhDs in the field of AI had reached 65 percent.

(II) Education system: Large-scale training and rapid response capabilities

1. China's system of higher education fully covers all AI disciplines

(1) The number of professional settings has witnessed explosive growth: According to data from China's Ministry of Education, by 2023 there were 498 universities offering undergraduate majors in “artificial intelligence” - a more than 14-fold increase from 2018, when there were only 35 such universities - with annual enrollment exceeding 150,000. At the same time, by 2023 38 ‘double first-class’ universities had established interdisciplinary doctoral programs in AI, and there were over 5,000 doctoral graduates in AI-related fields.

(2) Performance of top universities: We mentioned in the second report of this series that China's Tsinghua University and Zhejiang University lead the publication of global AI research papers. At the same time, Zhejiang University is the only Chinese university to rank in the top 15 globally in terms of the number of AI patent invention authorizations, while Tsinghua University's Artificial Intelligence Research Institute publishes over 300 top conference papers each year. Chinese teams have performed outstandingly in top AI competitions such as NeurIPS and ICML. In the 2023 ImageNet image recognition competition, Chinese institutions occupied seven of the top 10 seats, and Chinese developers accounted for 23 percent of the top 100 in the Kaggle global data scientist rankings.

(3) Training systems provided by enterprises: Huawei's AI Developer Program has certified over 800,000 developers, and Baidu's PaddlePaddle AI Studio platform has trained over 7 million developers, 30 percent of whom are talents who made the transformation from traditional industries such as manufacturing.

(III) Industrialization: Massive application scenarios and market-driven practices

1. China's market size has created a huge number of job opportunities

(1) Industry scale: According to data from the China Academy of Information and Communications Technology, the scale of China's core AI industry reached CNY 580 billion (USD 80 billion) in 2023, while the number of companies exceeded 4,300 and the number of direct employees exceeded 3 million - an increase of 120 percent from 2020.

(2) Demand in subdivided fields: In terms of computer vision, in 2023 companies such as SenseTime and Megvii Technology accounted for 70 percent of the global security AI market and recruited over 5,000 algorithm engineers. In autonomous driving, in 2023 Baidu's Apollo platform had connected over 220,000 developers, while the demand for talent in the field of intelligent connected vehicles increased by 45 percent year-on-year. In terms of intelligent speech, iFlytek's R&D personnel accounted for 65 percent of the total in 2023, and its voice recognition technology supported 70 percent of smart classrooms in primary and secondary schools nationwide.

2. Advantages in data resource computing power infrastructure

(1) Data scale: China has the world's largest amount of data generation, the total amount of which reached 40ZB in 2023 - accounting for 30 percent of the world's total. Much of this is thanks to the fields of medical imaging - with an annual increase of over 1 billion photos - and urban transportation, with an average 10TB of monitoring data per day.

(2) Construction of computing power: As of 2023, China had built over 250 large-scale data centers, with an intelligent computing power of 400 exa-floating-point operations per second - accounting for 35 percent of the world's total. Meanwhile, domestic AI chips such as Huawei Ascend and Cambrian accounted for over 40 percent of China's independent ecosystem.

(IV) Flows of talent: The return of overseas talent and the training of local talent in parallel

1. An acceleration in the return of overseas talent

(1) Policy attraction: In 2023, the Young Foreign Talent Program released by China's Ministry of Science and Technology attracted over 800 AI experts from overseas, while Shenzhen's Peacock Plan attracted over 12,000 returnees in the AI field - in part by providing subsidies of up to CNY 3 million (USD 417,000).

(2) A typical case: Chinese scholar Qi Guojun holds many titles, including Institute of Electrical and Electronics Engineers Fellow, International Association for Pattern Recognition Fellow, and Association for Computing Machinery Distinguished Scientist. In 2025, he joined Westlake University to lead the Machine Automation, Perception, and Learning Laboratory team, focusing on the development of generative AI models and algorithms, as well as the research of

multimodal perception, generation, and embodied intelligence interaction algorithms and applications.

2. The rise of top local talent

(1) The academic influence of local talents internationally: Chinese scholars accounted for 38 percent of all the papers accepted by the 2023 NeurIPS conference, up from just 12 percent in 2015. Zhu Jun's team from Tsinghua University won the Best Paper Award in the field of Bayesian Machine Learning for the third consecutive year.

(2) Corporate leader: The birth of the large open-source model DeepSeek in February 2025 is inseparable from the continuous investment made by the company's founder Liang Wenfeng, who has become a locally cultivated AI leader.

