Research Institute for Democracy, Society, and Emerging Technology

Economic Security

Four Ounces Deflecting A Thousand Pounds

Analyzing Chinese Elite Perspectives on Winning the U.S.-China AI Competition

Nathanael Cheng, Jin Chian Seer, Emory Tsai-Yi Wang, and Jeremy Chih-Cheng Chang

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Authors

Nathanael Cheng | Policy Analyst

Nathanael Cheng is a Policy Analyst with the Economic Security Research Program at DSET. His research focuses on critical and emerging technologies including semiconductors and advanced robotics, with expertise in export controls, trade policy, resilient supply chains, and economic statecraft. Before joining DSET, he worked at the U.S. Department of Commerce, International Trade Administration, advancing U.S. trade policy related to emerging technology, standards and conformity assessment, and intellectual property. He also was previously an Associate at The Cohen Group's China Practice, a business advisory consulting firm founded by former U.S. Secretary of Defense William Cohen, advising Fortune 500 companies on export controls, geopolitical risk, regulatory issues, public policy, and stakeholder engagement. Nathanael holds an M.A. in Asian Studies from Georgetown University's Walsh School of Foreign Service and a B.A. in Politics from Hillsdale College.

Jin Chian Seer | Policy Analyst

Jin Chian Seer is currently focused on semiconductor industrial policy in Southeast Asia and regional economic security issues, particularly the political and economic interactions and strategic linkages between Taiwan and Southeast Asian countries, committed to advancing technology governance and resilient industrial development within democratic systems. His research interests span political thought and science and technology policy, with a particular focus on democratic theory, international relations, political communication, and church-state relations. He previously worked at an industrial association, where he participated in the implementation of government-funded projects, gaining practical experience in policy coordination and interagency communication, integrating theory and practice. Jin Chian Seer holds a Master's degree in Political Science from National Chengchi University, with a Bachelor's degree in Public Administration and Policy.

Authors

Emory Tsai-Yi Wang | Non-Resident Fellow

Emory (Tsai-Yi) Wang is a non-resident fellow at DSET, currently based in Tokyo. Specializing in Chinese local government technology and industrial policy, Emory's work at DSET's Economic Security Program examines patterns of collaboration and friction among major Chinese technology firms, local governments, and the central authorities. Additional work researches Taiwan's export control framework, with particular attention to the development of the SHTC Entity List. Emory holds a Bachelor of Business Administration from National Chengchi University and is currently pursuing a Master of Public Policy at the National Graduate Institute for Policy Studies.

Jeremy Chih-Cheng Chang | CEO and Director of Economic Security Research

Dr. Jeremy Chih-Cheng Chang is a legal researcher and policy think tanker on geopolitics and technology law & policy. He serves as the Chief Executive Officer and Director of Economic Security Research at the Research Institute for Democracy, Society, and Emerging Technology (DSET). He has developed a public policy career as a legal scholar in Japan's technology policy-making sphere, working at the National Graduate Institute for Policy Studies and the Japan Science and Technology Agency. His expertise covers safeguarding critical national technologies, including export control, foreign investment, trade secrets, security clearance, and compliance policies. He also addresses tech and industrial policy issues related to economic security and the resilience of the semiconductor supply chain in the U.S., Japan, and Taiwan. Before, he served as Assistant Professor at Kyoto University from 2016 to 2018. He conducted post-doctoral research at Harvard University in the academic year 2017 to 2018. He earned his Ph.D. in Law from Kyoto University in 2016 and his LLM degree from Cornell Law School.

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Executive Summary

Recent commentary often frames the U.S.-China AI competition as a simple contrast between the American pursuit of frontier artificial general intelligence (AGI) and China's emphasis on large-scale diffusion of practical AI applications. This paper argues that Chinese AI elites view the competition as a multidimensional contest spanning the entire AI ecosystem, not a choice between frontier innovation and broad deployment.

Facing the constraints of U.S. export controls and restrictions, Beijing is pursuing a strategy analogous to the tai-chi concept of "using four ounces to deflect one thousand pounds" (四兩撥千斤). China's strategy is not to match U.S. capabilities dollar-for-dollar or chip-for-chip, but to compete across the supply chain in every way it can. Together China's approach supports a "frugal AI stack": an ecosystem designed to achieve competitive outcomes without requiring parity with the United States in every technological domain.

This paper analyzes this strategy from the perspective of China's AI elite, with a particular focus on industry and technology leaders in the private sector. We find Western analysis often overlooks the nuance of internal Chinese debates on AI, particularly in areas these elites acknowledge China faces challenges. Despite the rise in Western pronouncements of China's impending victory in AI, Chinese industry leaders are clear-eyed about its weaknesses that are often overlooked. Across six layers of the AI stack – market applications, models, compute, infrastructure, talent, and financing – Chinese actors are competing in every avenue they can to offset the constraints of U.S. restrictions.

This does not make China any less of a formidable competitor in AI, and China's many strengths require allied countries to adopt joint efforts across the full AI stack to counter China's AI diffusion. To meet this strategy, allied policymakers must also compete with

China on all fronts. Doing so requires an economic security strategy that does not merely focus on the most advanced computing chips and the most advanced frontier models, but on all the domains of AI competition.

Chapter 1

Introduction

"Let them attack with great strength; use four ounces to deflect one thousand pounds."
— On Fighting, attributed to Wang Zongyue (《打手歌》王宗岳)

Beijing's 15th Five-Year Plan and its AI+ plan make artificial intelligence a key industrial and party priority to secure the country's military, technological, and manufacturing leadership.[1] China's AI strategy is the product of both top-down strategic planning that stretches decades and bottom-up, fast-evolving tactical execution of AI researchers, scientists, and firms.

The AI landscape continues to shift quickly since the explosion of ChatGPT and large language models. In January 2026, two of China's "six little AI tigers" – the country's leading large model unicorns – went public on the Hong Kong exchange. Zhipu and Minimax's combined IPOs totaled over USD $1 billion.[2] Around the February Spring Festival, major Chinese labs released new flagship models: Bytedance's Seedance and Doubao 2.0,[3,4] Alibaba's Qwen, Minimax's M2,[5] Moonshot AI's Kimi,[6] and a new generation of DeepSeek.[7] China's "war of one hundred models," spanning established giants and startups, has produced fierce competition, diverse technical approaches, and a growing global footprint.[8]

Many Western commentators have proclaimed that China is "winning" or has already won the AI race against the United States. While the United States pursues software-driven artificial general intelligence (AGI), China has chosen a "diffusion" strategy: deploying practical, low-cost AI across the "real economy" of consumer and industrial applications, winning through adoption rather than frontier capability.[9] Experts are right to counter that there is no one AI race, but the United States is, in fact, competing in many AI races against China, and there is no simple binary of "diffusion versus AGI."[10]

Chinese AI elites do not view the race as a binary choice between AGI moonshots and mundane diffusion. They see a multidimensional competition in which China must compete on all fronts simultaneously, while carefully playing to its strengths and mitigating weaknesses. This paper explores how China is implementing and adjusting its "frugal AI stack,"[11] or as is sometimes called, China's strategy of "using four ounces to deflect one thousand pounds" (四兩撥千斤). The idiom originates in tai-chi philosophy and in this case describes the use of "four ounces" – China's AI strategy – to deflect and overcome "one thousand pounds" of U.S. export restrictions on China.

While it may not seem intuitive to describe China, the world's second-largest economy and AI power, as having the weight of "four ounces," China has faced significant resource constraints without access to leading edge AI chips, lithography machines, and advanced process nodes. Thus, Chinese actors from central government policymakers to AI startups have resorted to anything and everything in their power to overcome those limitations.

In this paper, we focus on this strategy from the perspective of Chinese AI industry leaders, mostly relying on public statements from researchers at Tencent and Bytedance, to Huawei and cloud computing executives. We focus on industry leaders partly because their recent public comments are the most interesting and because they are at the forefront of China's AI efforts, including firms across the supply chain from models to chips to infrastructure. They do not represent all of China's stakeholders, but they are a key driving force behind the AI race.

Analyzing this AI elite discourse, we find Western analysis often overlooks the nuance of internal Chinese debates on AI, particularly in the challenges China faces as it attempts to overcome U.S. restrictions. Despite the rise in Western pronouncements of China's impending victory in AI, Chinese industry leaders are clear-eyed about its weaknesses. Across six layers of the AI stack – market applications, models, compute, infrastructure, talent, and financing – there is robust internal debate on China's path forward and concern about the continued constraints posed by U.S. export restrictions.

Its limitations do not make China any less of a formidable competitor in AI, and China's many strengths require allied countries to adopt joint efforts across the full AI stack to counter China's AI diffusion. To meet this strategy, allied policymakers must also compete with China on all fronts. Doing so requires an economic security strategy that does not merely focus on the most advanced computing chips and the most advanced frontier models, but on all the domains of AI competition.

Table 1. Overview of China's Strengths and Weaknesses in the AI Stack
(Source: DSET compilation.)

Layer	Assessing Relative Strength Per Layer	China's Response Strategy
Market applications	**STRONG** **Strength:** mature consumer and industrial AI **Weakness:** enterprise adoption	Government incentives for AI adoption, AI+ policy, and vouchers for SMEs.
Models	**STRONG** **Strength:** low-priced models enable overseas diffusion	Model weaknesses overcome through training innovation and distillation.
Compute	**WEAK** **Weakness:** because of its dependence on U.S. technologies, China faces constraints in acquiring compute power due to export controls on advanced chips and equipment.	**Hardware:** "quantity for quality" and the supernode architecture **Software:** building a local AI chip design ecosystem
Infrastructure	**POTENTIAL STRENGTH** **Strength:** great potential in energy **Weakness:** misallocations of compute demand and supply	**National Computing Power Internet Service Platform:** a platform that centrally coordinates compute resources nationwide
Talent	**POTENTIAL STRENGTH** **Strength:** abundant STEM graduates and returnees from U.S. institutions **Weakness:** lack of innovation culture	Reforming evaluation systems and supporting high-risk long-horizon research through national funds
Financing	**WEAK** **Weakness:** small scale of private investment relative to that of the U.S.	**Government guidance funds:** strengthening market confidence and channeling private investments to startups

Chapter 2

How Chinese Elites View the AI Stack

2.1 Market Applications: Diffusion

"The U.S. controls the rules; China controls the market. The U.S. dominates core technologies; China dominates the application ecosystem."
— Caixin editorial.[12]

The most widely understood dimension of China's AI strategy is its focus on practical applications. What analysts describe as a "pragmatic," "mundane," or "diffusion-first" approach reflects a real strategic choice: rather than burning resources on the AGI "holy grail," China is deploying "good enough" AI broadly across consumer, enterprise, and industrial contexts.[13] The "frugal stack" catalyzed by the 2025 DeepSeek moment – low-cost, open-weight models optimized for efficiency – has become the foundation of this approach.

But internally, while chip limitations and export controls have been an impetus to pursue open-weight, low-cost, high-efficiency models, Chinese elites argue that this strategy is applied unevenly across use cases: China has greater strengths in consumer and industrial AI while struggling in getting enterprises to pay for AI software, limiting diffusion.

Consumer AI: Confident and Advancing

In consumer-facing generative AI, Chinese elites express confidence that their world-class consumer internet ecosystem will lead to leadership in consumer AI. In the 2010s, China's internet giants such as Alibaba, Tencent, Bytedance, and Meituan were forged in brutal competitive markets that rewarded rapid iteration, seamless product integration, and obsessive user experience optimization. These capabilities, which propelled Douyin to global dominance and WeChat to superapp status, now animate China's consumer AI race.[14] Yang Qiang, AI scientist and Professor at the Hong Kong Polytechnic University says, "when a hundred flowers bloom, Chinese people excel at collective creativity."[15] Lee Kai-fu, founder of 01.ai, says that Chinese internet giants, working in an intense cycle of feedback, will be a greater source of app innovation than American peers.[16]

"The Chinese giants will, by far, outrun the American giants in building great applications—because the Chinese giants have always been tenacious, hungry, and monopolistic. And they see applications as the reason they're building technology."
— Lee Kai-fu, founder of 01.AI.[17]

Bytedance's Doubao LLM illustrates the thesis. Doubao has lagged some competitors on raw benchmark performance yet leads China's app charts in active users and downloads. The reason is its TikTok-style focus on seamless integration across text, voice, image, and video, and its system-level smartphone integration that enables proactive, context-aware task completion.[18]

The key factor in China's favor is that consumer models increasingly do not require the most advanced frontier models trained on a large quantity of expensive chips. Consumers care more about user experience and ease of use. As Tencent's Yao Shunyu observes, for consumer applications, user experience matters more than benchmark supremacy.[19] Thus, in the view of Chinese AI leaders, consumer applications of generative AI can develop less burdened by compute constraints.

Dubbed the "year of AI agents," including most recently by Qualcomm CEO Cristiano Amon, 2026 will be a key test case for the speed and intensity of Chinese giants on AI consumer applications.[20] Doubao's newest model, released this February, is intended to consolidate a position in the budding AI agent market.[21] In March, OpenClaw, the U.S. open-source AI agent application, swept China's AI ecosystem. Whereas Chinese tech giants were quick to erect barriers to prevent Doubao from accessing their platforms due to security and privacy concerns, with OpenClaw, Chinese AI firms like Tencent, MiniMax, and Baidu have swiftly released tools for or their own versions of the application. This reflects the intense competition for and strategic emphasis on consumer applications.[22] In addition, Chinese firms have made billions in investments in AI infrastructure and rely on inference demand to recoup the cost. Tech giants have therefore been quick to jump on the agent bandwagon due to the high token consumption and monetization potential of agents like OpenClaw.[23]

Enterprise AI: An Acknowledged Weakness

At the same time, China's AI elites candidly acknowledge that adoption of generative AI in enterprise remains a weakness. Unlike the United States, which has a mature enterprise software market with established subscription-based SaaS culture, Chinese firms have historically resisted paying for software services.[24] Chinese enterprises and consumers "rarely pay for software," notes Goldman Sachs.[25]

In addition, while China generally performs well on global digital competitiveness rankings,[26] Richard Lin (林 旅 强), former operations manager for Huawei's Pangu large model, notes that paradoxically many Chinese enterprises lag on baseline digitization and data infrastructure, which inhibits enterprise AI adoption.[27] Digital transformation and the quality data it generates is an important prerequisite for AI transformation, but many Chinese companies have been more traditional in adopting "digital core" technologies required in enterprise planning such as cloud, enterprise resource planning (ERP), and customer relationship management (CRM) software.[28] A 2023 Accenture survey found that while Chinese firms tended to perform well in optimizing operations and digitizing systems, they scored lower in building digital "cores" (数字核心) and unleashing digital talent.[29]

> ***"Many productivity-oriented or enterprise-focused models and applications are still born in the U.S., largely because willingness to pay is higher and the business culture is more supportive. Doing this purely within China is very difficult."***
>
> ***— Yao Shunyu, Chief AI Scientist, Tencent.***[30]

The culture of enterprise adoption impacts firms' ability to monetize models and generate revenue. While price wars and the strategy of "cost reduction and efficiency increase" (降本增效) helps with quick iteration and wide diffusion, the downside of this approach is limited ability to bring in fee-related revenue. Tencent's Yao Shunyu noted a critical turning point this year is whether China can overcome challenges in the B2B market.[31] At Tsinghua's University's widely reported January 2026 AGI Next summit of top AI elites, industry leaders noted that the business model of the U.S. B2B-focused firm Anthropic inspired Chinese investments into agents and AI coding. Beijing has sought to address these adoption challenges by encouraging AI pilot projects across key industries through its "AI+" policy and providing incentives such as "computing vouchers" to minimize AI adoption costs, especially for small and medium enterprises (SMEs).[32]

Industrial AI: A Structural Moat

China's strongest application advantage lies in industrial and physical AI. While firms are hesitant to pay for software, they are more willing to adopt AI technologies, including machine learning, computer vision, and prediction algorithms, on the factory floor to optimize performance. China is already the world's leading deployer of industrial robots, embedded across steel, automotive, electronics, and agriculture sectors.[33] As AI moves from screens to physical environments, China's unrivalled industrial base is an invaluable asset. Vast deployment scale generates vast data feedback loops, which in turn improve models, which enable more sophisticated deployment.

