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Sharing Innovation and Shaping the Future THE 19th PUJIANG INNOVATION FORUM 2026

September 11-14 Shanghai, China

Sharing Innovation and Shaping the Future:

The Mission of the Global Sci-Tech Community amid a New Round of Sci-Tech Revolution

**Focusing
on**

Advancing open science to foster a more open, transparent, and equitable global knowledge ecosystem, making science a global public good that benefits all and promoting the joint development of global scientific and technological capabilities.

Shaping innovation paradigms by coordinating basic research in frontier areas, guiding the formation and growth of a new techno-economic paradigm centered on intelligence and green development, and strengthening the foundational support for global sci-tech collaboration.

Improving innovation governance to optimize the allocation of innovation resources and align governance rules, thereby enhancing the synergy, stability, and sustainability of global sci-tech cooperation while establishing a governance framework that balances efficiency and fairness to support the restructuring of the global innovation order.

Promoting regional synergy by exploring optimized industrial layouts, leveraging the synergies of innovation and industrial clusters, and improving the overall efficiency of regional innovation systems.

Building collaborative innovation networks to develop multi-level, networked platforms for collaboration, facilitating the global flow of knowledge, data, talent, and capital, and fostering an open innovation ecosystem where "science knows no borders and benefits all humanity."



上海理工大学
UNIVERSITY OF SHANGHAI FOR SCIENCE AND TECHNOLOGY



University of Shanghai for Science and Technology

Brief Introduction:

The University of Shanghai for Science and Technology (USST) is a prominent applied research institution integral to Shanghai's educational and industrial landscape, especially in engineering. Tracing its origins to Shanghai College established in 1906 and the German Medical and Engineering School founded in 1907, USST was officially formed in 1996 through several mergers and now plays a leading role in building Shanghai's "high-level local universities." It will mark the 120th anniversary in 2026.

With 17 colleges and schools, USST educates over 30,000 full-time students and employs more than 2,700 faculty and staff members, including seven academicians (including jointly appointed), over 110 national-level talents. USST is recognized for its industry-aligned programs, especially in equipment manufacturing, medical devices, and publishing. Eleven disciplines rank in the top 1% worldwide per the Essential Science Indicators (ESI), with engineering in the top 1‰ (0.1%).

Aligned with national goals, USST hosts three international laboratories focused on optics, intelligent manufacturing, and medical devices and rehabilitation engineering, supported by a distinctive platform in systems management. The motto, "Honesty, Integrity, Diligence, Benevolence; Learning, Reflection, Vision, Aspiration", embodies USST's commitment to industry-integrated, practical education, further evidenced by its participation in China's "Excellent Engineer Education Training Program." Global partnerships spanning 51 countries and regions with more than 70 enterprises and organizations, including Huawei and COMAC, underscore USST's dedication to fostering talent and innovation. As a standing vice-chairman unit of the Shanghai-Hong Kong University Alliance and founder of the Yangtze River Delta Engineering Education Alliance, USST is advancing toward its goal of becoming a first-class innovative science and engineering university that leads technological progress in intelligent manufacturing.



智能科技学院

School of Artificial Intelligence Science and Technology

Featuring optical artificial intelligence, the School of Artificial Intelligence Science and Technology carries out optical artificial intelligence research and talent cultivation, striving to grow into a world-class research institute for optical AI and a cradle for cultivating top-notch innovative talents.

The school brings together a cohort of outstanding young scientists from home and abroad. Relying on the Institute of Photonic Chips as its platform, it has formed a high-level research and innovation team oriented toward "excellence in scientific research". There are more than 40 research staff, including 2 academicians (1 Honorary Professor), 4 awardees of 6 national-level talent programs, and over 20 awardees of more than 30 provincial/ministerial-level talent programs.

The school has built world-class optical, materials and biology laboratories. It hosts provincial/ministerial research platforms including the Shanghai Key Laboratory of Neuromorphic Optical Computing and Edge Intelligence and the Shanghai Frontier Science Research Base for Brain-Inspired Photonic Chips. The research staff have undertaken nearly 100 research projects such as national key R&D programs, Major Shanghai Municipal Science and Technology Special Projects, and National Natural Science Foundation of China (NSFC) projects. In the past five years, the school has published nearly 30 papers in Nature, Science and their sister journals. In recent years, the school has been actively promoting the translation and application of the research achievements in intelligent optical storage, optical visual intelligence and optical interconnect computing.