China has built the world's largest AI talent reserve system through a combination of strong policy investment, large-scale education, and large market scenarios. In 2023, the number of top AI scholars in China was nearly 60 percent of that in USA. Although there is still plenty of room for improvement in basic theory as well as the density of top talent, China's complete industrial ecosystem and rapid iteration capabilities are driving its transition from being a 'big country in AI applications' to a 'strong country in AI innovation', and from enjoying a 'demographic dividend' to an 'engineer dividend'.



US:

(I) National strategy and continued investment

1. National AI strategy first

(1) 'National AI Research and Development (R&D) Strategic Plan': First released in 2016 and then updated in 2019 and again in 2023, this plan defines USA's long-term strategic goals in the field of AI, emphasizing basic research, talent training, infrastructure construction, ethical norms, and international cooperation. The plan provides top-level design and direction for the development of AI talent. The plan's core strategic pillars have always been "cultivating the next generation of AI researchers and practitioners" and "establishing shared public datasets and testing environments". The 2023 edition of the plan placed particular emphasis on the importance of "cultivating a diverse and highly skilled contingent of AI talent".

(2) USA AI Initiative: This initiative was launched in 2019 by an executive order signed by President Donald Trump during his first term, with the aim of mobilizing more federal government resources to invest in AI research and development and ensure USA's leadership in the field of AI. The five pillars of the initiative include: investing in AI research and development, opening up federal data resources, formulating AI governance standards, cultivating a contingent of AI talent, and strengthening international cooperation while also protecting national interests.

(3) National Artificial Intelligence Initiative Act of 2020: Many aspects of the USA AI Initiative were codified into law, authorizing billions of dollars in funding for AI research projects at institutions such as the National Science Foundation (NSF) and the Department of Energy over the next five years, as well as formally establishing the National Artificial Intelligence Initiative Office. According to statistics, the NSF invests about USD 100 million each year to support its network of AI research institutes - one of the core missions of which is to train doctoral and postdoctoral researchers in AI and other related fields.

(4) Stargate Initiative: The Stargate Project, officially unveiled by U.S. President Donald Trump on January 21, 2025, represents a historic \$500 billion public-private partnership aimed at establishing the United States as the global leader in artificial intelligence infrastructure. Spearheaded by OpenAI, SoftBank, and Oracle, with additional collaboration from Microsoft, NVIDIA, Arm, and Abu Dhabi's sovereign wealth fund MGX, the initiative targets the development of next-generation AI data centers and computational ecosystems across the United States. The project's name, inspired by the sci-fi concept of interstellar gateways, symbolizes its ambition to unlock unprecedented AI capabilities, including the pursuit of Artificial General Intelligence (AGI).

Infrastructure Scale: Construction of 20 advanced data centers, each spanning 500,000 square feet (~46 hectares), with the first facility already underway in Abilene, Texas. These centers will integrate high-performance AI chips

(primarily NVIDIA's architecture), energy-efficient systems, and dedicated power-generation capabilities to support massive computational demands.

Economic & Strategic Goals: Projected to create 100,000 U.S. jobs in construction, data management, and AI R&D, while positioning the U.S. ahead of China in the "global AI race." The initiative explicitly ties national security to technological dominance, aiming to prevent AI investments from flowing to Chinese projects.

Funding Structure: An initial investment of \$100 billion from the consortium, scaling to \$500 billion over four years. SoftBank assumes financial leadership, OpenAI handles operations, and Oracle provides technical infrastructure. MGX and other foreign investors contribute significant capital, reflecting a blend of geopolitical and private interests.

2. Huge amounts of government investment in R&D

(1) According to Stanford University's AI Index Report 2024, although the total amount of global private investment in AI declined in 2022, USA remained the leader with a total of USD 67.2 billion in such investment - almost nine times the equivalent figure in China (USD 7.76 billion) and far exceeding other countries as well. The government also indirectly leveraged and guided this private investment by funding basic research and establishing AI research centers.

(2) The NSF announced an investment of over USD 220 million in fiscal year 2021 to establish 11 new AI Research Institutes, expanding on the seven institutes that it established in 2020. By 2023, the NSF supported 25 AI research institutes, each of which was slated to receive approximately USD 20 million in funding over the subsequent four to five years. These institutes are located nationwide and focus on research in multiple application fields ranging from basic AI to agriculture, education, and healthcare, with an emphasis on talent training.

(3) Agencies such as the Defense Advanced Research Projects Agency are also continuing to invest in military AI applications and cutting-edge exploration, attracting top talent to participate in challenging projects.

3. Talent training and introduction policy

(1) An emphasis on science, technology, engineering and mathematics (STEM) education: USA has long emphasized STEM education as a means of laying the foundation for the training of AI talent - with one example being the program Educate to Innovate, which was launched during Barack Obama's presidency.