Concrete deployments illustrate the approach. In steel manufacturing, Huawei's Pangu models use computer vision and prediction algorithms to optimize raw material blending, temperature control, and equipment health monitoring.[34] In agriculture, smart irrigation and pest-warning systems using real-time soil and climate sensors are being piloted across major grain regions.[35] In healthcare, Alibaba DAMO Academy's PANDA system, designed to detect pancreatic cancer from low-dose CT scans, received U.S. FDA Breakthrough Device designation in 2025.[36]

Xi Jinping's April 2025 Politburo directive that Chinese AI should be "strongly oriented toward applications" captures this industrial ambition.[37]

Beijing's push into embodied AI via the 14th Five-Year Plan for Robotics and the Robot+ Action Plan (2023) recognize that connecting AI to the physical world is crucial for achieving returns for AI investments but is also a likely pathway to AGI.[38]

> ***"In the next five to ten years, physical AI will become the core direction for China's AI industry to redefine the global competitive landscape, and a key area for achieving technological catch-up."***
> ***— Wang Lixing, CEO of China Renaissance.***[39]

Chinese elites increasingly identify embodied and physical AI – robots, autonomous systems, vision-language-action models, and world models connecting AI to the physical environment – as a critical strategic opportunity and a key frontier where China can leapfrog the West.[40] China's manufacturing supply chains, rapid prototyping capabilities, and massive deployment contexts from electric vehicle factories to consumer electronics manufacturing to logistics networks provide valuable data that can train effective physical AI models.[41] China now has over 150 companies working on humanoid robots or key subsystems,[42] and advances in multimodal models, integrating vision, audio, and tactile perception, will continue to expand physical AI applications.[43]

Table 2. Select Industrial Applications for Chinese AI.
(Source: Author compilation.)

Industry	Applications
Healthcare	Alibaba: PANDA pancreatic cancer detection Alibaba DAMO: Non-contrast CT plus AI technology for early screening of acute aortic syndrome.[44] Baichuan M3: model for clinical-grade decisionmaking support.[45] Tencent Hunyuan: foundation model for symptom analysis, drug discovery, and real-time monitoring with digital twins.[46]
Metals and mining	Huawei Pangu: optimizing blast furnace operations with Baowu Steel Huawei Pangu: mining model developed for mining applications including intelligent supervision and safe mine production.[47]
Automotive	Alibaba Qwen: partnership with NIO for in-car assistant.[48] Huawei: AI-powered automotive quality inspection solution.[49]
Robotics	Alibaba Cloud: Horizon Robotics using cloud infrastructure to train autonomous models.[50] Alibaba Qwen: Youlu Robotics incorporate Qwen into cleaning robots.[51]
Oil and gas	Huawei: cooperation with CNPC on seismic interpretation AI model; intelligent drilling system.[52]
Chemicals	Huawei: cooperation with Yuntianhua for a Real-Time Optimization model for gasifier production.[53]
Climate	Alibaba Baguan model for climate forecasting.[54]
Government and Public Services	Huawei Pangu government model: used by Shenzhen city for "one-stop services, governance, and collaboration."[55] DeepSeek: models used by local governments for document drafting and streamlining administrative services.[56]

2.2
Models

Models: The Open-Weight Strategy

A key part of the "China diffusion" narrative is China's embrace of open-weight models. The "DeepSeek moment" of early 2025 shocked the world with the company's low-cost, open-weight model that compared favorably with leading Western proprietary systems. DeepSeek is one of many Chinese firms that have pursued open-weight models out of strategy and necessity, reflecting both a largely industry-led strategy as well as a reaction spurred by geopolitical and technical constraints.

Table 3. Price Comparison of Leading Proprietary and Chinese Open-Weight Models
(Source: Adapted from Artificial Analysis. Prices as of early 2026.[57])

#	Model	Type	Price (USD/1M Tokens)
Proprietary Models			
1	Claude Opus 4 (Anthropic)	Closed	**$10.00**
2	GPT-5 (OpenAI)	Closed	**$4.81**
3	Claude Opus (Anthropic)	Closed	**$10.00**
Chinese Open-Weight Models			
1	Kimi K2.5 (Moonshot AI)	Open-weight	**$1.20**
2	GLM-4 (Zhipu AI)	Open-weight	**$0.88**
3	DeepSeek V3 (DeepSeek)	Open-weight	**$0.32**

Traditionally, China has used open-source technology development as an industrial policy tool to boost domestic innovation. Open-source technologies can ensure access to software when proprietary technologies are subject to export controls, accelerate industry progress, create technical independence and controllability, as well as serve as a mechanism for exchange and collaboration. This has played out, to varying degrees of success, in the state-led Red Flag Linux operating system in the 2000s, in the cell phone operating system market to develop a replacement to Android, and with OpenAtom, an alternative to open-source code platform Github.[58]

Traditional definitions of open source do not directly apply to generative AI due to the complexity of defining openness across the AI stack, including model weights, training, and safety documentation.[59] Most Chinese models are "open-weight" rather than being fully open source, meaning some training data and other data provenance are not available.[60] Nevertheless, Richard Lin, former manager for the Huawei Pangu model, says that it has become consensus in China's AI industry that firms must pursue open-weight models in order to achieve scale and globalize quickly. In contrast to prior open-source drives, China's pursuit of open-weight generative AI models has less been the result of national strategic planning than business decisions by Chinese AI firms like Alibaba and DeepSeek, driven by compute constraints and being positioned as late movers in generative AI compared to the United States.

By offering models for free download and fine-tuning, Chinese firms lower trial-and-error costs industry-wide, accelerating adoption. Firms rapidly gather community feedback for iterative improvement and build developer ecosystems that often create dependency on Chinese model platforms. This is proving effective in expanding market share in the Global South.[61]
The economics reinforce the competitive advantage. Chinese models are dramatically cheaper than their Western counterparts. When Bytedance's enterprise model launched, it was priced at approximately USD $0.00011 per 1,000 tokens, nearly 100 percent cheaper than the industry average.[62] Zhipu co-founder Liu Debing argues that a sustained price point at

one-seventh of rivals creates a global competitive advantage that markets are "bound to embrace."[63]

Given their low price, advantage in data sovereignty, relative transparency compared to the "black box" of closed models, open Chinese models and their ecosystems are the vehicle through which Chinese firms aim to make their own product "the global standard" by claiming market power with a strong product ecosystem.[64] Like Windows' victory over Linux in personal computing, or Android's dominance in mobile, the ultimate prize is platform control, Lin argues.[65] Chinese companies are not pursuing this open-source strategy equally, however. Alibaba's Qwen and DeepSeek, for example, have long committed to an open-weight strategy, whereas firms like Baidu have been more hesitant and only recently joined the open-source bandwagon.[66]

As with China's previous attempts at open-source technology, the ultimate viability of such an approach cannot yet be determined. Nevertheless, the open-weight models of China's "four model masters" – Zhipu, Moonshot, Alibaba, and Tencent – swept global performance rankings in 2025, displacing prominent Western open-source models.[67] Chinese open models achieved 30% global AI market share by end-2025, with 40% of usage in high-density professional tasks like programming and design.[68]

Chinese models led global open-model downloads on Hugging Face for the first time in 2025, at 17.1% versus the U.S.'s 15.7%.[69] Alibaba has become a salient leader in overseas diffusion. In Japan, for example, out of Japan's top ten AI models, six are based on DeepSeek or Qwen, and more Japanese startups are developing Qwen-based models due to Qwen's Japanese proficiency.[70] In November 2025, Singapore's national AI LLM opted to use Alibaba's Qwen instead of Meta's Llama.[71] Even in the United States, over 80% of Silicon Valley startups reportedly rely in some form on Chinese open models.[72] U.S. firm Airbnb also "relied heavily" on Qwen for its app chatbot; Airbnb's CEO said that OpenAI's models were not integration ready.[73]

Nevertheless, Chinese AI players argue that China must pursue both open and closed source paths to succeed. Open-source plays an important strategic and geopolitical role in diffusion, but from a business perspective, proprietary models retain important advantages. Robin Li, CEO of Baidu, and Yang Zhilin, founder of Moonshot, both have noted that proprietary firms attract the most talent and capital, and that long-term, closed-source technologies will be the better business model.[74] Tang Jie, chief scientist at Zhipu and Tsinghua professor, warns that the gap between closed-source U.S. models cannot be closed with open source alone.[75]

Model Training Optimization: Overcoming Compute Constraints

"We may be a group of poor people—but doesn't poverty breed change? Might innovation emerge from [resource constraints]?"
— Lin Junyang, Former Tech Lead for Alibaba Qwen.[76]

In model development, China has also used software and algorithmic innovation to "cut costs and increase efficiency" under resource pressure, what Lin Junyang calls "innovation for the resource-constrained." DeepSeek's founding breakthrough achieved performance comparable to U.S. frontier models at a fraction of the compute cost through training efficiency innovations, sparse mixture-of-experts architectures, and hardware-software co-design optimized for domestically available chips.

DeepSeek's Liang Wenfeng recently published research demonstrating that adjusting conditional memory invocation allows models to achieve equivalent performance with reduced memory and compute usage, identifying a "75% reasoning + 25% memory" configuration as optimal under GPU memory constraints.[77] China Unicom and Alibaba have deployed cross-regional AI training that aggregates compute across Shanghai and Shandong – 1,500 kilometers apart – at 95% equivalent efficiency through software-level orchestration, effectively pooling fragmented national compute resources into a unified "super compute" pool.[78] In November 2025, Alibaba Cloud won a prestigious paper award at the Conference on Neural

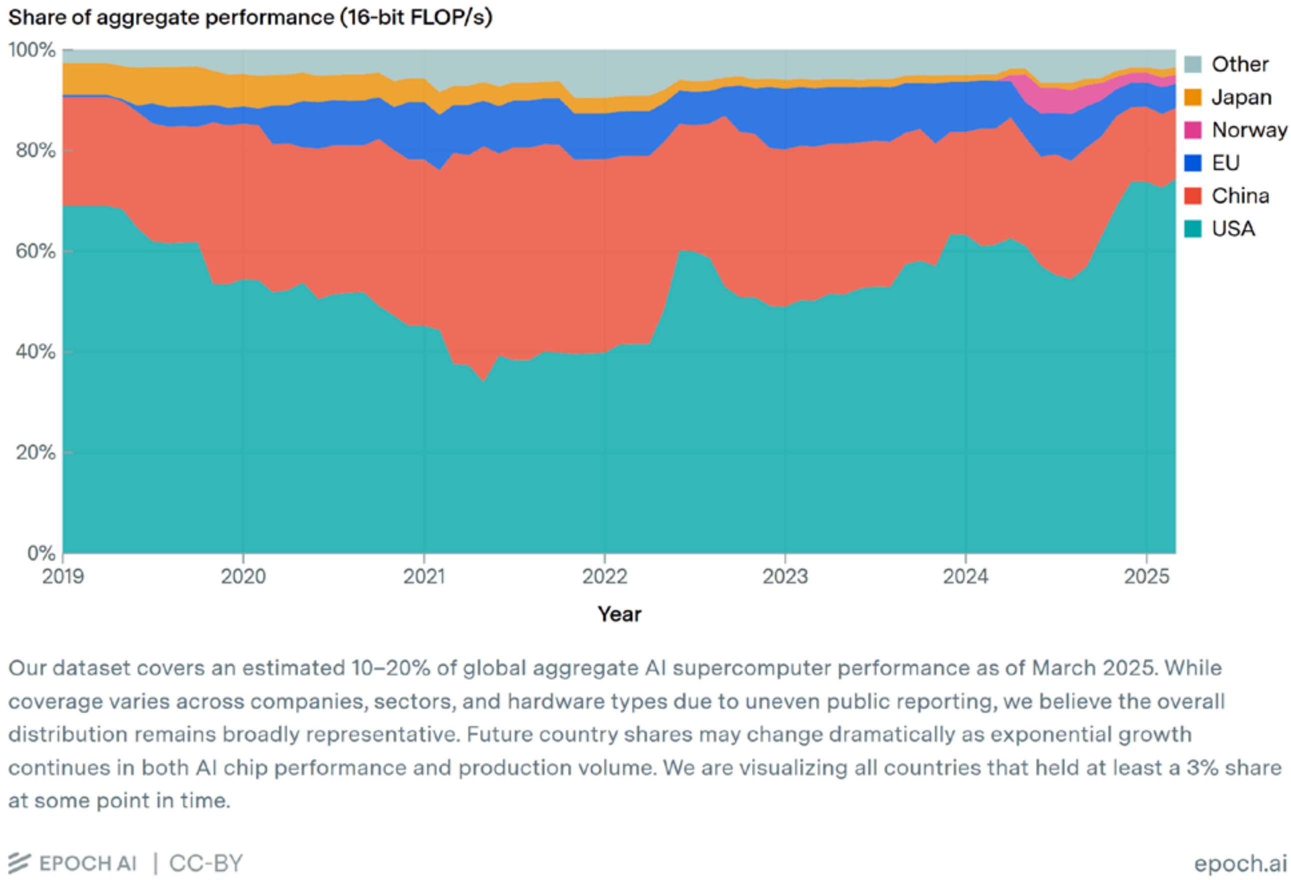
Information Processing Systems (NeurIPS), which introduced cutting-edge software techniques to reduce training and inference costs for Alibaba models.[79]

Chinese firms are still relying in many ways on the frontier capabilities of Western models, however. Both Anthropic and OpenAI have reported that their models were subject to illicit distillation attacks by DeepSeek, Moonshot, and MiniMax.[80] "Distillation" refers to "training a less capable model on the outputs of a stronger one."[81] DSET research has found that the fruits of this illicit distillation is being shared across China's open AI ecosystem. DeepSeek's research techniques and architectures were adopted in Zhipu AI's GLM-5 model, for example, meaning that Zhipu benefited indirectly from DeepSeek's distillation attacks on U.S. firms. This type of "distillation cascade" is another way that China is circumventing computer constraints.[82]

2.3 Compute: Engineering Resilience Under Constraint

> ***"Our single chips still lag behind the U.S. by a generation. We use mathematics to compensate for physics, non-Moore's Law approaches to complement Moore's Law, and cluster computing to make up for single-chip limitations—which can also achieve practical results."***
> ***— Ren Zhengfei, Founder, Huawei.***[83]

Figure 1. The United States and China lead in total computational performance.
(Source: From epoch.ai.[84])



Compute is the largest bottleneck for AI progress and is the U.S.' most effective leverage against China. As Wei Shaojun, Vice Chairman of the China Semiconductor Industry Association, said as recently as November 2025, "he who controls compute, controls the world" (得算力者得天下).[85] Similarly, Lin Junyang, former Alibaba Qwen lead, noted at January's AGI Next summit that U.S. firms can afford to devote a large part of their compute to next-generation research, while constrained Chinese compute mostly goes to fulfilling delivery requirements.[86] In the spirit of "four ounces deflecting a thousand pounds," since China cannot match the U.S. chip-for-chip, Beijing has sought to build indigenous alternatives across the compute stack. The two critical barriers to compute, according to Chinese elites like Tencent's Yao Shunyu, are chip production capacity, especially semiconductor manufacturing equipment such as lithography, and the software ecosystem.[87]

Hardware Strategy: "Quantity for Quality" and the Supernode Architecture

"Computing power is – and will continue to be – key to AI. This is especially true in China."
– Eric Xu, Huawei's Deputy Chairman of the Board and Rotating Chairman.[88]

Chinese elites acknowledge that they are still highly reliant on Nvidia GPUs. Without access to controlled technologies such as TSMC's advanced node foundries and ASML's high-end lithography machines, China has gone all out in developing domestic alternatives across the chip value chain, from design to fabrication to packaging. Chinese chip design firms, led by Huawei and followed by Alibaba, Biren, Baidu, Cambricon, and others, have so far failed to produce a chip sufficient to compete with Nvidia's most advanced GPUs.[89] Many Chinese models continue to be trained on Nvidia chips, despite U.S. restrictions.

Bottlenecks include domestic foundry limitations and lack of advanced lithography machines: domestic foundry SMIC's capacity is mostly reserved for Huawei, limiting capacity for smaller chip design firms like Biren and Moore Threads,[90] and lack of advanced lithography machines mean that foundries like SMIC lag behind TSMC's high-yield advanced node processes.

