

## Parallel Session on Intelligent Technology and Future Industry Development

### 【Basic Information】

#### Moderators:

#### Opening Remarks Section:

Zhang Feng

President, Chinese Institute of Electronics (CIE)

#### Keynote Speeches Section:

Liang Liang

Deputy Secretary-General of CIE;  
Director of World Robot Cooperation Organization (WRCO)

#### Panel Discussion Section:

Gong Ke

Past President of World Federation of Engineering Organizations (WFEO), Vice President of CIE

#### Opening Remarks:

Chen Jie

Vice Mayor of Shanghai

Xin Guobin

Vice Minister, Ministry of Industry and Information Technology of China

Craig Allen

President, The US-China Business Council (USCBC)

## Keynote Speeches:

Jack J. Dongarra	2021 Turing Award Winner; Professor of the Department of Electrical Engineering and Computer Science, University of Tennessee, USA
Pu Muming	Member of the Chinese Academy of Sciences (CAS), International Member of the National Academy of Sciences of the U.S.
Liao Xiangke	Member of the Chinese Academy of Engineering(CAE); Researcher of the School of Computer Science and Technology, National University of Defense Technology
Frank Meng	Chairman of Qualcomm China
Jia Jiaya	Founder and Board Chairman, SmartMore; Tenured Professor, The Chinese University of Hong Kong

## Panel Discussion:

Zheng Weimin	Member of CAE; Professor of the Department of Computer Science and Technology, Tsinghua University
Wu Tian	Vice President of Baidu Corporate, Deputy Director of the National Engineering Research Center of Deep Learning Technology and Application
Zhu Zuojiang	President, Omron Industrial Automation (China) Co., Ltd.
Anu Rathninde	President, Asia Pacific, Johnson Controls

## **【Brief Introduction】**

On the afternoon of November 5, 2023, the Parallel Session on Intelligent Technology and Future Industry Development of the Sixth Hongqiao International Economic Forum (HQF) was held at the National Exhibition and Convention Center (Shanghai). The parallel session was jointly hosted by the Ministry of Industry and Information Technology of China and the Ministry of Commerce of China, and organized by the Chinese Institute of Electronics. This event revolves around the development frontier of the strategic emerging technologies represented by artificial intelligence (AI) and information technology (IT), and explores the development opportunities and practical challenges of future industrial layout in areas such as general AI, brain science, and brain-inspired intelligence. The goal is to facilitate a broader and more convenient cross-border flow of innovative factors, speed up the development of new productive forces, and strengthen new drivers of growth, so as to contribute to the building of a community with a shared future for mankind.



第六届虹桥国际经济论坛  
THE SIXTH HONGQIAO INTERNATIONAL ECONOMIC FORUM (HIEF)

## 智能科技与未来产业发展分论坛

PARALLEL SESSION ON INTELLIGENT TECHNOLOGY AND FUTURE INDUSTRY DEVELOPMENT

主办单位：工业和信息化部 商务部

Hosted by: Ministry of Industry and Information Technology of the People's Republic of China Ministry of Commerce of the People's Republic of China

承办单位：中国电子学会

Organized by: Chinese Institute of Electronics

2023年11月5日  
November 5<sup>th</sup>, 2023

中国·上海  
Shanghai, China



## 【Opening Remarks】



Chen Jie, Vice Mayor of Shanghai,  
addressed the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai

Chen Jie, Vice Mayor of Shanghai, emphasized that Shanghai is fully implementing the national strategic deployment and requirements, strengthening the leading role of high-end industries, targeting emerging industry tracks, and seizing the strategic heights of future development. Firstly, Shanghai accelerates the construction of a modern industrial system with the focus on the development of future health, future intelligence, future energy, future space, and future materials in directions such as intelligence, health, and green. Secondly, Shanghai continuously strengthens the two-way linkage between sci-tech innovation and industry, formulates special plans for synthetic biology, genetics and cell therapy, and actively boosts the construction of 12 manufacturing innovation centers in areas such as superconductivity and hydrogen fuel cells. Thirdly, Shanghai optimizes the empowerment of future industrial carriers, leverages resource endowments, adheres to cluster construction, establishes two future industry sci-tech parks for future energy and intelligent robots, and autonomous intelligence. The first batch of three future industry pilot zones in Zhangjiang, Lingang, and Grand neoBay will be established to enable the core technology breakthroughs and fruit transition of future industries.