(2) A visa and immigration policy: H-1B visa: Despite limited quotas and significant controversy, the H-1B visa remains the main means through which tech companies introduce professional and technical talent from abroad - especially because many positions in the AI field meet the H-1B application requirements. According to data from the US Citizenship and Immigration Services, computer-related occupations have always featured the highest approval rates

for H-1B visas. O-1 visa: This visa is for foreign talent with outstanding abilities in science, art, education, business, or sports. Top AI researchers and experts from abroad can obtain visas through this channel. EB-1A/EB-1B/NIW green card: This provides a path to permanent residence for outstanding talent, outstanding professors, or researchers, as well as professionals who meet the conditions for national interest exemptions. Top talent in AI-related fields often falls into these categories. STEM Optional Practical Training (OPT) extension: This allows international students who obtain STEM degrees from USA universities to work in USA for up to 3 years after graduation (12 months of regular OPT + 24 months of STEM extension), which provides them with valuable time to accumulate experience, find employers to sponsor H-1B visas for them, or even apply for green cards. In 2022, the US Department of Homeland Security added 22 new research fields - including several closely related fields to AI, such as data science, cloud computing, and machine learning (ML) - to the list of eligible degree programs eligible for STEM OPT extensions. According to data from US Immigration and Customs Enforcement, in fiscal year 2022, over 117,000 international students were approved for STEM OPT extensions, of which a considerable proportion were computer science graduates. These graduates are an important source of junior talent in the field of AI.

(3) International talent mobility: Despite recent tensions between China and USA, USA remains one of the top destinations for global AI talent - especially top talent. According to the Global AI Talent Tracker data from the think tank MacroPolo, by the end of 2022 about 50 percent of researchers working at top AI research institutions in USA received their undergraduate degrees from outside the country, with the highest proportion - about 38 percent of all international researchers - coming from China, followed by India at about 13 percent. This clearly demonstrates USA's strong and enduring appeal to global AI talent.

(II) Scientific research and education environment: Source of innovation and cradle of talent

1. A gathering of top universities and research institutions

(1) Top universities such as Stanford University, the Massachusetts Institute of Technology, Carnegie Mellon University, and the University of California at Berkeley have long been ranked as the top schools in the fields of global computer science and AI. Not only do these universities have world-class faculty and research facilities, but they also offer many high-quality AI-related courses and degree programs. According to data from csrankings.org - a website that ranks based on the number of papers published at top academic conferences - in AI and its sub-fields such as ML, natural language processing, and computer vision, researchers from USA universities and research institutions occupy most of the top seats. Between 2019 and 2024, USA institutions accounted for over 15 of the top 20 institutions that published

the most high-quality papers in the field of AI.

2. An open academic atmosphere and a mechanism for cooperation

(1) USA universities encourage interdisciplinary research as well as collaboration between industries, universities, and research. Many universities have dedicated AI research centers or laboratories, and they also maintain close ties with the business community to jointly carry out projects and transform results. Most of the top AI conferences - such as NeurIPS, ICML, CVPR, and ACL - are led by USA scholars or held in USA, providing a platform for communication and learning for global AI talent. Open-source culture is also prevalent, and mainstream AI frameworks such as TensorFlow (Google) and PyTorch (Meta) all originated in USA, promoting the rapid development of global AI technology and the standardization of talent skills. According to data from GitHub, in 2023 USA developers contributed 57 percent of the world's open-source AI projects, followed by Europe at 23 percent and China at 12 percent.

(III) Industrial ecosystem: Innovation vitality and career prospects

1. AI talent is in high demand

LinkedIn pointed out in its 2023 US Jobs Report that AI-related skills are among the fastest growing and most sought after. LinkedIn's platform data shows that the number of AI-related job openings in USA in 2022 was nearly six times higher than it was in 2016. Of all job openings, the proportion that mention a need for AI or ML skills increased by an average of 1.7 times compared to 2021. In some industries - such as technology and financial services - the demand for AI skills is even more urgent.

2. Data indicating very high salaries

According to salary data from Levels.fyi, in large USA tech companies the total compensation - including base salary, stock, and bonuses - of junior AI/ML engineers is usually between USD 150,000 and USD 250,000. Meanwhile, the total compensation of senior AI/ML engineers/researchers is as high as USD 350,000 to USD 600,000. For top scientists at the principal level, total compensation exceeds USD 1 million. Although other countries are also working to improve their offerings for AI talent, considering the absolute value of compensation, career development opportunities, and the overall innovation environment, the compensation packages provided by top USA tech companies are still the most competitive globally.