In response, Huawei has embraced a strategy focusing on stacking large numbers of chips together to achieve the necessary computing power. "We believe that only by relying on supernodes and clusters can we circumvent the limitations of China's chip manufacturing process and provide a continuous source of ... supply for China's AI computing power," Xu Zhijun, Huawei rotating chairman, said in September 2025. Huawei's Ren Zhengfei has said that China can use "cluster computing to make up for single-chip limitations."[91] This strategy involves compensating for single-point weaknesses through cluster scale, interconnect, scheduling, and hardware-software co-optimization.[92]

The most advanced Chinese AI supercluster is Huawei's new generation Atlas 950 SuperPoD. Containing 8,192 Ascend 950DT chips, the SuperPoD was announced at the MWC 2026 in Barcelona and will be available for sale Q4 2026. At its release, Xu Zhijun boasted that Huawei's "supernode plus cluster" architecture, combined with its indigenous Lingqu interconnect, could eventually "meet endless computing power demand."[93] Huawei's previous Atlas 900 A3 SuperPoD, also known as CloudMatrix 384, contained only 384 Ascend 910C chips assembled into a 16-rack cluster. But Huawei is making progress: the CloudMatrix 384 achieved an aggregate dense compute that rivals or exceeds Nvidia's GB200 NVL72 in certain metrics, according to SemiAnalysis.[94] Huawei's SuperPoDs consume substantially more power and require many more chips, but the power differential is offset by China's cheap electricity.[95]

These "superpods" are connected using Huawei's own UnifiedBus (UB) interconnect technology, which has been publicly released as part of the SuperPoD architecture. Huawei has explicitly encouraged ecosystem adoption at scale.[96] Nvidia's NVLink is the current market leader in GPU interconnect; its ability to connect hundreds of thousands of GPUs together at superhuman speeds is a critical part of Nvidia's "moat" on AI compute.

China has pursued open interconnect specifications to catch up, aiming to expand user participation and reduce lock-in risks associated with proprietary ecosystems. Tian Mochen, CEO of Kiwimoore, a Shanghai-based AI chiplet startup, notes that a key issue is lack of a unified interconnect standard that can easily link disparate computing units in a supernode together.[97] Active Chinese industry participation in open source frameworks like the Ultra Ethernet Consortium is intended to foster collaboration on standard-setting. In addition to Huawei's UnifiedBus protocol, Alibaba's Compute Express Link (CXL) 3.1, part of its Panjiu AI infrastructure, enables remote memory pooling to overcome HBM constraints.[98] Kiwimoore also released its own interconnect chip that supports different protocols across the ecosystem. But Tian argues that these are not sufficient, and that "close collaboration across the entire industry chain" is required to solve the interconnect fragmentation problem.[99]

Table 4. Comparison of Huawei and Nvidia AI Compute Stack.
(Source: Author compilation.[100])

AI Stack	Huawei	Nvidia / Western Ecosystem
GPUs (AI accelerators)	Ascend NPU	GPUs
CPUs	Kunpeng	Grace CPUs
Supercluster	Atlas 950 Supernode	Vera Rubin NVL72
GPU Interconnect	Lingqu (UnifiedBus Protocol)	NVLink
Parallel Computing	CANN	CUDA
ML framework	Mindspore	PyTorch (open source)

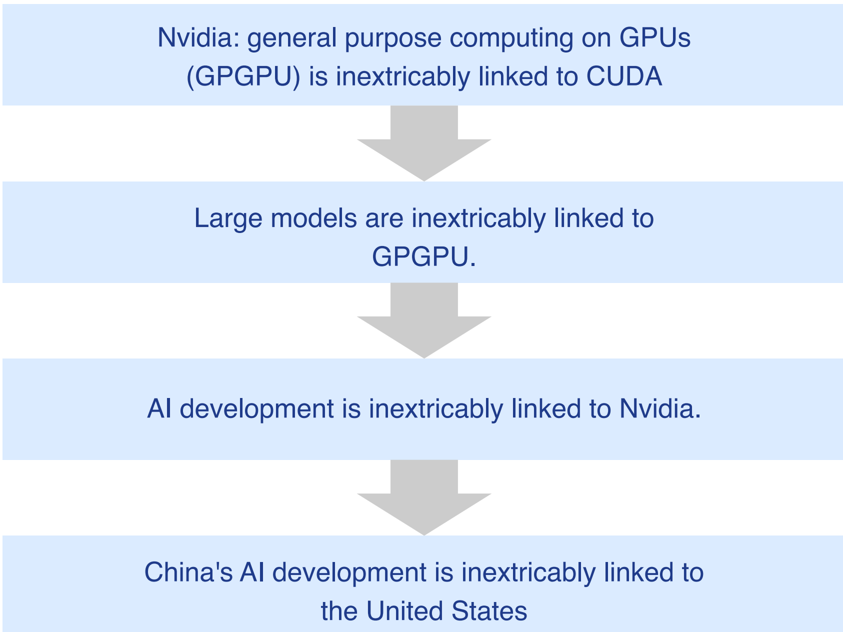
Software Strategy

The second key bottleneck in compute is the software ecosystem, which is deeply integrated with Nvidia GPUs, meaning that Huawei's Ascend chips cannot simply be swapped in. If the large language model is just the "tip of the iceberg," as Lin Yonghua, vice president and chief engineer of the Beijing Academy of Artificial Intelligence, describes it, the underlying machine learning (ML) frameworks and software architectures make AI possible.[101]

Nvidia's CUDA, the parallel computing platform and software layer which sits above the GPU hardware layer, is the first moat. CUDA enables Nvidia GPUs to be used for general-purpose computing, often abbreviated as "GPGPU" (General-purpose computing on GPUs). Its massive ecosystem of compilers, high-performance libraries, and developer tools can only be used with Nvidia's GPUs and is one of Nvidia's core competitive "moats." Nvidia since 2021 has also banned the use of translation layers to allow CUDA to be used with third-party GPUs.[102]

Above this layer rests ML frameworks, the "common language" of AI development, used by engineers to create AI models. Open-source Pytorch is often described as the "industry standard" and the "framework of choice" for building large language models.[103] But Pytorch is essentially Nvidia-native and cannot be easily used with Ascend chips.[104]

Figure 2. Wei Shaojun: Global AI is Tied to Nvidia's Software Ecosystem
(Source: Translation of Wei Shaojun' s Tsinghua presentation materials.[105])



Wei Shaojun, Vice Chairman of the China Semiconductor Industry Association, has warned that reliance on CUDA poses a major strategic risk for China.[106] Huawei, Moore Threads, and other Chinese firms are seeking to develop alternatives to Nvidia's CUDA architecture; Huawei's CANN or Moore Threads' MUSA, for example.[107] Huawei's August 2025 announcement that it would make CANN fully open source was panned by some in China's developer community as a revolutionary breakthrough. CANN was originally proprietary, and the decision to make it open source was "not easy" and came after significant internal discussion, according to Xu Zhijun.[108] Chinese developers complained that CANN was cumbersome, prone to crashing, and was difficult to use and troubleshoot due to its "black box" technology.[109] The decision to open-source may be the first step to resolving these frustrations. One AI researcher at South China University of Technology observed, "We used to be just simple users of CUDA, but now that CANN is open source, we can transform from users into contributors."[110]

> ***"Huawei's monetization relies on Ascend hardware, while everything else can be open-source... Open source promotes the scale and widespread use of hardware. If everyone uses it, I'll sell more, and then I'll earn back the money from open source,"***
> ***– Xu Zhijun, Huawei Rotating Chairman.***[111]

In addition to CANN, Huawei has explored two other strategies to extricate itself from the CUDA-Pytorch-Nvidia GPU monopoly. First, it has worked to improve compatibility with PyTorch and has developed adapters to allow PyTorch to be used with its Ascend NPUs. Huawei has also released its own alternative to Pytorch, called Mindspore. Second, Huawei has invested in the ONNX (Open Neural Network Exchange) to allow for "model portability," so models trained on Nvidia chips can be deployed on Ascend. Analysts say that model deployments will likely be the strongest initial application for Huawei's developing technology.[112]

Nevertheless, Chinese firms continue to have difficulty replicating Nvidia chip performance standards on the ground. Huawei's Ascend chips and open-source CANN platform still encounter significant issues in real-life operation, as has been widely reported.[113] DeepSeek's use of Huawei chips, for example, caused delays in the release of its newest model.[114] iFlytek and Zhipu claim to train their models on Huawei chips,[115] but many other Chinese firms like Alibaba, MiniMax, and ByteDance continue to use Nvidia chips despite controls.[116] DSET research further indicates that Chinese capital has significantly expanded investments in data centers in Singapore and Malaysia, leveraging overseas facilities to rent access to advanced computing power restricted under U.S. controls.

One avenue to breakthrough in compute innovation could be greater eco-system cooperation among model, hardware, and infrastructure firms. Former Qwen lead Lin Junyang argues that Chinese firms can do more "software-hardware co-design." Drawing from his own experience within Alibaba, Lin noted that his Qwen team initially had little contact with Alibaba's chip team, saying back then "our communication was completely misaligned."[117]

> ***"The fundamental solution should be closer cooperation between domestic computing power providers and large-scale model research institutions: allowing the development needs of large-scale model algorithms to guide the design of chip architecture, and in turn, allowing chip architecture to guide the algorithm design of large-scale models."***
>
> ***– Tang Xiongchao, CEO of Qingcheng AI.***[118]

Promoting deeper collaboration between AI model and chip developers can lead to significant dividends along the line. In the chip manufacturing space, SME maker SiCarrier, for example, has adopted a vertical integration approach, setting up multiple subsidiaries working on EDA to etching to metrology and inspection systems.[119] Instead of isolated efforts, ecosystems of companies dedicated to breakthroughs in different parts of the semiconductor chip supply chain have sprung up from Shenzhen to Shenyang.

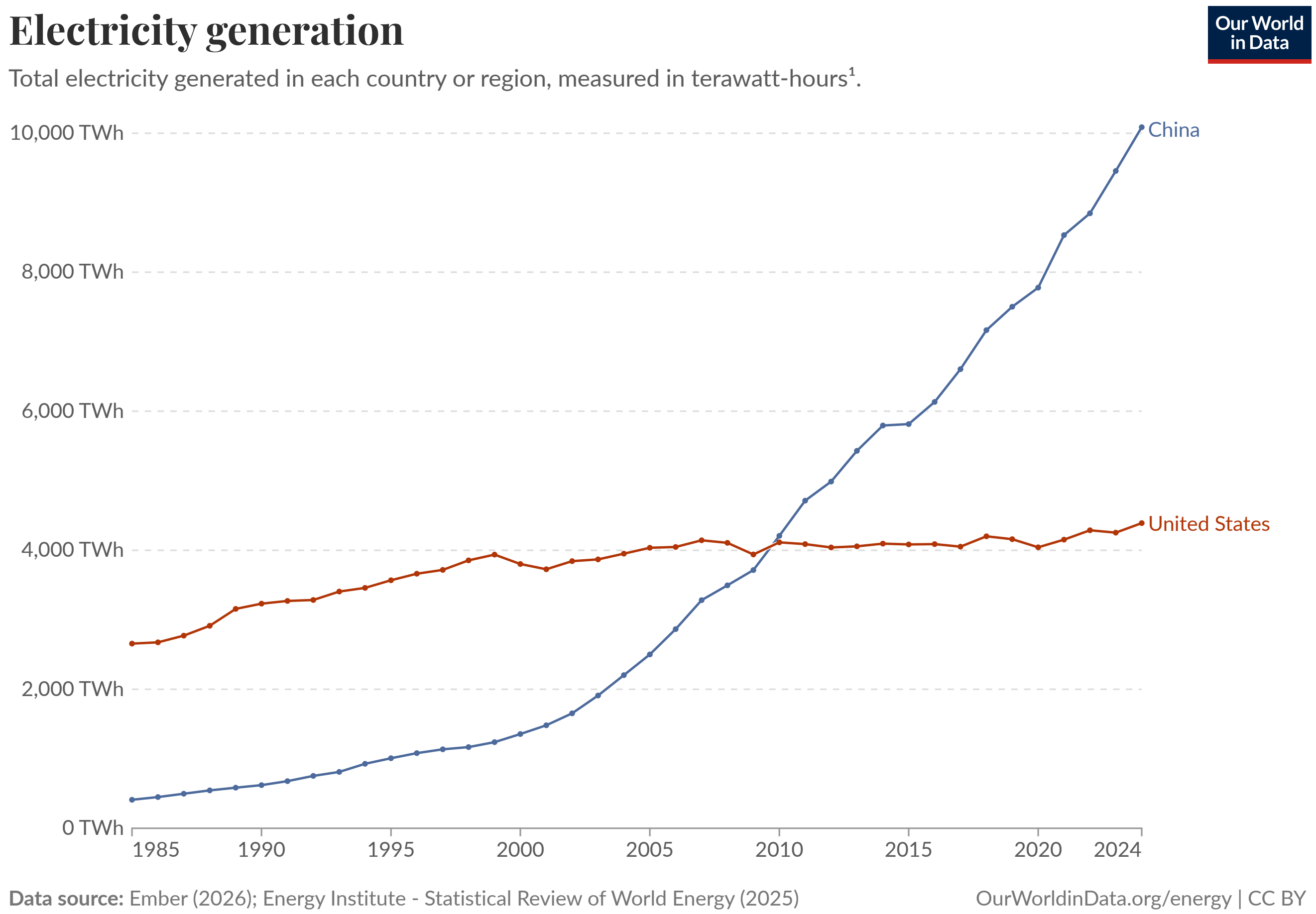
2.4 Infrastructure: Mobilizing the World's Largest Power Grid

"China has an absolute lead in energy. China operates the largest power grid in the history of the world. By 2024, China's total power generation was more than double that of the United States."
— Li Wei, Vice Dean, Cheung Kong Graduate School of Business.[120]

If compute is China's most acute disadvantage, observers often point to energy and infrastructure as a Chinese advantage. China generates more than twice the electricity of the United States, operates the world's most extensive ultra-high-voltage (UHV) transmission network, and has built a national "East Data, West Compute" (EDWC, 东数西算) initiative that deploys data center clusters in energy-abundant western regions to serve demand from the economically developed east.[121]

If realized, this energy advantage could address China's primary hardware weakness. Because domestic chips consume substantially more power than leading Nvidia GPUs, high electricity costs would make China's "quantity for quality" compute strategy economically unviable. Cheap, abundant energy, increasingly powered by the world's largest solar deployment and extensive hydropower, could make it viable. The Chinese government is attempting to mobilize compute and power infrastructure at a national scale to deeply leverage this power advantage. However, the challenge, noted by Chinese cloud industry leaders, is effectively connecting abundant energy to data center and AI needs.

Figure 3. U.S.-China Power Generation Growth from 1985 to 2024.
(Source: From Our World in Data.[122])



AI Infrastructure: From Infrastructure to Institutional Resource

Amidst booming compute demand and energy requirements, the Ministry of Industry and Information Technology (MIIT) has established a National Computing Power Internet Service Platform that centrally coordinates compute resources nationwide. The platform enables users to "publish demand, find compute, find models, find data, and find applications" within a unified national system, connecting scheduling service providers, compute resource providers, cloud service providers, and compute network operators.[123]

The China Academy of Information and Communications Technology (CAICT) has proposed a three-tiered power distribution architecture: a national platform for standardized compute allocation and management, regional core nodes aggregating local resources, and industry core nodes for telecommunications operators and cloud providers.[124] This architecture treats compute as infrastructure: accessible, schedulable, and diffusible across sectors and regions through standardized interfaces and metering mechanisms. Yao Xin (姚欣), CEO of PPIO, a Shanghai-based cloud computing startup, notes that the increased demand for computing power has made national compute power scheduling crucial to ensure exponentially increasing demand does not outstrip supply.[125]

On the compute demand side, central and local governments have also adopted "compute vouchers" and "model vouchers" to subsidize AI startups' use of compute and AI models. Zhejiang province, for example, has offered USD $1.1 million in vouchers to cover compute costs for local AI firms. Local governments have also experimented with model vouchers, which subsidize use of government-approved models for AI services.[126]

But China's approach to building out computing power has encountered structural and logistical difficulties in connecting massive power generation to high-value AI use. Despite cheap energy in Western China, Zhai Yongping, senior carbon neutrality advisor at Tencent and former chief energy expert at the Asian Development Bank, notes that areas prioritized for EDWC face logistical challenges including higher network transmission costs, talent shortages, and limitations in low-latency services, necessary for AI inference.[127]

Wu Huapeng, CEO of Qinhuai Data, a Beijing-based hyperscaler operator, says that the key bottleneck is the "supporting capacity of the new energy system has not yet fully matched" exploding demand for computing power. Gigawatt-level intelligent computing parks have the power demand of a "medium-sized city," Wu notes. Requirements that new data centers at central hub nodes be supplied with 80% green energy are laudable but lack sufficiently mature load fluctuation and heat source management technology.[128]

Similar to the United States and other countries, reports have surfaced of data center waste, inefficient allocation of resources, and inexperienced vendors building up subpar infrastructure, leaving some data centers unused.[129] In addition, global AI demand is shifting from training compute to inference compute, accelerated in China by its emphasis on AI applications over training frontier models.[130] Data centers originally built for training have sometimes found themselves without the requisite hardware optimization required for more inference loads.[131] In addition, China' s AI infrastructure and cloud leaders note the cost of misalignment between model developers and compute power infrastructure providers. As model technologies and hardware demands change rapidly, compute infrastructure providers complain of difficulties keeping up, leaving GPUs underused or compute power misallocated.[132]

2.5 Talent: The Rise of Homegrown Excellence

One Chinese industry observer said that in AI talent, "the US leads in quality, while China has quantity."[133] China produces approximately 1.4 million STEM graduates annually, more than six times the U.S. output.[134] For decades, a dominant source of technology talent came from returnees from U.S. universities and research institutions who brought frontier knowledge back to China. But China has steadily developed its own quality domestic talent stream. DeepSeek's breakthrough team consisted almost entirely of graduates from domestic institutions – Tsinghua University, Peking University, Zhejiang University – with no significant overseas experience.[135] Chinese elites applaud the advances in China's talent ecosystem, but nevertheless recognize key weaknesses in its innovation culture, leading to a lack of disruptive innovations.