Xin Guobin, Vice Minister of the Ministry of Industry and Information Technology of China, addressed the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai

Xin Guobin, Vice Minister of the Ministry of Industry and Information Technology of China, pointed out that China will collaborate with other countries to shape the future development and share the dividends of innovation. Firstly, China will make intensive efforts to advance key core technology breakthroughs and create an innovative “collaboration circle”. This involves supporting all parties coming to China to jointly build innovation bases, research and development institutions, and other innovation platforms to foster a global source of innovation. Secondly, China will promote the high-quality transition and upgrading of traditional industries, and form an industrial “ecosystem”. This includes accelerating the integration of new-generation information technologies such as AI and metaverse with manufacturing, promoting the large-scale application of intelligent technology in agriculture, transportation, education, healthcare, and other scenarios, and speeding up the industrialization of intelligent technologies and the intelligentization of industries. Thirdly, China will participate in global governance at a high level and create a “circle of friends” for communication and cooperation. The country will give full play to the role of bilateral and multilateral cooperation mechanisms, deepen exchanges and mutual trust, and form a new pattern of international cooperation featuring joint contribution, shared benefits and win-win outcomes.



Craig Allen, President of USCBC,  
addressed the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai

Craig Allen, President of USCBC, stated that innovation and technological development at the global level are the driving forces behind economic development in both China and the United States. In the current international environment, businesses from both countries continue to collaborate in various fields, and the outcomes of technological cooperation benefit the world. China has demonstrated tremendous economic vitality and market demand, and it is believed that China still has significant advantages in the manufacturing sector. USCBC believes that China should continue to expand market dynamics while avoiding excessive investment or overcapacity. He hoped that China and the United States could further leverage their respective supply chain advantages, engage in pragmatic dialogues, and promote cooperation through opening-up as much as possible.



Zhang Feng, President of CIE,  
attended the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai  
and moderated opening remarks



## 【Opening Remarks】



Jack J. Dongarra, 2021 Turing Award Winner and Professor of the Department of Electrical Engineering and Computer Science at the University of Tennessee, attended via video the Parallel Session on Intelligent Technology and Future Industry Development and delivered a speech

Jack J. Dongarra, 2021 Turing Award Winner and Professor of the Department of Electrical Engineering and Computer Science at the University of Tennessee, USA, proposed that AI and machine learning (ML) are currently hot topics in science and technology, and their development relies heavily on the support of high-performance computing which is typically based on supercomputers, and encompasses such three main pillars as theory, experimentation, and computer simulation. AI and ML models can be trained with large amounts of data to better understand and predict phenomena in the real world. However, it's important to note that not all computations are data-intensive. It should be recognized that the underlying hardware is now ready, and testing more operations, algorithms, and software on the hardware also requires a significant amount of time.



Pu Muming, Member of the Chinese Academy of Sciences (CAS); International Member of the National Academy of Sciences of the U.S., attended the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai and delivered a speech

Pu Muming, Member of the Chinese Academy of Sciences (CAS); International Member of the National Academy of Sciences of the U.S., observed that there are three goals for brain science: understanding the working principles of the brain, simulating brain function for brain-like research, and protecting the brain by diagnosing and treating brain diseases. These three directions constitute the content of the major scientific and technological project “Brain Science and Brain-like Research” in China’s 2030 plan. Another important area is the development of new technologies for collaboration between the brain and machines, including brain-machine interfaces (BMIs). Inspired by principles derived from the brain, these technologies help AI perform general-purpose computations, such as brain-inspired computing and brain-like devices. The next generation of AI must be high-performance, energy-efficient, and environmentally friendly, as the world cannot sustain excessively energy-consuming computing power.



Liao Xiangke, Member of CAE and Researcher of the School of Computer Science and Technology at the National University of Defense Technology, attended the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai and delivered a speech

Liao Xiangke, Member of CAE and Researcher of the School of Computer Science and Technology at the National University of Defense Technology, proposed that deep learning uses distributed representation and deep structure to enhance model representation, but the need for large amounts of labeled data limits its application. In contrast, large models enable large-scale deep learning on unlabeled data, thus changing the situation. Through pre-training, large models are trained with massive unlabeled data to form a general-purpose basic model. This method has accelerated the development of large models and expanded the application areas of deep learning. Large models also create a new paradigm of human-computer interaction, enabling natural language dialogue between humans and machines, while demonstrating strengths far beyond traditional research and thus becoming a new paradigm for AI. In the future, general-purpose basic large models will integrate with models from various fields to shape the industrial ecology.



Frank Meng, Chairman of Qualcomm China, attended the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai and delivered a speech

Frank Meng, Chairman of Qualcomm China, stated that with the advancement of digital transition, AI technology and “5G+AI” play a crucial role in driving the transition. Edge AI, especially interactive AI, can enhance the application experience of intelligent terminals, turning them into more personalized digital assistants and improving productivity and cost-effectiveness. The development of generative AI has changed the way humans interact with machines, making it more natural and personalized. AI technology can reduce the costs of data centers, ensure data security, enhance productivity in mobile offices, and propel PCs to enter a new era of “AI PCs”. In the future, Qualcomm hopes to continue collaborating with the Chinese industry chain, bringing technological capabilities to the public and promoting China’s digital transition.