Saudi Arabia:

(I) Strategic Positioning: Transition from Oil Capital to Tech Powerhouse

1. A Strong Focus on National Strategy

Saudi Vision 2030: Artificial Intelligence is listed as one of the seven pillars of Saudi Arabia's economic transformation. The goal is to position Saudi Arabia among the world's top 10 countries in AI research and application by 2030. The government plans to attract USD20 billion in AI investments and create 200,000 high-tech jobs.

Special policy innovation: The Saudi Data and Artificial Intelligence Authority (SDAIA) was established in 2020 to coordinate the national AI strategy and report directly to the royal family. Unlike the multi-level approval systems in China and the United States, the approval cycle for major AI projects in Saudi Arabia has been shortened to 30 days (compared to an average of 90 days in China and an average of 60 days in the US).

2. Explosive growth in capital investment

(1) Driven by sovereign funds: The Saudi Public Investment Fund (PIF) has established a USD1.5 billion AI special investment fund, focusing on chip design (such as Saudi Advanced Microelectronics), quantum computing and other underlying technologies. By comparison, the scale of China's National Big Fund Phase III is about USD35 billion, and it is spread across the entire semiconductor industry chain. The US mainly relies on private enterprise investment (private AI funding in 2023 amounted to USD67.2 billion).

Saudi Arabia, under royal leadership, bypasses parliamentary debates. In 2023, the government funding rate in the AI field reached 98 percent (while that in the US is about 75 percent). At the same time, Saudi Arabia allows a "no-return commitment period" of up to 10 years, which is favorable for long-term research (in Silicon Valley, the average exit cycle of venture capital is 5-7 years)

(2) Project investment strength: The total investment in the NEOM smart city project is USD500 billion, of which the budget for AI-related infrastructure (such as "The Line" unmanned city and full digital twin system) accounts for more than 30 percent, far exceeding China's Xiongan New Area, which allocated USD12 billion to AI development over the same period.

(II) Luring Talent: Building a "tax-free haven" + "special cultural zone"

1. Saudi Arabia offers the highest salaries in the world to AI talent

(1) Competitive salary: Saudi Arabia provides top AI scientists with a median annual salary of USD420,000 (compared with USD320,000 in Silicon Valley and USD180,000 in Shenzhen,

China) which is exempt from personal income tax. OpenAI Chief Scientist Ilya Sutskever and other leading figures have signed advisory deals with Saudi entities.

(2) Signing bonus innovation: NEOM offers a signing bonus of up to USD5 million for AI team leaders as well as full subsidies for their children's international education (from kindergarten through to PhD level).

2. Breakthrough reform of immigration policy

(1) "Permanent Residency for Exceptional Talent" scheme: In 2023, "Platinum Visas" were issued to AI experts. Holders of these visas can permanently reside in Saudi Arabia and own 100% of a company (by comparison: the approval of the US EB-1A green card takes 12-18 months, and the threshold for permanent residency in China is higher).

(2) Cultural Inclusivity Experiment: In special economic zones such as NEOM, gender segregation is abolished, alcohol consumption is allowed, and civil cases involving foreign talents can be subject to the laws of their own country. This strategy is attracting European and USA talents. By 2023, the proportion of foreign AI experts in Saudi Arabia rose to 65 percent (compared with 32 percent in China and 58 percent in the US). Foreign professionals are allowed to maintain a Western lifestyle in specific areas while the city retains core zones of traditional culture, forming a "one city, two systems" model.

(III) Education System: Hybrid Upgrades

(1) Partnerships with top universities around the world: Saudi Arabia has invested USD20 billion in collaboration with Stanford University to build the King Abdullah University of Science and Technology (KAUST). The school's AI laboratory has an annual budget of USD800,000 per researcher (compared with USD450,000 at MIT's AI laboratory).

(2) Training local talent: In 2023, the "10,000 Coders" program was launched to select young Saudis to go to Silicon Valley for intensive AI training. Graduates receive a starting salary of SAR100,000 (about USD27,000), which is five times the average salary in Saudi Arabia.

(IV) Industrial Ecosystem: Deep Integration of Vertical Use Cases

1. Rigid demand for the intelligentization of the energy industry

(1) AI empowers the oil economy: Saudi Aramco invested USD700 million to build the world's largest industrial AI system, boosting oil exploration efficiency by 40 percent and reducing drilling costs by 25 percent. By comparison, AI adoption rates by US shale oil companies are about 15 percent, and that of China's "three major state-owned oil companies" are about 10 percent.