The Engineering Dividend

China's scale advantage in talent translates directly into competitive capacity for rapid AI iteration and application deployment. Chinese firms can staff large engineering teams with highly capable graduates and iterate at extraordinary speed. Jensen Huang has estimated that approximately 50% of global AI researchers are Chinese.[136] A survey found that 40% of top AI researchers at U.S. firms and research institutes obtained their undergraduate degrees from universities in China.[137] But as U.S. national security restrictions push talent back to China, talent increasingly accrues to Beijing rather than Silicon Valley.[138]

Another source of Chinese AI talent is the several high-quality tech ecosystems that have sprung up across the country in Beijing, Shenzhen, Hangzhou, Shanghai, and elsewhere since the explosion of China's internet era. For example, Alibaba transformed Hangzhou into an innovation ecosystem. The ecosystem and Alibaba's tech alumni in turn contributed to the creation of Hangzhou's "six AI dragons:" DeepSeek, DeepRobotics, Kujiale/Manycore, BrainCo, Unitree, and Game Science.[139] Likewise, Shenzhen has become the "robotics silicon valley," and robotics firms like UBTech have trained an army of talent that have gone on to found their own startups.[140]

In Beijing, the institutional infrastructure for talent cultivation includes government-funded platforms like the Beijing Academy of Artificial Intelligence (BAAI), which binds top universities (Tsinghua, Peking University) to industrial actors (Huawei, Zhipu AI) in what participants liken to the "Whampoa (Huangpu) Military Academy" for AI: systematically producing talent aligned with national strategic priorities and evaluating academics on industrial contributions.[141]

The Whampoa, or Huangpu, Military Academy（黄埔军校）was a famed military school in Guangzhou founded in 1924 known for its discipline and producing the best military talent. In the contemporary Chinese-speaking world, it is often used in a non-military context to describe a highly elite training ground for top-tier talent. Microsoft's AI research lab was commonly known as the "Huangpu Military Academy of China's AI," due to its role in training leading AI talent.[142] Lately, Alibaba's Qwen program has increasingly been referred to as the new *huangpu junxiao* of Chinese AI as the company churns out AI founder after AI founder.[143]

"We are the Whampoa Military Academy of humanoid robots in China."
– Tan Min, Chief Brand Officer of UBTECH.[144]

Returning overseas talent still plays a significant role in China's AI ecosystem. For example, Tencent's AI scientist Yao Shunyu was formerly at OpenAI.[145] Wu Yonghui, previously a Google Fellow and Vice President of Research at DeepMind, joined ByteDance in 2025 to lead foundational AI research, and Steven Hoi, a former Vice President at Salesforce and founding head of Salesforce Research Asia, joined Alibaba to strengthen its large-model research capabilities.[146]

But structural investments in domestic talent cultivation that China's AI elite now view as a self-reinforcing competitive advantage. The paradigm has shifted from "recruiting returnees" to "growing our own."

The Acknowledged Weakness: Transformative Innovation

Yet Chinese AI elites are candid about a persistent cultural and institutional weakness: a relative deficit of transformative, paradigm-shifting innovation. The talent pipeline excels at executing within proven technical frameworks – "from 1 to 100" – but is less effective at establishing the new paradigms themselves, the "0 to 1" frontier research that defines the next era of AI.[147] In discussing China's research culture, Lin Junyang, former Alibaba Qwen lead, acknowledged that because of these deficiencies, along with compute constraints, the probability of any Chinese company surpassing the U.S. in AI within three to five years is approximately 20%.

> ***"What China may still lack is enough people willing to break new paradigms or take very risky bets. In China, everyone prefers doing safer things. If a paradigm is proven, we have confidence to figure it out—but exploring unknowns is difficult."***
>
> ***— Yao Shunyu, Chief AI Scientist, Tencent (formerly of OpenAI).[148]***

This weakness is echoed by many Chinese industry leaders: China's economic environment rewards execution over exploration; its academic culture is still oriented toward benchmark competition; and its business climate has less tolerance for the multi-year timelines that foundational research requires.[149] Beijing is aware of the constraint. Reforming evaluation systems to de-emphasize leaderboard rankings, supporting high-risk long-horizon research through national funds, and attracting global frontier researchers through the "K visa" program launched in late 2025 represent explicit efforts to address it.

2.6 Financing: Patient State Capital and the Pragmatic Market

> ***"Without an ecosystem, even the best chips are just expensive sand."***
> ***– Andy Kung, Founding Managing Partner of CTC Capital, a Chinese VC firm.[150]***

China's AI elites and policymakers acknowledge that a key constraint of Chinese funding of AI is the inability to compete directly with the United States in terms of scale of investment.[151] U.S. private sector funding

Government Financing

of AI of $109.1 billion in 2024 dwarfed China's $9.3 billion by a factor of twelve.[152] Even adding publicly available Chinese government investment on top of private funding still falls below the scale of promised U.S. private investment.[153]

Relying on its industrial policy playbook, Beijing is using state funding to advance AI development and its designated strategic applications, including dual-use capabilities.[154] Beijing is applying its financing architecture that leverages the state's capacity for long-horizon capital allocation. Notably, in addition to loans, grants, and other local and central government funding, China has used government guidance funds (GGFs), or government venture capital, to signal priority sectors, crowd-in private capital, and sustain development in areas like foundational compute and early-stage model research where private markets are inadequate. In the first three quarters of 2025, in the venture capital market, there were 2,735 investment cases in China reaching a total of RMB 106.51 billion.[155]

> ***"Government investment funds play a leveraging role of 'four ounces deflecting a thousand pounds' over private capital."***
> ***– People's Daily.***[156]

As China's People's Daily notes, government investment plays a role of "four ounces deflecting a thousand pounds," in this context meaning the use of a small amount of government capital to attract significant private investment. China's public sector AI financing operates as an industrial driver, establishing multiple funds with distinct investment mandates and entrusts them to professional fund managers. One example is the National Artificial Intelligence Industry Investment Fund, established in January 2025 at RMB 60.06 billion, backed by the third phase of the National Integrated Circuit Industry Investment Fund ("Big Fund III").[157]

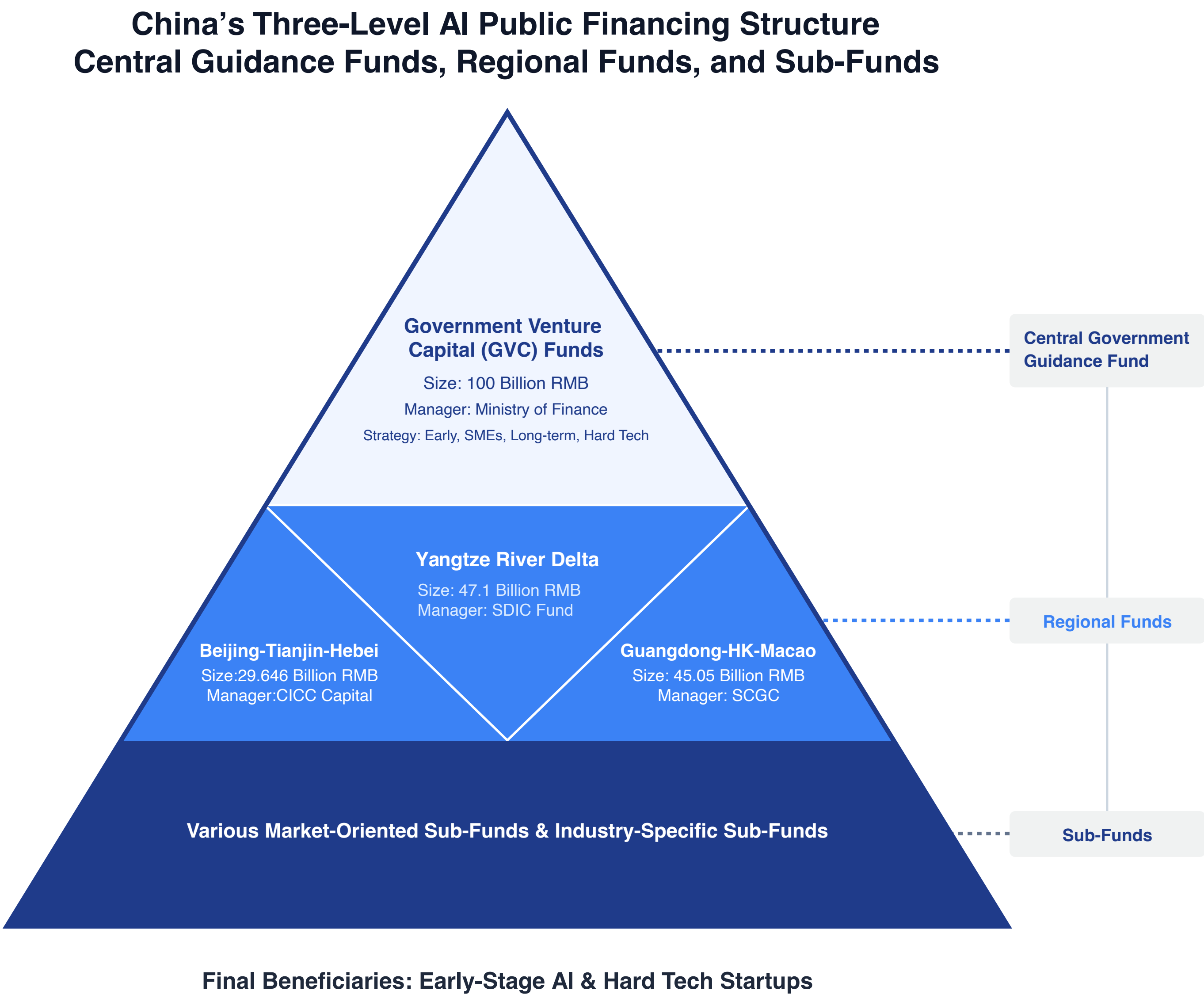
A key part of China's AI strategy is its use of GGFs, which have been described as the "financial backbone of China's financial statecraft" in directing private capital and accelerating the development of priority industries.[158] At the end of 2025, the Ministry of Finance established a RMB 100 billion National Venture Capital Guidance Fund emphasizing early-stage, hard-tech enterprises with long-term development mandates rather than short-term profitability requirements.[159]

The Guidance Fund operates through a three-tier structure: with a national fund at the top, followed by regional funds, with industry-specific sub-funds at the bottom. Regional funds are located in three technologically advanced regions: Beijing–Tianjin–Hebei (RMB 29.646 billion), the Yangtze River Delta (RMB 47.1 billion), and the Guangdong–Hong Kong–Macao Greater Bay Area (RMB 45.05 billion).[160] These regional funds form a hub-and-spoke system, working with sub-funds and industry funds to distribute capital to "early-stage, small-scale, long-term, and hard-tech industries."[161] This aligns with past GGF models which distribute money across the country including in poorer regions, while private VC firms cluster in rich areas.[162] The structure is designed to combine national signaling with regional implementation, attracting follow-on private investment by demonstrating state confidence in priority sectors. Research shows that this approach has worked. A Stanford study found that 71 percent of AI firms that received both public and private investment saw government investment first followed by private investment.[163]

Beyond the National Venture Capital Guidance Fund's focus on early-stage firms, numerous centrally administered and local state-owned capital entities have actively participated in AI chip financing. For example, China Chengtong Holdings Group, a State Council-backed asset management state-owned enterprise (SOE) focusing on SOE reform and national strategic technology industries, has invested in Moore Threads and MetaX, strongly supporting their IPO efforts.[164] At the local level, the Guozhi Investment Private Equity Fund, backed by the Shanghai State-owned Assets Supervision and Administration Commission (SASAC), is an investor in the National AI Industry Investment Fund. Various local governments have established AI-related funds of their own.[165]

Figure 4. China's AI Public Financing Structure

(Source: Author adapted from National Development and Reform Commission.[166])



Private Investment

Although dwarfed by mammoth U.S. private investment, Chinese private investment in AI leads the rest of the world and is active across the AI stack, particularly downstream with AI models and applications. Government investment is more present upstream with chips and other capital-intensive infrastructure technologies.[167] China's model for private finance has key advantages and disadvantages.

In terms of advantages, first, China's open-source AI ecosystem arguably lowers capital risk. When trial-and-error costs are reduced through open models, private investors face lower barriers to entry and clearer paths to return. Second, China's cost-constraint culture forces earlier commercial discipline. Unlike U.S. tech giants which have been able to burn billions of dollars in cash despite lacking meaningful revenue pathways, Chinese firms face earlier monetization pressure, a constraint that drives the efficiency culture and cost optimization that underlies the "frugal stack." The price war dynamic, especially among AI model firms, drives companies to diffuse their models and seize market share as quickly as possible, hoping to turn a profit before capital runs dry.

Third, Chinese private investment plays a role in ecosystem building, helping to coordinate upstream-downstream supply chain connections.[168] China's chip design IPOs including MetaX and Moore Threads attracted significant private capital and retail investor interest; these IPOs were largely privately financed.[169] CTC Capital, a private VC firm, assisted MetaX in connecting with EDA firms, IP design companies, wafer fabs, and packaging and testing providers. CTC Capital has cultivated semiconductor equity investment for more than two decades, investing billions of dollars in nearly 180 semiconductor-related projects.[170] Andy Kung, the Founding Managing Partner of CTC Capital, stressed the importance of building an ecosystem for the AI industry, stating that "without an ecosystem, even the best chips are just expensive sand."[171] He argued that VC firms especially play an important role and should have a thorough understanding of the industry and exercise patience for its portfolio firms.

But not all model firms run on predominantly private capital. Zhipu maintains close ties with both Beijing municipal and central government authorities and was added to the U.S. BIS Entity List last year for allegedly assisting China's military AI research.[172] DeepSeek, on the other hand, is fully funded by its parent company, private hedge fund High-Flyer Quant,[173] and does not accept external investment. DeepSeek's structure allows the company to avoid short-term profitability pressures and focus exclusively on foundational model development and its goal of achieving AGI, making it an outlier among Chinese firms.[174]

Nevertheless, Chinese elites have recognized a weakness in its financing system. China's VC ecosystem has seen U.S. dollar-denominated fund withdrawal, cautious private appetite, and a preference for established firms over early-stage risk.[175] The National Development and Reform Commission has echoed the concern that private capital has supported well-established AI-related firms at the expense of early-stage startups.[176] Li Wei, Vice Dean and Professor of Economics at Cheung Kong Graduate School of Business in Beijing, argues that China must reform its VC ecosystem to give full play to China's limited financing options for AI. VC is the best financial vehicle for AI development, Li argues, superior to government grants and debt financing that carry greater balance sheet and macroeconomic risks.[177] Venture capital, which has the expertise for high-risk, high-potential investments, is the better way to allocate capital to AI firms.