Jia Jiaya, Founder and Board Chairman of SmartMore and Tenured Professor of the Chinese University of Hong Kong, attended the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai and delivered a speech

Jia Jiaya, Founder and Board Chairman of SmartMore and Tenured Professor of the Chinese University of Hong Kong, introduced “IndustryGPT”, the world’s first industrial multimodal large model. The challenge for “IndustryGPT” lies in collecting and organizing global knowledge across disciplines such as optics, mechanics, electronics, algorithms, and software. After the collection of data, rigorous cleaning and high-quality data refinement are necessary. The intended function of “IndustryGPT” is the integration into digital management and digital twin systems for fully controllable and interactive factory management. Additionally, “IndustryGPT” can not only match with software, automatically allocate parameters, and train but also automatically operate hardware, allowing the hardware to return to its fundamentals. Through repeated iterations, “IndustryGPT” can achieve full automation, and complete all system settings and installations in as quick as 5 minutes.





Liang Liang, Deputy Secretary-General of CIE and Director of WRCO, attended the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai and moderated keynote speeches

## 【Panel Discussion】



Zheng Weimin, Member of CAE and Professor of the Department of Computer Science and Technology of Tsinghua University, attended the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai and participated in panel discussion

Zheng Weimin, Member of CAE and Professor of the Department of Computer Science and Technology of Tsinghua University, said that China has made significant progress in large models, currently possessing over 100 models that are playing roles in various fields. However, large models require substantial computing power, and the current domestic AI chip ecosystem is not mature enough, so there is the lack of strong and comprehensive functions, and high prices, and it is difficult to meet demands. Therefore, it is crucial to build large model infrastructure based on domestic AI chips, with the most important aspect being the establishment of a sound ecosystem. Educational institutions and various industries should encourage students and professionals to learn AI and cultivate interdisciplinary talent.



Wu Tian, Vice President of Baidu Corporate and Deputy Director of the National Engineering Research Center of Deep Learning Technology and Application, attended the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai and participated in panel discussion

Wu Tian, Vice President of Baidu Corporate and Deputy Director of the National Engineering Research Center of Deep Learning Technology and Application, observed that Baidu has released the Ernie Bot product based on large language models (LLMs), which is the result of years of research and development. Large models possess general capabilities, can handle massive data, achieve self-supervised learning, and demonstrate performance similar to human intelligence. In the future, AI based on general-purpose large models will give rise to new models tailored to industries and scenarios, enhance efficiency across various industries, foster creativity, and exert a more profound impact on the real economy. Despite the initial high power consumption of large models, through the improvement of the efficiency in the whole society, AI will promote a more healthy development of energy consumption.



Zhu Zuojiang, President of Omron Industrial Automation (China) Co., Ltd., attended the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai and participated in panel discussion

Zhu Zuojiang, President of Omron Industrial Automation (China) Co., Ltd., believed that industries need collaboration, and AI can be applied to logistics, supply chains, etc., facilitating information transmission and optimization and saving energy and resources. AI has long been applied in manufacturing, and the use of general-purpose large models as a means of realization has distinct differences in manufacturing and other fields. In manufacturing, data, models, and computing power are the three key elements of AI. Although existing computing power allows data collection, in traditional manufacturing, equipment data collection capabilities are still limited. The qualified data collection faces many challenges, algorithms in the industrial field need to be precisely matched, and quick judgments need to be made within a short time. Moreover, computing power is also limited by excessive data collection. For the in-depth application of AI in the real economy, various technical and practical issues still need to be addressed.





Anu Rathninde, President for Asia Pacific of Johnson Controls, attended the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai and participated in panel discussion

Anu Rathninde, President for Asia Pacific of Johnson Controls, said that, Johnson Controls, as a long-established thermostat manufacturer, has expanded into fields such as power plants and wind farms, and focused on solving building energy consumption issues. By connecting devices from different manufacturers and utilizing AI and data analysis tools, Johnson Controls aims to improve energy efficiency and productivity. In addition, the construction of smart cities requires collaboration across all industries to achieve greater humanistic value. The successful application of AI requires users' trust, the demonstration of collaborative capabilities, and joint creation of more user scenarios. The development of AI technology has had a significant impact on society as a whole, but there is currently a lack of unified regulations and global general-purpose guidelines to regulate technological development. Collaboration among enterprises, academia, educational institutions, and governments is necessary to manage technological development and avoid risks.





Gong Ke, Past President of WFEO and Vice President of CIE,  
attended the Parallel Session on Intelligent Technology and Future Industry Development in Shanghai  
and moderated panel discussion