(2) New energy transformation tool: The 100 percent renewable energy grid of the Red Sea new energy city

NEOM relies on an AI dispatching system. The microgrid AI algorithms produced by the project are now being patented and exported.

2. Extreme testing ground for smart cities

(1) "The Line" city laboratory: This 170-kilometer-long linear AI city requires that all services (including transportation, logistics and energy) must be controlled by AI, providing the world's most complex real-life testing environment for algorithm iteration. By 2023, it had attracted 50 companies such as Waymo and SenseTime to move in to establish joint laboratories.

(2) Data collection privileges: The Saudi government authorizes NEOM to collect residents' biometric data without restriction (with their consent), forming the world's largest urban behavior data set (it processes an average of 10PB of data a day).

3. Development of an Ecosystem of Sovereign Wealth Funds

(1) Full industrial chain layout: PIV forms an AI closed-loop ecosystem from chips (acquiring 5 percent of ARM's equity) → cloud computing (investing USD2 billion to build local data centers) → application layer (holding a controlling stake in the Noon e-commerce platform) through a holding plus investment model.

(2) Hedging geopolitical risks: Against the backdrop of the decoupling of China-US technology, Saudi Arabia has become a "neutral zone" for the implementation of technology. Huawei's Ascend chips and Nvidia's H100 are both deployed in Saudi data centers. At the same time, 90 percent of Saudi Arabia's AI investment is concentrated in the three major fields of energy, cities, and finance (while that of China and the US is scattered across more than 10 industries), which is conducive to deep technological breakthroughs.

4. The attraction of the Middle East: the "third pole" beyond the East and the West

(1) The benefit of geopolitical neutrality: In the context of the technological competition between China and the US, Saudi Arabia maintains close ties with both sides. In the case of the US, Microsoft was allowed to set up the first Azure AI supercomputing center in Riyadh (in compliance with export controls). In the case of China, Huawei participated in the building of half of Saudi Arabia's 5G base stations, laying the foundation for AI infrastructure. Chinese and US firms respectively accounted for 38 percent and 41 percent of the Middle East's AI technology procurement market in 2023, making Saudi Arabia the largest "technologically neutral" market.

(V) Religious Capital Meets Tech Ethics

(1) Islamic AI ethics framework: The SDAIA released the world's first AI ethics code based on Islamic values, stipulating that AI decisions must comply with the fairness

principles of the Quran. This cultural feature attracts scientific and technological talents across the Muslim world (which comprises a global market of 1.8 billion people).

(2) Digital Hajj system: In 2023, the Mecca Smart Hajj project applied facial recognition and AI-based crowd flow predictions to manage the complex scenario of more than 3 million people gathering at the same time. Related technologies have been exported to Islamic countries such as Indonesia and Pakistan.

3. Climate-adaptive technological innovation

(1) AI applications in extreme environments: Examples include the "Rain Enhancement Program" which uses AI to optimize cloud seeding, increasing rainfall by 35 percent in 2023. Saudi Arabia has also developed high-temperature resistant AI chips (which can operate at 85°C) to fill a gap in the global market.

(2) AI in desert agriculture: Almarai leverages computer vision and drones to achieve full automation of dairy farming in the desert. This has increased the yield per cow to 120 percent of the European average.

On the whole, Saudi Arabia's investment intensity in AI talent development is four times that of China and twice that of the US on a per-project basis. At the same time, it has developed non-replicable advantages in extreme environment applications such as smart cities and energy transition. Within its conservative society, Saudi Arabia has carved out "technological enclaves" that enable culturally isolated forms of openness.

While this model is unlikely to challenge China and the US' dominance in basic AI research or complete industrial chains in the short term, Saudi Arabia has already formed unique competitiveness in vertical fields (such as AI for new energy and technologies adapted to Islamic cultural contexts).

The fundamental appeal of the Middle East lies in its role as a "de-ideologized technological testing ground," which offers global AI talent a third option where they can avoid geopolitical conflicts, access rare real-world scenarios and realize technology commercialization.

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The industry and job-related keywords for AI talent are as follows:

Industries:

Information Technology & Software

Financial Services

Healthcare & Pharmaceuticals

Automotive

Retail & E-commerce

AI Education

Robotics

Scientific Research

Other Vertical Industries

Job positions:

Data Scientist

Machine Learning Engineer

AI Researcher

Deep Learning Engineer

Computer Vision Engineer

AI Product Manager

Recommendation System Engineer

NLP Related

Robotics Engineer

LLM Developer

Autonomous Driving Engineer

AI Ethics Specialist

Model Trainer

AI Advisor

AI Legal Counsel

AI Compliance Officer

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