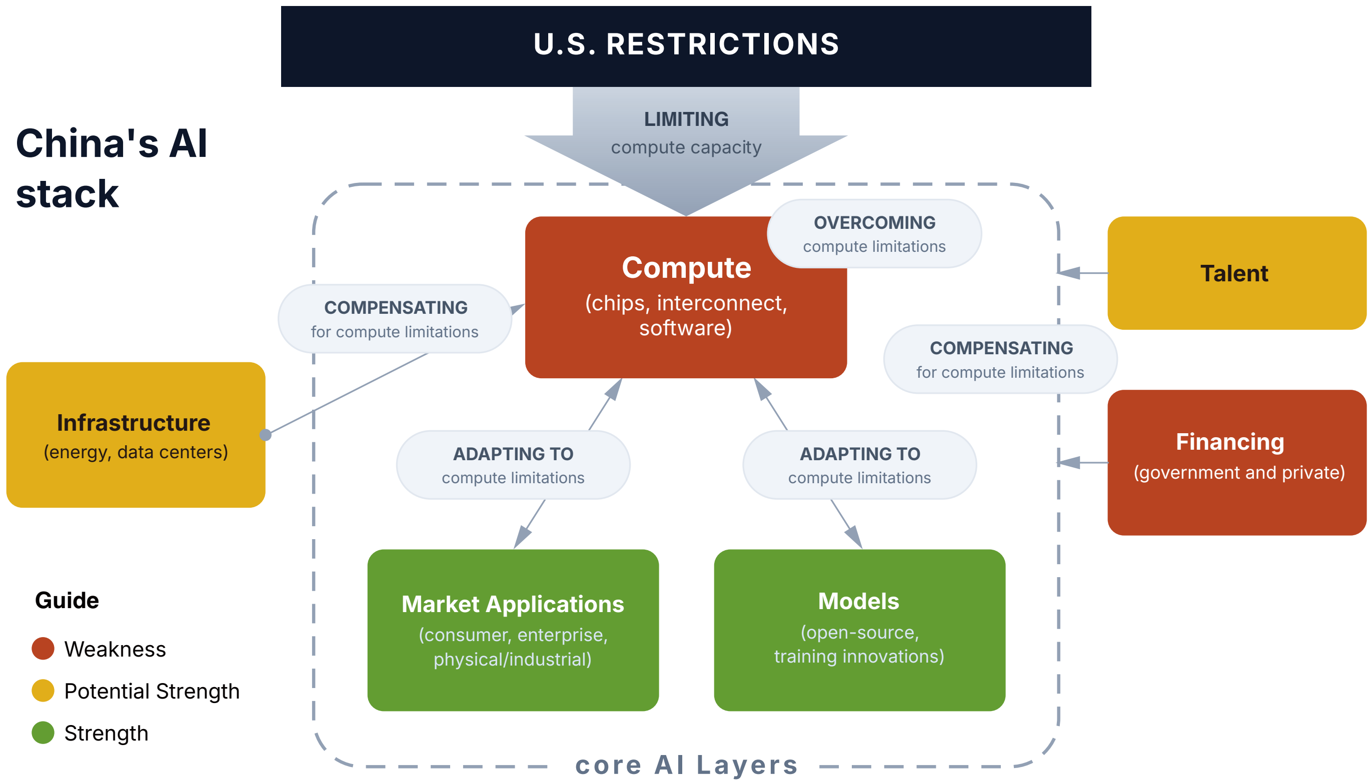
China's strategy for AI development relies on leveraging relatively limited state capital to guide private investment. Over the past year, AI-related capital has seen a flood of cash. To sustain this momentum, China's AI industry will need to increase self-reliance, particularly in chip manufacturing, and ensure that bottlenecks are eased across the AI stack to avoid untenable firm-level financial pressures.

Chapter 3

Policy Implications: Responding to the Four-Ounce Strategy

U.S. export controls have imposed real costs on China's compute capability and bought strategic time for U.S. AI development. But China continues to advance in its technological capability despite constraints. As Chinese actors pursue its "four ounces" strategy, China is attempting to overcome its AI weaknesses across the AI stack through nimble innovation under constraints, brute force, and sheer scale. Paradoxically, despite the moniker "four ounces against one thousand pounds," China's approaches are often neither elegant nor resource efficient. In each of these efforts, Chinese industry elites acknowledge the challenges they face.

Figure 5. Dynamics of China's "Four Ounces" Strategy
(Source: DSET compilation.)



Unlike the U.S. AI stack, where massive compute fuels the development of models and applications, in the Chinese AI stack, market applications and models adapt to accommodate the insufficiency of compute. In the supporting layers, infrastructure of energy and compute allocation is geared toward overcoming compute constraints, while talent cultivation and investment promotion strengthen all core sectors.

The insights gleaned from this discourse contain several policy implications that merit further study. Despite these shortcomings in the Chinese system, the United States and its allies should not underestimate China's AI power. Despite stringent U.S. export controls and trade measures, in 2026, China achieved a record trade surplus with the United States and has made progress in developing indigenous technological capabilities.[178]

Any effective allied response must therefore compete with China on the same battlegrounds. The United States cannot completely stop China's AI progress, but there is significant policy room for the U.S. and its allies to build up their own AI strengths and close loopholes in its export control enforcement. The below implications are targeted towards the United States but apply to allies as well.

1. Market Applications: Compete for the Ecosystem, Not Just the Frontier

If China has strengths in consumer AI and physical AI applications, the United States and its allies must work to ensure that it does not become a durable advantage. Analysts have posited that if the U.S. AI bubble bursts, the United States could cede the consumer market to China and "retreat" to a position of relative strength in defense and national security contracts.[179]

The United States should launch a moonshot funding program in physical AI to accelerate applications across use cases. In areas lacking a market incentive for private center investment, the United States and its allies should target government funding toward those areas.

As AI agent use accelerates, the U.S. government should also strengthen data protection and cross-border data transfer measures to prevent Chinese AI services from transferring sensitive data back to China. With the rise of AI agents, governments should actively monitor the ethical, privacy, and security concerns not only from domestic AI agent applications, but also those potentially originating from China.

2. Models: Balancing on an Open-Weight Strategy

Allied governments should restrict use of Chinese open-weight models in critical national security and critical infrastructure applications, while proactively cooperating on open-weight models, diffusing trusted models globally through preferential access programs for research institutions and universities in the Global South.

The U.S. should do more to educate industry on the risks of using Chinese open-source models.

3. Compute: Make Scarcity Persistent, Not Merely Temporary

Export controls on advanced chips have imposed real costs on Chinese AI development. But China's supernode and algorithmic optimization strategies demonstrate that compute constraints, while painful, are not fatal. The policy challenge is to make scarcity persistent, ensuring that China continues operating under meaningful resource constraints rather than adapting around them.

As reported by Anthropic and OpenAI, Chinese distillation attacks have played a significant role in building up China's model capabilities. DSET research has shown that this benefit has cascading positive externalities within China's AI ecosystem as firms use DeepSeek or MiniMax models as their backbone.[180]

Export controls on advanced GPUs should remain in place. But the AI landscape moves quickly, and the window for export control usefulness will close as China increasingly gains self-sufficiency in certain areas. This requires sustained focus on true chokepoints: advanced-process GPUs, high-bandwidth memory (HBM), high-speed interconnect technologies, and the manufacturing equipment that produces them.

BIS should regularly review export controls, beef up its intelligence collection and enforcement capabilities, and update licensing thresholds as technology advances.

Building off DSET's previous research on third-country data centers and remote compute access, the U.S. and its allies should take measures to increase transparency and prevent the use of third country data centers by Chinese firms. Measures should include the following: establish rules for data center verification and access to GPUs, strengthen investigation capacity for indirect GPU transfers, and launch an AI Infrastructure Partnership Framework 2.0.[181]

4. Infrastructure: Compete on Green Energy and Data Center Efficiency

The United States still owns most global computing power but is running into energy and water constraints. Negative externalities that impact local communities will also hinder infrastructure utilization. Policymakers should accelerate investments in next-generation energy and data center efficiency that maintain competitiveness in the energy-intensive AI compute race. Governments should also encourage compute power and AI infrastructure development through targeted tax incentives and subsidies.

Deepening integration between the energy-efficient compute infrastructure of allied economies and AI model training ecosystems would help preserve the aggregate compute advantage that underpins U.S. frontier model leadership.

Washington should also grapple with the public buy-in problem. Building more data centers which consume power and water is facing increasing backlash as AI skepticism in the English-speaking world grows. Compare this with China, where surveys show majorities support AI as a positive good.[182]

5.
Talent: Compete for Global STEM Talent Rather Than Restricting It

The reverse brain drain of Chinese AI talent from U.S. institutions and firms to Chinese companies represents an avoidable strategic loss. The U.S. should prioritize positive incentives for STEM talent retention: streamlined visa pathways, research funding, and competitive compensation structures that make remaining in the U.S. ecosystem attractive.

BIS should expand the U.S. persons rule under the Export Administration Regulations (EAR) to prohibit supporting the most sensitive areas of Chinese AI development. BIS should strengthen EAR enforcement and its open-source intelligence power to monitor potential infringement activities. These measures should be complemented by positive incentives to allow foreign talent to remain in the United States. The U.S. advantage in human capital is not a given and it must be actively cultivated.

6.
Financing: Develop Patient Capital Mechanisms for Long-Horizon AI R&D

China's state capital architecture allows it to sustain investment in foundational research and infrastructure with timelines that private capital markets cannot accommodate. The U.S. should develop analogous mechanisms through DARPA-style research funding, expanded CHIPS and Science Act programs, or public-private partnership structures that provide patient capital for long-horizon AI research.

The United States should not try to replicate China's state-led model, but should ensure that the U.S. innovation ecosystem does not cede foundational research to Beijing.

In addition, the U.S. should consider using outbound investment restrictions and tools like the non-SDN Chinese Military-Industrial Complex Companies List (the "NS-CMIC List") as a mechanism for stymieing investment into Chinese AI. The NS-CMIC list prohibits U.S. persons from transacting in the publicly traded securities of listed companies identified to be in China's military or surveillance sector. Other lists such as the Section 1260H can be used to target firms reputationally, impacting their ability to raise capital.

Chapter 4

Conclusion

China’s AI strategy is an asymmetric strategy designed to transform structural disadvantages into competitive leverage across five interconnected domains: market applications, compute, infrastructure, talent, and financing. The tai-chi principle of using four ounces to deflect one thousand pounds captures this strategic logic. Facing resource constraints under U.S. controls on advanced chips and related equipment, China has resorted to a strategy of leveraging all tools at its disposal to overcome these constraints, including cheap energy to sustain power-hungry supernode clusters, a massive STEM pipeline to compensate for a deficit in paradigm-breaking research, open-weight model diffusion to build ecosystem lock-in at the application layer; and patient state capital to sustain development in areas where private markets are inadequate.

None of this guarantees Chinese AI dominance. Lin Junyang’s estimate of a 20% probability of any Chinese firm surpassing the U.S. within five years shows doubts among China’s elite that genuine weaknesses remain in enterprise AI, transformative innovation culture, and advanced chip manufacturing. The U.S. retains real advantages in frontier model capabilities, talent depth, and innovation culture.

Nevertheless, China will remain a significant AI power that dominates industrial AI, controls the open-weight ecosystem, and builds a self-sustaining AI innovation environment. Proclamations that China has already won the AI race miss the highly complex and uneven nature of AI competition across multiple domains. But Western policymakers should neither underestimate China's pragmatic diffusion and the consequences of losing a critical lead in a humanity-defining technology.

References

1. Laurie Chen and Eduardo Baptista, "China's New Five-Year Plan Calls for AI throughout Its Economy, Tech Breakthroughs," Reuters, March 5, 2026, https://www.reuters.com/world/asia-pacific/china-vows-accelerate-technological-self-reliance-ai-push-2026-03-05/.

2. Bloomberg News, "China AI Leaders See US Lead Widening After $1 Billion IPO Week," Bloomberg News, January 10, 2026, https://www.bloomberg.com/news/articles/2026-01-10/china-ai-leaders-warn-of-widening-gap-with-us-after-1b-ipo-week.

3. Leikeji 雷科技 , " 字节 Seedance 2.0 火了，海外博主锐评：一周前我还在看好可灵 [ByteDance Seedance 2.0 Is a Hit, and Overseas Bloggers Are Commenting: 'Just a Week Ago I Was Optimistic about Keling...']," 36kr, March 13, 2026, https://36kr.com/p/3677500134715912; Eduardo Baptista, "China's ByteDance Releases Doubao 2.0 AI Model for 'Agent Era,'" Asia Pacific, Reuters, February 14, 2026, https://www.reuters.com/world/asia-pacific/chinas-bytedance-releases-doubao-20-ai-chatbot-2026-02-14/.

4. Baptista, "China's ByteDance Releases Doubao 2.0 AI Model for 'Agent Era.'"

5. Vincent Chow, "China's MiniMax Releases Cheap AI Model 'Designed for Real-World Productivity,'" South China Morning Post, February 13, 2026, https://www.scmp.com/tech/article/3343395/chinas-minimax-releases-cheap-ai-model-designed-real-world-productivity?module=top_story&pgtype=section.

6. Bloomberg News, "China's Moonshot Unveils New AI Model Ahead of DeepSeek Release," Bloomberg.Com, January 27, 2026, https://www.bloomberg.com/news/articles/2026-01-27/china-s-moonshot-unveils-new-ai-model-ahead-of-deepseek-release.

7. Eduardo Baptista, "Chinese AI Models Festoon Spring Festival a Year after DeepSeek Shock," Reuters, February 14, 2026, https://www.reuters.com/world/china/chinese-ai-models-festoon-spring-festival-year-after-deepseek-shock-2026-02-14/.

8. Bloomberg News, "China AI Leaders Warn of Widening Gap With US After $1B IPO Week," Bloomberg News, January 10, 2026, https://www.bloomberg.com/news/articles/2026-01-10/china-ai-leaders-warn-of-widening-gap-with-us-after-1b-ipo-week.

9. Eric Schmidt and Selina Xu, "Opinion | Silicon Valley Is Drifting Out of Touch With the Rest of America," The New York Times, August 19, 2025, https://www.nytimes.com/2025/08/19/opinion/artificial-general-intelligence-superintelligence.html.

10. Jared Cohen, "The Complicated Stakes of the U.S.-China AI Race," Time Magazine, February 19, 2026, https://time.com/7379419/ai-race-us-china/.

11. Kai-shen Huang, "China's 'Frugal Stack' and Its Path to AI Diffusion," The Diplomat, January 20, 2026, https://archive.is/5I7fe.

12. Chen Guoxiang 陈国祥 , " 中美 AI 发展各擅胜场，谁将胜出 [The US and China Each Have Their Strengths in AI Development; Who Will Emerge Victorious?]," Caixin, December 30, 2025, https://opinion.caixin.com/2025-12-30/102398672.html.

13. Josh Chin and Raffaele Huang, "China Has a Different Vision for AI. It Might Be Smarter.," Tech, Wall Street Journal, August 31, 2025, https://www.wsj.com/tech/ai/china-has-a-different-vision-for-ai-it-might-be-smarter-581f1e44; Patrick McGee, "China's Robots vs. America's Chatbots," The Free Press, January 14, 2026, https://www.thefp.com/p/chinas-robots-vs-americas-chatbots; Huang, "China's 'Frugal Stack' and Its Path to AI Diffusion"; Colin H. Kahl, "The Myth of the AI Race," Foreign Affairs, January 12, 2026, https://www.foreignaffairs.com/united-states/myth-ai-race.

14. Alex Colville, "Hundred Model War," China Media Project, July 15, 2024, https://chinamediaproject.org/the_ccp_dictionary/hundred-model-war/; CommonWealth Magazine, host, 全球 AI 競爭態勢激烈，中國如何另闢蹊徑？ ft. 林旅強、陳欣怡 [The Global AI Competition Is Fierce; How Can China Find a Unique Path? (Ft. Lin Lüqiang, Chen Xinyi)], episode 67, 阿榕伯胡說科技 [Arongbo's Nonsense Technology], January 8, 2026, https://www.youtube.com/watch?v=HEXz2GDPk38.

15. Saibochanxin 赛博禅心 , " 独家实录｜唐杰、杨植麟、林俊旸、姚顺雨 ...All Star 对话上，大家聊了啥？ [Exclusive Transcript | What Did Tang Jie, Yang Zhilin, Lin Junyang, Yao Shunyu... All Stars Talk About?]," WeChat Public Account, January 10, 2026, https://mp.weixin.qq.com/s/bfTbsnItuyr_k-w3XlejOg.

16. Eleanor Olcott, "01.Ai's Kai-Fu Lee: Why China Will Beat the US in Consumer AI," Artificial Intelligence, Financial Times, February 4, 2026, https://www.ft.com/content/5d71bb69-25e0-4425-8ac8-635b7a8abb68.

17. Olcott, "01.Ai's Kai-Fu Lee."

18. Ryan McMorrow and Zijing Wu, "TikTok's Chinese Owner Plans $23bn AI Spend to Keep Pace with US Rivals," Artificial Intelligence, Financial Times, December 23, 2025, https://www.ft.com/content/9f550bb6-5708-41e3-aef6-ce8d7bb405ad; Catherine Thorbecke, "ByteDance's TikTok Playbook Is Winning Consumer AI," Bloomberg News, November 30, 2025, https://www.bloomberg.com/opinion/articles/2025-11-30/bytedance-s-tiktok-playbook-is-winning-consumer-ai.

19. Irene Zhang et al., "The All-Star Chinese AI Conversation of 2026," ChinaTalk, January 14, 2026, https://www.chinatalk.media/p/the-all-star-chinese-ai-conversation.

20. Vlad Savov, "Qualcomm CEO Predicts 2026 Will Be the Year of the AI Agent," Bloomberg.Com, March 3, 2026, https://www.bloomberg.com/news/articles/2026-03-03/ai-agents-will-supplant-phones-as-digital-hub-qualcomm-ceo-says.

21. Baptista, "China's ByteDance Releases Doubao 2.0 AI Model for 'Agent Era.'"

22. Cissy Zhou, "China Firms Launch OpenClaw Rivals as Beijing Warns against Viral AI Agent," Nikkei Asia, accessed March 16, 2026, https://asia.nikkei.com/business/technology/artificial-intelligence/china-firms-launch-openclaw-rivals-as-beijing-warns-against-viral-ai-agent.

23. Poe Zhao, "OpenClaw Did Not Just Go Viral in China, It Solved a Structural Problem.," Hello China Tech, March 9, 2026, https://hellochinatech.com/p/openclaw-china-ai-stack.

24. CommonWealth Magazine, 全球 AI 競爭態勢激烈，中國如何另闢蹊徑？ ft. 林旅強、陳欣怡 [The Global AI Competition Is Fierce; How Can China Find a Unique Path? (Ft. Lin Lüqiang, Chen Xinyi)].

25. Goldman Sachs, "China's AI Providers Expected to Invest $70 Billion in Data Centers amid Overseas Expansion," Goldman Sachs, November 3, 2025, https://www.goldmansachs.com/insights/articles/chinas-ai-providers-expected-to-invest-70-billion-dollars-in-data-centers-amid-overseas-expansion.

26. IMD World Competitiveness Center, "World Digital Competitiveness Ranking 2025," IMD, November 3, 2025, https://www.imd.org/centers/wcc/world-competitiveness-center/rankings/world-digital-competitiveness-ranking/.

27. CommonWealth Magazine, 全球 AI 競爭態勢激烈，中國如何另闢蹊徑？ ft. 林旅強、陳欣怡 [The Global AI Competition Is Fierce; How Can China Find a Unique Path? (Ft. Lin Lüqiang, Chen Xinyi)].

28. Accenture, " 构建数字核心，推进全面重塑 [Building a digital core to drive comprehensive transformation]," Accenture, October 18, 2024, https://www.accenture.cn/cn-zh/insights/technology/reinventing-digital-core.

29. Zhu Yuhuan 祝宇欢 and Liu Peilin 刘沛林 , " 埃森哲：中国企业应意识到数字化转型是整体战略 [Accenture: Chinese Companies Should Realize That Digital Transformation Is an Integral Part of Their Overall Strategy]," Caixin, September 14, 2023, https://m.caixin.com/m/2023-09-14/102103595.html.

30. Saibochanxin 赛博禅心 , " 独家实录｜唐杰、杨植麟、林俊旸、姚顺雨 ...All Star 对话上，大家聊了啥？ [Exclusive Transcript | What Did Tang Jie, Yang Zhilin, Lin Junyang, Yao Shunyu... All Stars Talk About?]," January 10, 2026.

31. Saibochanxin 赛博禅心 , " 独家实录｜唐杰、杨植麟、林俊旸、姚顺雨 ...All Star 对话上，大家聊了啥？ [Exclusive Transcript | What Did Tang Jie, Yang Zhilin, Lin Junyang, Yao Shunyu... All Stars Talk About?]," January 10, 2026.

32. Zhang Pinxuan 張品萱 , "AI 太貴不好入手？ 中國政府做靠山發「算力券」," DIGITIMES, September 1, 2025, https://www.digitimes.com.tw/tech/dt/n/shwnws.asp?cnlid=1&id=0000731215_FHI1UN7D2623OQ487O2OU.

33. International Federation of Robotics (IFR), "World Robotics 2025 Report - Industrial Robots," International Federation of Robotics (IFR), September 25, 2025, https://ifr.org/ifr-press-releases/news/global-robot-demand-in-factories-doubles-over-10-years.

34. Linda Han, "All Intelligence: Reshaping Core Production Systems in the Resources Industry," Huawei, 2025, https://www.huawei.com/en/media-center/transform/23/01-linda-han.

35. Xiyu Chen, "China's AI-Driven Farming Offers Lessons for Emerging Markets, Syngenta Exec Says," Yicai Global, accessed March 16, 2026, https://www.yicaiglobal.com/news/chinas-ai-driven-farming-offers-lessons-for-emerging-markets-syngenta-exec-says.

36. Li Wei 李偉 , " 中美 AI 競爭，未來誰主沉浮？ [In the AI Competition between China and the US, Who Will Prevail in the Future?]," Financial Times, January 14, 2026, https://www.ftchinese.com/story/001108695.

37. Kyle Chan et al., Full Stack: China's Evolving Industrial Policy for AI (RAND Corporation, 2025), https://www.rand.org/pubs/perspectives/PEA4012-1.html.

38. William Hannas et al., "China's Embodied AI: A Path to AGI," Center for Security and Emerging Technology (CSET), December 2025, https://cset.georgetown.edu/publication/chinas-embodied-ai-a-path-to-agi/.

39. Gu Zhaowei 顾昭玮 , " 华兴资本王力行：中美 AI 私人资本投入存在 10 倍差距 [Wang Lixing of China Renaissance Capital: There Is a 10-Fold Gap in Private Capital Investment in AI between China and the US]," Caixin, November 9, 2025, https://m.caixin.com/m/2025-11-09/102380815.html.

40. Gu Zhaowei 顾昭玮 , " 华兴资本王力行：中美 AI 私人资本投入存在 10 倍差距 [Wang Lixing of China Renaissance Capital: There Is a 10-Fold Gap in Private Capital Investment in AI between China and the US]," November 9, 2025; Reuters, "What China's Priorities Mean for Industries, Companies," Reuters, March 5, 2025, https://www.reuters.com/world/asia-pacific/what-chinas-priorities-mean-industries-companies-2025-03-05/.

41. U.S.-China Economic and Security Review Commission, "2025 Annual Report to Congress," U.S.-China Economic and Security Review Commission, accessed March 16, 2026, https://www.uscc.gov/annual-report/2025-annual-report-congress.

42. Viola Zhou and Kinling Lo, "In Chinese Data Factories, Workers Teach Humanoid Robots Boring Tasks," Rest of World, January 7, 2026, https://restofworld.org/2026/china-robots-training-centers-workers/.

43. Saibochanxin 赛博禅心 , " 独家实录 | 唐杰、杨植麟、林俊旸、姚顺雨 ...All Star 对话上，大家聊了啥？ [Exclusive Transcript | What Did Tang Jie, Yang Zhilin, Lin Junyang, Yao Shunyu... All Stars Talk About?]," January 10, 2026.

44. Alibaba Cloud, "Alibaba Unveils AI Model to Significantly Reduce Diagnosis Time for Emergency Chest Pain," Alibaba Cloud Community, September 8, 2025, https://www.alibabacloud.com/blog/alibaba-unveils-ai-model-to-significantly-reduce-diagnosis-time-for-emergency-chest-pain_602523.

45. Baichuan-M3 Team et al., "Baichuan-M3: Modeling Clinical Inquiry for Reliable Medical Decision-Making," arXiv:2602.06570, preprint, arXiv, February 6, 2026, https://doi.org/10.48550/arXiv.2602.06570.

46. Tencent, "How AI Is Already Making Healthcare Better for Patients -- and Doctors," Tencent, July 9, 2025, https://www.tencent.com/en-us/articles/2202132.html.

47. Liu Bo, "Building 'Intelligent Brains + Intelligent Factories' for Mines," Huawei, 2025, https://www.huawei.com/en/media-center/transform/15-5/05-liubo-pangu-model.

48. Alibaba Cloud, "Alibaba Cloud's AI Models Power Real-World Applications Across Industries in China," Alibaba Cloud Community, April 15, 2025, https://www.alibabacloud.com/blog/alibaba-clouds-ai-models-power-real-world-applications-across-industries-in-china_602145.

49. Huawei, "Intelligent Manufacturing: Keeping a Sharper Eye on Industrial Quality Inspection with Smart Technologies," Huawei Enterprise, 2023, https://e.huawei.com/en/case-studies/industries/manufacturing/ai-quality-inspection-2023.

50. Alibaba Cloud, "Alibaba Cloud's AI Models Power Real-World Applications Across Industries in China."

51. Alibaba Cloud, "Alibaba Cloud's AI Models Power Real-World Applications Across Industries in China."

52. Han, "All Intelligence."

53. Han, "All Intelligence."

54. Alibaba Cloud, "From Models to Momentum: How Alibaba Turned Artificial Intelligence into a Real-World Utility in 2025," Alibaba Cloud Community, January 14, 2026, https://www.alibabacloud.com/blog/from-models-to-momentum-how-alibaba-turned-artificial-intelligence-into-a-real-world-utility-in-2025_602797.

55. Huawei Cloud 华为云 , " 福田区政数局，深化三个 ' 一 '，城市更有 'AI,'" Huawei Cloud, accessed March 16, 2026, https://www.huaweicloud.com/about/takeacloudleap2024/shenzhen-futian.html.

56. Shanghai Municipal Data Bureau, "' 单日数据处理量相当于全市公务员 10 年总和 '，大模型将给政府带来什么变化 ["The Amount of Data Processed in a Single Day Is Equivalent to the Total Amount Processed by All Civil Servants in the City over 10 Years." What Changes Will This Large-Scale Model Bring to the Government?]," Shanghai Government, February 24, 2025, https://www.shanghai.gov.cn/nw31406/20250815/898a8462801c4a13a99b2ce2ef10e8f2.html?utm_source=chatgpt.com.

57. Artificial Analysis, "LLM Leaderboard - Comparison of over 100 AI Models from OpenAI, Google, DeepSeek & Others," Artificial Analysis, March 16, 2026, https://artificialanalysis.ai/leaderboards/models.

58. Rebecca Arcesati and Caroline Meinhardt, "China Bets on Open-Source Technologies to Boost Domestic Innovation," MERICS, May 19, 2021, https://merics.org/en/report/china-bets-open-source-technologies-boost-domestic-innovation.

59. Guy Ward-Jackson et al., "Open Source: How Middle Powers Can Build Influence in the Age of AI," Tony Blair Institute for Global Change, February 9, 2026, https://institute.global/insights/tech-and-digitalisation/open-source-influence-age-of-ai.

60. Business Next 數位時代 , " 數位關鍵字 175. 揭開開源 AI 的迷思：開放原始碼與開放權重的認知拉鋸戰 [Digital Keyword 175. Unveiling the Myths of Open Source AI: The Cognitive Tug-of-War Between Open Source and Open Weights]," Business Next 數位時代 , February 15, 2025, https://www.bnext.com.tw/podcast/763/bn-sound-20250215100642-ecedas8s.

61. Chen Guoxiang 陈国祥 , " 中美 AI 发展各擅胜场，谁将胜出 [The US and China Each Have Their Strengths in AI Development; Who Will Emerge Victorious?]"; Li Wei 李偉 , " 中美 AI 競爭，未來誰主沉浮？ [In the AI Competition between China and the US, Who Will Prevail in the Future?]," January 14, 2026.

62. Lv Qian, "ByteDance's Volcano Engine Starts Price War in China's Enterprise LLMs Sector," Yicai Global, May 16, 2024, https://www.yicaiglobal.com/news/bytedances-volcano-engine-starts-price-war-in-chinas-enterprise-llms-sector; Alex Irwin-Hunt, "US–China AI Model Costs Diverge," FDI Intelligence, December 10, 2025, https://www.fdiintelligence.com/content/2307db46-ba73-4fd9-8ba2-31365c14e06b.

63. Bloomberg News, "China's Zhipu Says AI Price War Will Spread Internationally," Bloomberg News, January 8, 2026, https://www.bloomberg.com/news/articles/2026-01-08/china-s-zhipu-says-ai-price-war-will-spread-internationally.

64. Thought Lab with Guowei [知識長國威‧思想實驗室 Podcast], host, AI 排行榜大逆轉！中國靠「開源」武器彎道超車，美國的晶片封鎖為何失效？ ft. 林旅強 Richard& 陳欣怡 Lucy [A Dramatic Reversal in AI Rankings! China Overtakes the Competition with "Open Source" Weapons; Why Has the US Chip Blockade Failed? Ft. Richard Lin & Lucy Chen], episode 59, August 23, 2025, 55:24, https://www.youtube.com/watch?v=ByUBzBBqs9g.

65. Thought Lab with Guowei [知識長國威‧思想實驗室 Podcast], host, AI 人才戰揭秘：中國「國家級養才」對決矽谷虹吸！台灣的棋局該怎麼下？ ft.Richard&Lucy, episode 35, May 28, 2025, 47:07, https://www.youtube.com/watch?v=-ivAQr4jUqU.

66. Liu Jia 刘佳 , " 免费了，开源了，百度李彦宏为什么变了？ [Why Has Robin Li, the Founder of Baidu, Changed His Tune? The Company Has Made It Free and Open-Source.]," Yicai, February 14, 2025, https://www.yicai.com/news/102472941.html.

67. Artificial Analysis, "LLM Leaderboard - Comparison of over 100 AI Models from OpenAI, Google, DeepSeek & Others."

68. Eunice Xu, "Chinese Open-Source Models Account for 30% of Global AI Use: Report," South China Morning Post, December 8, 2025, https://www.scmp.com/tech/tech-trends/article/3335602/chinas-open-source-models-make-30-global-ai-usage-led-qwen-and-deepseek.

69. Shayne Longpre et al., "Economies of Open Intelligence: Tracing Power & Participation in the Model Ecosystem," arXiv.Org, November 27, 2025, https://arxiv.org/abs/2512.03073v1.

70. Kuaikeji heibai 快科技 黑白 , " 中国 AI 模型崛起！已拿下全球 15% 份额：一年前才 1% [Chinese AI Models Are on the Rise! They Have Captured 15% of the Global Market Share, Compared to Only 1% a Year Ago.]," C114, January 19, 2026, https://www.c114.com.cn/ai/5339/a1304162.html; Nikkei staff writers, "Alibaba's Qwen Is Foundation for More and More Japanese AI Models," Nikkei Asia, May 6, 2025, https://asia.nikkei.com/business/technology/artificial-intelligence/alibaba-s-qwen-is-foundation-for-more-and-more-japanese-ai-models.

71. Ann Cao, "AI Singapore Picks Alibaba's Qwen to Drive New Regional Language Model," South China Morning Post, November 25, 2025, https://www.scmp.com/tech/big-tech/article/3334098/singapore-picks-alibabas-qwen-drive-regional-language-model-big-win-china-tech.

72. The Economist, "China Is Quietly Upstaging America with Its Open Models," The Economist, August 21, 2025, https://www.economist.com/business/2025/08/21/china-is-quietly-upstaging-america-with-its-open-models.

73. Samantha Subin, "Airbnb CEO Chesky Says ChatGPT Isn't 'quite Robust Enough' to Integrate into Travel App," CNBC, October 22, 2025, https://www.cnbc.com/2025/10/22/airbnb-chatgpt-ai-chesky.html.

74. Liu Jia 刘佳 , " 免费了，开源了，百度李彦宏为什么变了？ [Why Has Robin Li, the Founder of Baidu, Changed His Tune? The Company Has Made It Free and Open-Source.]," Yicai, February 14, 2025, https://www.yicai.com/news/102472941.html.

75. Saibochanxin 赛博禅心 , " 独家实录 | 唐杰、杨植麟、林俊旸、姚顺雨 ...All Star 对话上，大家聊了啥？ [Exclusive Transcript | What Did Tang Jie, Yang Zhilin, Lin Junyang, Yao Shunyu... All Stars Talk About?]," WeChat Public Account, January 10, 2026, https://mp.weixin.qq.com/s/bfTbsnItuyr_k-w3XIejOg.

76. Saibochanxin 赛博禅心 , " 独家实录 | 唐杰、杨植麟、林俊旸、姚顺雨 ...All Star 对话上，大家聊了啥？ [Exclusive Transcript | What Did Tang Jie, Yang Zhilin, Lin Junyang, Yao Shunyu... All Stars Talk About?]," January 10, 2026.

77. Xin Cheng et al., "Conditional Memory via Scalable Lookup: A New Axis of Sparsity for Large Language Models," arXiv:2601.07372, preprint, arXiv, January 12, 2026, https://doi.org/10.48550/arXiv.2601.07372; Sean Michael Kerner, "DeepSeek's Conditional Memory Fixes Silent LLM Waste: GPU Cycles Lost to Static Lookups," Venturebeat, January 13, 2026, https://venturebeat.com/data/deepseeks-conditional-memory-fixes-silent-llm-waste-gpu-cycles-lost-to.

78. IT 之家 , " 中国联通发布全球最长距离大模型异构混训成果：超 1500 公里跨域，仅损失不到 5% 算力 [China Unicom Released the Results of the World's Longest-Distance Heterogeneous Mixed Training of a Large-Scale Model: Over 1,500 Kilometers across Domains, with a Loss of Less than 5% of Computing Power.]," Sina, July 20, 2025, https://finance.sina.com.cn/tech/digi/2025-07-20/doc-infharpa6091335.shtml.

79. Alibaba Cloud, "Alibaba Qwen Wins 'NeurIPS 2025 Best Paper Award' for Breakthrough in Attention Mechanisms," Alibaba Cloud Community, December 1, 2025, https://www.alibabacloud.com/blog/alibaba-qwen-wins-%E2%80%9Cneurips-2025-best-paper-award%E2%80%9D-for-breakthrough-in-attention-mechanisms_602708.

80. Cade Metz, "Anthropic Accuses 3 Chinese Companies of Harvesting Its Data," Technology, The New York Times, February 23, 2026, https://www.nytimes.com/2026/02/23/technology/anthropic-chinese-startups-distillation.html; Anthropic, "Detecting and Preventing Distillation Attacks," Anthropic, February 23, 2026, https://www.anthropic.com/news/detecting-and-preventing-distillation-attacks.

81. Anthropic, "Detecting and Preventing Distillation Attacks," Anthropic, February 23, 2026, https://www.anthropic.com/news/detecting-and-preventing-distillation-attacks.

82. Huang Kai-Shen, "China's AI 'Distillation Cascade' Is Hiding in the Open," Research Institute for Democracy, Society and Emerging Technology (DSET), March 2026, dset.tw.

83. Hu Jian and Chen Jiaxing, "The More Open the Country, the More It Will Drive Our Progress: Ren Zhengfei Speaks to People's Daily," Global Times, June 10, 2025, https://www.globaltimes.cn/page/202506/1335800.shtml.

84. Konstantin F. Pilz et al., "The US Hosts the Majority of GPU Cluster Performance, Followed by China," Epoch AI, June 5, 2025, https://epoch.ai/data-insights/ai-supercomputers-performance-share-by-country.

85. Li Jin 李晋 , " 魏少军：得算力者得天下，中国 AI 的自主 ' 芯 ' 征程 - 国际电子商情 [Wei Shaojun: He Who Controls Computing Power Controls the World: China's Journey towards Independent AI Chip Development - International Electronic Business Information]," ESM China, November 25, 2025, https://www.esmchina.com/news/13693.html.

86. Zhang et al., "The All-Star Chinese AI Conversation of 2026."

87. Zhang et al., "The All-Star Chinese AI Conversation of 2026."

88. Huawei, "Huawei Unveils World's Most Powerful SuperPoDs and SuperClusters," Huawei, September 18, 2025, https://www.huawei.com/en/news/2025/9/hc-lingqu-ai-superpod.

89. Peng, "China's AI Chip Race: Tech Giants Challenge Nvidia," IEEE Spectrum, November 13, 2025, https://recodechinaai.substack.com/p/who-will-fill-nvidias-ai-chip-void.

90. Dylan Butts, "China's AI Chip Firms Are Going Public Fast. But Its Crown Jewel Is Staying Private," CNBC, January 15, 2026, https://www.cnbc.com/2026/01/15/china-ai-chips-ipos-huawei-hisilicon-nvidia-rivals-biren-metax-moore-threads-smic.html.

91. Hu Jian and Chen Jiaxing, "The More Open the Country, the More It Will Drive Our Progress."

92. Subin, "Airbnb CEO Chesky Says ChatGPT Isn't 'quite Robust Enough' to Integrate into Travel App"; Michael Spencer and Saipo Zhao, "How China Built a Parallel AI Chip Universe in 18 Months," AI Supremacy (Substack), October 20, 2025, https://www.ai-supremacy.com/p/how-china-built-a-parallel-ai-chip-ecosystem-semiconductors-huawei-ai; Luke James, "China's GPU Cloud Consolidates around Baidu and Huawei as Domestic AI Chips Scale up — Export Controls Leave Gap Open for Homegrown Solutions," Tom's Hardware, January 6, 2026, https://www.tomshardware.com/tech-industry/chinas-gpu-cloud-consolidates-around-baidu-and-huawei-as-domestic-ai-chips-scale-up.

93. Ni Yuqing 倪雨晴 , " 徐直军谈华为 AI：核心战略就是 ' 超节点 + 集群 ' [Xu Zhijun Discusses Huawei's AI Strategy: The Core Strategy Is 'Supernodes + Clusters']," 21st Century Business Herald, September 22, 2025, https://www.21jingji.com/article/20250922/herald/6bd894e021bf0d45c75b539de95b89ed.html.

94. Daniel Levi, "Huawei's Ascend 910C-Powered System Reportedly Outperforms Nvidia's H100 on Key Metrics - Tech Startups," Tech Startups, April 28, 2025, https://techstartups.com/2025/04/28/huaweis-ascend-910c-system-reportedly-outperforms-nvidias-h100-in-key-metrics/.

95. Dylan Patel, "Huawei AI CloudMatrix 384 – China's Answer to Nvidia GB200 NVL72," Semianalysis, April 16, 2025, https://newsletter.semianalysis.com/p/huawei-ai-cloudmatrix-384-chinas-answer-to-nvidia-gb200-nvl72.

96. Huawei, " 以开创的超节点互联技术，引领 AI 基础设施新范式 [Leading a new paradigm for AI infrastructure with pioneering supernode interconnection technology.]," Huawei, September 18, 2025, https://www.huawei.com/cn/news/2025/9/hc-xu-keynote-speech.

97. Leifeng Wang 雷峰网 , " 八位 AI 算力 CEO：2026，算力旧规则正在作废 [Eight AI computing power CEOs: In 2026, the old rules for computing power will be abolished.]," Sina Finance, February 24, 2026, https://finance.sina.cn/stock/jdts/2026-02-24/detail-inhnxnun2992519.d.html.

98. Xianzao Ketang 鲜枣课堂 , " 阿里、腾讯、华为、百度的最新 AI 算力架构动态 [Latest AI Computing Architecture Updates from Alibaba, Tencent, Huawei, and Baidu]," Xueqiu.Com, January 29, 2026, https://xueqiu.com/7282046183/373867785.

99. Leifeng Wang 雷峰网 , " 八位 AI 算力 CEO：2026，算力旧规则正在作废 [Eight AI computing power CEOs: In 2026, the old rules for computing power will be abolished.]."

100. Ni Yuqing 倪雨晴 , " 徐直军谈华为 AI：核心战略就是 ' 超节点 + 集群 ' [Xu Zhijun Discusses Huawei's AI Strategy: The Core Strategy Is 'Supernodes + Clusters']."

101. Gu Shuren 辜樹仁 and Lin Yi-hsuan 林以璿 , " 冰山下的生態系戰爭　黃仁勳的憂慮成真？ [The Ecosystem Wars Beneath the Iceberg: Jensen Huang's Worries Come True?]," CommonWealth Magazine, September 3, 2025, https://www.cw.com.tw/article/5137174.

102. Anton Shilov, "Nvidia Bans Using Translation Layers for CUDA Software — Previously the Prohibition Was Only Listed in the Online EULA, Now Included in Installed Files [Updated]," Tom's Hardware, March 5, 2024, https://www.tomshardware.com/pc-components/gpus/nvidia-bans-using-translation-layers-for-cuda-software-to-run-on-other-chips-new-restriction-apparently-targets-zluda-and-some-chinese-gpu-makers.

103. Nvidia, "What Is PyTorch?," Nvidia, March 16, 2026, https://www.nvidia.com/en-us/glossary/pytorch/.

104. Lily Ottinger and Mary Clare McMahon, "Can Huawei Take On Nvidia's CUDA?," ChinaTalk, October 7, 2025, https://www.chinatalk.media/p/can-huawei-compete-with-cuda.

105. Li Jin 李晋 , " 魏少军：得算力者得天下，中国 AI 的自主 ' 芯 ' 征程 - 国际电子商情 [Wei Shaojun: He Who Controls Computing Power Controls the World: China's Journey towards Independent AI Chip Development - International Electronic Business Information]."

106. Wendy Chang et al., "China's Drive toward Self-Reliance in Artificial Intelligence: From Chips to Large Language Models," MERICS, July 22, 2025, https://merics.org/en/report/chinas-drive-toward-self-reliance-artificial-intelligence-chips-large-language-models; Anton Shilov, "China's Hybrid-Bonded AI Accelerators Could Rival Nvidia's Blackwell GPUs — Top Semiconductor Expert Hints at 'Fully Controllable Domestic Solution,'" Tom's Hardware, November 27, 2025, https://www.tomshardware.com/tech-industry/artificial-intelligence/chinas-hybrid-bonded-ai-accelerators-could-rival-nvidias-blackwell-gpus-top-semiconductor-expert-hints-at-fully-controllable-domestic-solution.

107. Gu Shuren 辜樹仁 and Lin Yi-hsuan 林以璿 , " 冰山下的生態系戰爭　黃仁勳的憂慮成真？ [The Ecosystem Wars Beneath the Iceberg: Jensen Huang's Worries Come True?]."

108. Ni Yuqing 倪雨晴 , " 徐直军谈华为 AI：核心战略就是 ' 超节点 + 集群 ' [Xu Zhijun Discusses Huawei's AI Strategy: The Core Strategy Is 'Supernodes + Clusters']."

109. Jiqi zhixin 机器之心 , "「从追赶者到引领者，路有多远？」 我们和 CANN 一线开发者聊了聊 ["How Far Is the Road from Follower to Leader?" We Talked with Frontline Developers at CANN.]," Sina Finance, September 28, 2025, https://finance.sina.com.cn/roll/2025-09-28/doc-infrzpzt2900401.shtml.

110. Jiqi zhixin 机器之心 , "「从追赶者到引领者，路有多远？」 我们和 CANN 一线开发者聊了聊 ["How Far Is the Road from Follower to Leader?" We Talked with Frontline Developers at CANN.]."

111. Ni Yuqing 倪雨晴 , " 徐直军谈华为 AI：核心战略就是 ' 超节点 + 集群 ' [Xu Zhijun Discusses Huawei's AI Strategy: The Core Strategy Is 'Supernodes + Clusters']."

112. Ottinger and McMahon, "Can Huawei Take On Nvidia's CUDA?"

113. Gregory C. Allen, "DeepSeek, Huawei, Export Controls, and the Future of the U.S.-China AI Race," Center for Strategic and International Studies (CSIS), March 7, 2025, https://www.csis.org/analysis/deepseek-huawei-export-controls-and-future-us-china-ai-race.

114. Eleanor Olcott and Zijing Wu, "DeepSeek's next AI Model Delayed by Attempt to Use Chinese Chips," DeepSeek, Financial Times, August 14, 2025, https://www.ft.com/content/eb984646-6320-4bfe-a78d-a1da2274b092.

115. Vincent Chow, "Zhipu AI Breaks US Chip Reliance with First Major Model Trained on Huawei Stack," South China Morning Post, January 14, 2026, https://www.scmp.com/tech/tech-war/article/3339869/zhipu-ai-breaks-us-chip-reliance-first-major-model-trained-huawei-stack; Xinmei Shen, "China's iFlytek Touts Reasoning Model Trained Entirely with Huawei's AI Chips," South China Morning Post, April 23, 2025, https://www.scmp.com/tech/big-tech/article/3307493/no-need-nvidia-iflytek-touts-reasoning-model-trained-entirely-huaweis-ai-chips.

116. Luke James, "Alibaba and ByteDance Allegedly Train Qwen and Doubao LLMs Using Nvidia Chips, despite Export Controls — Southeast Asian Data Center Leases Skirt around U.S. Chip Restrictions," Tom's Hardware, November 27, 2025, https://www.tomshardware.com/tech-industry/semiconductors/chinas-top-ai-firms-shift-model-training-overseas-to-access-nvidia-gpus.

117. Saibochanxin 赛博禅心 , " 独家实录 | 唐杰、杨植麟、林俊旸、姚顺雨 ...All Star 对话上，大家聊了啥？ [Exclusive Transcript | What Did Tang Jie, Yang Zhilin, Lin Junyang, Yao Shunyu... All Stars Talk About?]," January 10, 2026.

118. Leifeng Wang 雷峰网 , " 八位 AI 算力 CEO：2026，算力旧规则正在作废 [Eight AI computing power CEOs: In 2026, the old rules for computing power will be abolished.]."

119. Zijin Finance 紫金财经 , " 湾芯展 ' 人气王 ' 爆火背后：新凯来为什么能快速崛起？ [Behind the Popularity of SiCarrier as the 'King of Popularity' at the Bay Area Chip Exhibition: Why Has SiCarrier Been Able to Rise so Quickly?]," OFweek 电子工程网 , accessed March 16, 2026, https://ee.ofweek.com/2025-10/ART-8110-2800-30672348.html.

120. Li Wei 李偉 , " 中美 AI 競爭，未來誰主沉浮？ [In the AI Competition between China and the US, Who Will Prevail in the Future?]," Financial Times, January 14, 2026, https://www.ftchinese.com/story/001108695.

121. Li Wei 李偉 , " 中美 AI 競爭，未來誰主沉浮？ [In the AI Competition between China and the US, Who Will Prevail in the Future?]," January 14, 2026.

122. Our World in Data, "Total Electricity Generation," Our World in Data, January 26, 2026, https://ourworldindata.org/grapher/electricity-generation?tab=chart&country=USA~CHN.

123. National Computing Power Internet Service Platform 国家算力互联网服务平台 , "Home Page," National Computing Power Internet Service Platform 国家算力互联网服务平台 , accessed March 16, 2026, https://stateioc.cn/.

124. China Academy of Information and Communications Technology (CAICT), 算力互联网体系架构研究报告 [Research Report on the Architecture of Internet Computing Power] (China Academy of Information and Communications Technology (CAICT), 2026), https://pdf.dfcfw.com/pdf/H3_AP202601281818513941_1.pdf?1769635588000.pdf=.

125. Leifeng Wang 雷峰网 , " 八位 AI 算力 CEO：2026，算力旧规则正在作废 [Eight AI computing power CEOs: In 2026, the old rules for computing power will be abolished.]."

126. Shannon Vaughn, "From Vouchers to Visas: China's Innovative Plan for AI Dominance - Foreign Policy Research Institute," Foreign Policy Research Institute, September 10, 2025, https://www.fpri.org/article/2025/09/from-vouchers-to-visas-chinas-innovative-plan-for-ai-dominance/.

127. Wu Junyu 吴俊宇 , " 对话腾讯翟永平：AI 浪潮下，数据中心如何算电协同 [Interview with Tencent's Zhai Yongping: How Can Data Centers Coordinate Computing and Power in the AI Wave?]," Caijing, January 15, 2026, http://yuanchuang.caijing.com.cn/2026/0115/5136753.shtml.

128. Leifeng Wang 雷峰网 , " 八位 AI 算力 CEO：2026，算力旧规则正在作废 [Eight AI computing power CEOs: In 2026, the old rules for computing power will be abolished.]."

129. Caiwei Chen, "China Built Hundreds of AI Data Centers to Catch the AI Boom. Now Many Stand Unused.," MIT Technology Review, accessed March 16, 2026, https://www.technologyreview.com/2025/03/26/1113802/china-ai-data-centers-unused/.

130. Morgan Stanley Wealth Management Australia Investment Strategy and Solutions Team, "AI Enters a New Phase of Inference," Morgan Stanley Australia, 20251104, https://www.morganstanley.com.au/ideas/ai-enters-a-new-phase-of-inference.

131. Chen, "China Built Hundreds of AI Data Centers to Catch the AI Boom. Now Many Stand Unused."

132. Leifeng Wang 雷峰网 , " 八位 AI 算力 CEO：2026，算力旧规则正在作废 [Eight AI computing power CEOs: In 2026, the old rules for computing power will be abolished.]."

133. Chen Guoxiang 陈国祥 , " 中美 AI 发展各擅胜场，谁将胜出 [The US and China Each Have Their Strengths in AI Development; Who Will Emerge Victorious?]."

134. Yu Shaoqing 余绍清 and Zhang Tong 张同 , " 为什么烧钱救不了中国 AI ？ [Why Can't Burning Money Save China's AI?]," Caixin, September 19, 2025, https://saige.blog.caixin.com/archives/284153.

135. Lin Yi-hsuan 林以璿 , " 杭州直擊》養出 DeepSeek、黑悟空 背後推手是阿里和馬雲？ [Hangzhou Live Report: Are Alibaba and Jack Ma the driving forces behind DeepSeek and Black Wukong?]," CommonWealth Magazine 天下雜誌 , September 2, 2025, https://www.cw.com.tw/article/5137167.

136. Li Wei 李偉 , " 中美 AI 競爭，未來誰主沉浮？ [In the AI Competition between China and the US, Who Will Prevail in the Future?]," January 14, 2026.

137. Ryoko Shimonoya et al., "Graduates of Chinese Universities Drive AI Research in U.S.," Nikkei Asia, February 16, 2025, https://asia.nikkei.com/business/technology/artificial-intelligence/graduates-of-chinese-universities-drive-ai-research-in-u.s.

138. Wang Yuemei 王月眉 , “DeepSeek 的成功是中國教育的勝利嗎 [What DeepSeek’s Success Says About China’s Ability to Nurture Talent],” New York Times, February 10, 2025, https://cn.nytimes.com/china/20250210/china-deepseek-education/zh-hant/.

139. Lin Yi-hsuan 林以璿 , “ 杭州直擊》養出 DeepSeek、黑悟空 背後推手是阿里和馬雲？ [Hangzhou Live Report: Are Alibaba and Jack Ma the driving forces behind DeepSeek and Black Wukong?].”

140. Shen Pengda 沈朋達 , “ 科技制裁擋不住！深圳長出機器人谷，中國機器人進台積、富士康打工 [Technological Sanctions Can’t Stop It! A Robotics Valley Has Sprung up in Shenzhen, and Chinese Robots Are Working for TSMC and Foxconn.],” CommonWealth Magazine 天下雜誌 , September 2, 2025, https://www.cw.com.tw/article/5137168.

141. Beijing Academy of AI (BAAI) 智源研究院 , “Home Page,” Beijing Academy of AI (BAAI) 智源研究院 , accessed March 16, 2026, https://www.baai.ac.cn/zh-cn/; Sun Qiru 孙奇茹 , “‘ 全球大模型第一股 ’ 花落北京 - 清华大学 [The World’s First Large-Scale Model Stock Has Been Established in Beijing - Tsinghua University],” Beijing Daily, January 9, 2026, https://www.tsinghua.edu.cn/info/1182/123833.htm.

142. Gu Shuren 辜樹仁 , “ChatGPT 新「工業革命」 中國科技業教父：邊緣 AI 藏巨大潛力 ,” CommonWealth Magazine 天下雜誌 , July 21, 2025, https://www.cw.com.tw/article/5136481.

143. Zhiyuan Lanjie 智渊览界 , “ 阿里通义成 AI 的 ‘ 黄埔军校 ’ ！到底是阿里留不住人，还是牛人太抢手？ ,” 163.Com, May 11, 2025, https://www.163.com/dy/article/JVA9F1A205568MAA.html.

144. Shen Pengda 沈朋達 , “ 科技制裁擋不住！深圳長出機器人谷，中國機器人進台積、富士康打工 [Technological Sanctions Can’t Stop It! A Robotics Valley Has Sprung up in Shenzhen, and Chinese Robots Are Working for TSMC and Foxconn.].”

145. Yu Shaoqing 余绍清 and Zhang Tong 张同 , “ 为什么烧钱救不了中国 AI ？ [Why Can’t Burning Money Save China’s AI?].”

146. Fortune Insight, “ 全球 Top 1% AI 科學家許主洪加盟阿里巴巴 [Xu Zhuhong, one of the world’s top 1% AI scientists, joins Alibaba.],” Yahoo Finance, February 6, 2025, https://hk.finance.yahoo.com/news/%E8%B2%A1%E7%B6%93-%E5%85%A8%E7%90%83top-1-ai%E7%A7%91%E5%AD%B8%E5%AE%B6%E8%A8%B1%E4%B8%BB%E6%B4%AA%E5%8A%A0%E7%9B%9F%E9%98%BF%E9%87%8C%E5%B7%B4%E5%B7%B4-09988-024626508.html; 36kr, “ 揭秘苹果 AI 核心团队人才地图 [Unveiling Apple’s AI Core Team Talent Map],” 36kr 36 氪 , March 16, 2026, https://36kr.com/p/3382804218771464; Coco Feng, “Veteran Google AI Researcher Joins Chinese TikTok Owner ByteDance in Leadership Role | South China Morning Post,” South China Morning Post, February 18, 2025, https://www.scmp.com/tech/big-tech/article/3299146/veteran-google-ai-researcher-joins-tiktok-owner-bytedance-lead-foundational-research.

147. CommonWealth Magazine, 全球 AI 競爭態勢激烈，中國如何另闢蹊徑？ ft. 林旅強、陳欣怡 [The Global AI Competition Is Fierce; How Can China Find a Unique Path? (Ft. Lin Lüqiang, Chen Xinyi)].

148. Saibochanxin 赛博禅心 , “ 独家实录 | 唐杰、杨植麟、林俊旸、姚顺雨 ...All Star 对话上，大家聊了啥？ [Exclusive Transcript | What Did Tang Jie, Yang Zhilin, Lin Junyang, Yao Shunyu... All Stars Talk About?],” January 10, 2026.

149. CommonWealth Magazine, 全球 AI 競爭態勢激烈，中國如何另闢蹊徑？ ft. 林旅強、陳欣怡 [The Global AI Competition Is Fierce; How Can China Find a Unique Path? (Ft. Lin Lüqiang, Chen Xinyi)].

150. Chuang Yebang 創業邦 , “ 沐曦天使投資人、和利資本孔令國：沒有生態，再好的芯片也不過是昂貴的沙子 [Kong Lingguo, angel investor at Muxi and Heli Capital: Without an ecosystem, even the best chip is nothing more than expensive sand.],” Futu Niuniu 富途牛牛 , January 22, 2026, https://news.futunn.com/hk/post/67735807.

151. Gu Zhaowei 顾昭玮 , “ 华兴资本王力行：中美 AI 私人资本投入存在 10 倍差距 [Wang Lixing of China Renaissance Capital: There Is a 10-Fold Gap in Private Capital Investment in AI between China and the US],” Caixin, November 9, 2025, https://m.caixin.com/m/2025-11-09/102380815.html.

152. Stanford University Human-Centered Artificial Intelligence, “Economy | The 2025 AI Index Report | Stanford HAI,” Stanford University Human-Centered Artificial Intelligence, 2026, https://hai.stanford.edu/ai-index/2025-ai-index-report/economy.

153. Kyle Chan et al., Full Stack: China’s Evolving Industrial Policy for AI (RAND Corporation, 2025), https://www.rand.org/pubs/perspectives/PEA4012-1.html.

154. Sunny Cheung and Kai-shing Lau, “DeepSeek Use in PRC Military and Public Security Systems - Jamestown,” Jamestown Foundation, October 27, 2025, https://jamestown.org/deepseek-use-in-prc-military-and-public-security-systems/.

155. Yang Ping 杨萍 , “ 专家解读文章之二 | 国家创业投资引导基金是推动创业投资高质量发展的重要驱动力 [Second Article in the Expert Analysis Series: The National Venture Capital Guidance Fund Is a Key Driver for Promoting High-Quality Development of Venture Capital.],” National Development and Reform Commission, January 5, 2026, https://www.ndrc.gov.cn/fggz/202601/t20260105_1403047.html.

156. Qu Zhehan 曲哲涵 , " 更好發揮政府投資基金引導帶動作用 (政策解讀) [To Better Leverage the Guiding and Driving Role of Government Investment Funds (Policy Interpretation)]," accessed March 16, 2026, https://cpc.people.com.cn/BIG5/n1/2025/0109/c64387-40398311.html.

157. Wu Qiong 吴琼 , "600 亿，国家级 AI 基金登场 [A National-Level AI Fund Worth 60 Billion Yuan Has Been Launched.]," Sina Finance, April 14, 2025, https://finance.sina.com.cn/jjxw/2025-04-14/doc-inetccst8393374.shtml.

158. Xuan Li and Cornel Ban, "Financing Technological Innovation in China: Neo-Developmental Financial Statecraft through Government Guidance Funds," Boston University Global Development Policy Center, April 2, 2025, https://www.bu.edu/gdp/2025/04/02/financing-technological-innovation-in-china-neo-developmental-financial-statecraft-through-government-guidance-funds/.

159. 21st Century Business Herald 21 世纪经济报道 , "500 亿超级国资开闸，粤港澳基金公开征集参股子基金 [With 50 Billion Yuan of Super State-Owned Assets Now Available, the Guangdong-Hong Kong-Macao Greater Bay Area Fund Is Publicly Soliciting Applications for Sub-Funds to Participate in Its Investments.]," Sina Finance, February 3, 2026, https://finance.sina.com.cn/roll/2026-02-03/doc-inhkpvfh0464249.shtml.

160. 21st Century Business Herald 21 世纪经济报道 , "500 亿超级国资开闸，粤港澳基金公开征集参股子基金 [With 50 Billion Yuan of Super State-Owned Assets Now Available, the Guangdong-Hong Kong-Macao Greater Bay Area Fund Is Publicly Soliciting Applications for Sub-Funds to Participate in Its Investments.]."

161. National Development and Reform Commission, " 国家创业投资引导基金启动仪式在京举行 [The Launch Ceremony of the National Venture Capital Guidance Fund Was Held in Beijing.]," National Development and Reform Commission, December 2025, https://www.ndrc.gov.cn/xwdt/xwfb/202512/t20251226_1402664.html; General Office of the State Council 國務院辦公廳 , " 國務院辦公廳關於促進政府投資基金高質量發展的指導意見 [Guiding Opinions of the General Office of the State Council on Promoting the High-Quality Development of Government Investment Funds]," PRC Central People's Government, January 2025, http://big5.www.gov.cn/gate/big5/www.gov.cn/zhengce/content/202501/content_6996729.htm.

162. Martin Beraja et al., "Government Venture Capital and AI Development in China," Stanford Center on China's Economy and Institutions, December 1, 2024, https://sccei.fsi.stanford.edu/china-briefs/government-venture-capital-and-ai-development-china.

163. Beraja et al., "Government Venture Capital and AI Development in China."

164. China Securities Journal 中国证券报 , " 国资基金加速布局战新产业 ' 耐心资本 ' 赋能新质生产力 [State-Owned Capital Funds Are Accelerating Their Deployment in Emerging Strategic Industries, with 'Patient Capital' Empowering New Productivity.]," Xinhua News, February 4, 2026, https://www.news.cn/20260204/e06bbef7f2c24af695b0b1a13f1e4bc2/c.html.

165. Wu Qiong 吴琼 , "600 亿，国家级 AI 基金登场 [A National-Level AI Fund Worth 60 Billion Yuan Has Been Launched.]."

166. Yang Ping 杨萍 , " 专家解读文章之二 | 国家创业投资引导基金是推动创业投资高质量发展的重要驱动力 [Second Article in the Expert Analysis Series: The National Venture Capital Guidance Fund Is a Key Driver for Promoting High-Quality Development of Venture Capital.]."

167. Chang et al., "China's Drive toward Self-Reliance in Artificial Intelligence."

168. Xue Haohao 薛皓皓 , "3000 亿！国产 GPU 第二股沐曦 IPO，早期投资人大赚超百亿 [300 Billion! The IPO of Muxi, the Second Domestically Produced GPU Company, Has Made Early Investors over 10 Billion.]," Chuang Yebang 創業邦 , December 17, 2025, https://m.cyzone.cn/article/819019.html.

169. Huang Siyu 黄思瑜 , " 摩尔线程 IPO 只差临门一脚，哪些上市公司参股或有合作？ [Moore Threads' IPO Is Just around the Corner. Which Listed Companies Have Stakes in or Partnerships with It?]," Yicai, September 28, 2025, https://m.yicai.com/news/102847559.html; Xue Haohao 薛皓皓 , "3000 亿！国产 GPU 第二股沐曦 IPO，早期投资人大赚超百亿 [300 Billion! The IPO of Muxi, the Second Domestically Produced GPU Company, Has Made Early Investors over 10 Billion.]."

170. 36kr, " 和利资本 [CTC Capital]," 36kr, accessed March 16, 2026, https://pitchhub.36kr.com/organization/1678293825336322.

171. Chuang Yebang 創業邦 , " 沐曦天使投資人、和利資本孔令國：沒有生態，再好的芯片也不過是昂貴的沙子 [Kong Lingguo, angel investor at Muxi and Heli Capital: Without an ecosystem, even the best chip is nothing more than expensive sand.]."

172. Bureau of Industry and Security, "Addition of Entities to and Revision of Entry on the Entity List," Federal Register, January 16, 2025, https://www.federalregister.gov/documents/2025/01/16/2025-00704/addition-of-entities-to-and-revision-of-entry-on-the-entity-list.

173. Eduardo Baptista, "High-Flyer, the AI Quant Fund behind China's DeepSeek," Reuters, January 29, 2025, https://www.reuters.com/technology/artificial-intelligence/high-flyer-ai-quant-fund-behind-chinas-deepseek-2025-01-29/.

174. Liangziwei 量子位 , "DeepSeek 母公司，一年进账 50 亿 [DeepSeek's Parent Company Earns 5 Billion Annually.]," January 14, 2026, https://news.pedaily.cn/202601/559859.shtml.

175. Yang Ping 杨萍 , " 专家解读文章之二 | 国家创业投资引导基金是推动创业投资高质量发展的重要驱动力 [Second Article in the Expert Analysis Series: The National Venture Capital Guidance Fund Is a Key Driver for Promoting High-Quality Development of Venture Capital.]."

176. Han Zhongnan 韩忠楠 , " 国家创业投资引导基金正式启动，财政出资 1000 亿元，有望撬动万亿级社会资本 [The National Venture Capital Guidance Fund Has Been Officially Launched, with a Government Investment of 100 Billion Yuan, Which Is Expected to Leverage Trillions of Yuan in Social Capital.]," Securities Times 证券时报 , December 27, 2025, https://www.stcn.com/article/detail/3560606.html.

177. Li Wei 李偉 , " 中美 AI 競爭，未來誰主沉浮？ [In the AI Competition between China and the US, Who Will Prevail in the Future?]," January 14, 2026.

178. Joe Cash and Xiuhao Chen, "China's Trade Ends 2025 with Record $1.2 Trillion Surplus despite Trump Tariff Jolt," Reuters, January 16, 2026, https://www.reuters.com/world/china/chinas-trade-ends-2025-with-record-trillion-dollar-surplus-despite-trump-tariffs-2026-01-14/.

179. FRowan Wilkinson, "How an AI Bubble Bursting Could Erode US Tech Dominance and Accelerate China's Rise," Chatham House, December 16, 2025, https://www.chathamhouse.org/2025/12/how-ai-bubble-bursting-could-erode-us-tech-dominance-and-accelerate-chinas-rise.

180. Huang Kai-Shen, "China's AI 'Distillation Cascade' Is Hiding in the Open."

181. Chih-hua Tseng and Jin Chian Seer, "A Shared Future? Economic Security Challenges from Malaysia–China Economic Cooperation and Data Center Development," Research Institute for Democracy, Society and Emerging Technology, October 28, 2025, https://dset.tw/en/research/a-shared-future-economic-security-challenges-from-malaysia-china-economic-cooperation-and-data-center-development/.

182. Condoleezza Rice et al., "The Stanford Emerging Technology Review 2025," Stanford University, 2025, https://setr.stanford.edu/; Tseng and Seer, "A Shared Future?"

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