实现Pb级光存储技术

Nature, February 2024

"2024年中国十大科技进展新闻"

"2024中国光学十大进展"

"2024中国光学十大社会影响力事件"

"Chip2024年度中国芯片科学十大进展"

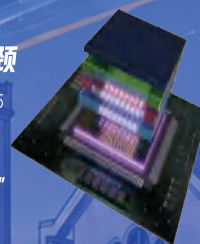


突破多模光纤传输瓶颈

Nature Photonics, February 2025

"2025中国光学十大进展"

"2025中国光学十大影响力事件"



高通量超高速芯片

实现每秒2500万帧超高速处理

November 2025

该芯片设计获

"2024世界光子大会发明展特别金奖"

For more information, please refer to the school website: saist.usst.edu.cn



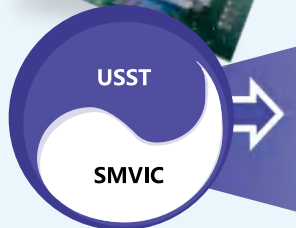
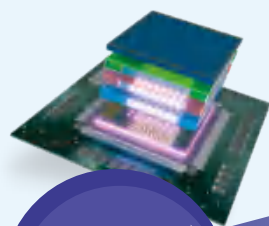
Shanghai Key Laboratory of Neuromorphic Optical Computing and Edge Intelligence

The Shanghai Key Laboratory of Neuromorphic Optical Computing and Edge Intelligence is a provincial/ministerial research platform approved for construction by the Shanghai Science and Technology Commission. Hosted by the University of Shanghai for Science and Technology, it is jointly constructed with Shanghai Motor Vehicle Inspection Center Technology Co., Ltd. The laboratory is headed by Professor Min Gu, Foreign Member of the Chinese Academy of Engineering.

Targeting the major demand for enhanced computing power of edge artificial intelligence, the laboratory builds a complete research system covering key devices, chip integration and system verification. It focuses on tackling research challenges in reconfigurable optical networks, vertically integrated photonic chips, lidar edge intelligence to break through technical bottlenecks such as low energy consumption, low latency and high integration.

Serving the national strategy of the new-generation artificial intelligence and the development of Shanghai's Science and Technology Innovation Center, the laboratory gathers high-caliber talents, deepens industry-education integration and research achievement translation. It provides core technical support for intelligent driving and advanced manufacturing, and strives to build a world-class innovation platform for optical computing and edge intelligence.

Edge-intelligent Optical AI Chip



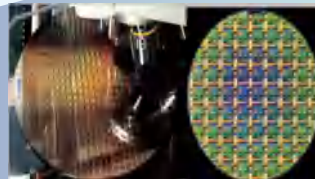
National Automotive Chip
Quality Inspection and
Testing Center
(General Administration of
Quality Supervision,
Inspection and Quarantine)

Edge Intelligence Demonstration Application

Intelligent Driving and Intelligent Transportation



Chip Manufacturing / Packaging and Testing



Laser Manufacturing



Scalable applications

Biological Image Processing



Space Communications



Intelligent Sensing



Edge-intelligent robots



SHAPING A SMARTER FUTURE TOGETHER

UNITING FOR BRAIN-INSPIRED INTELLIGENCE



The Brain-Inspired Intelligence Industry Innovation and Development Alliance (BI4DA) was established on April 18, 2025, under the guidance of the Ministry of Science and Technology, the Ministry of Industry and Information Technology and other relevant authorities, was initiated by the China Academy of Information and Communications Technology (CAICT). Its membership includes research institutes, universities, leading enterprises, start-ups and investment firms, forming an innovation network that spans the entire industry chain — from brain-inspired chips and algorithms to perception and applications.

The Alliance addresses the critical needs of brain-inspired intelligence as it transitions from technological innovation to industrial development. It brings together ecosystem forces to carry out collaborative innovation across industry research, technical standards, testing and validation, data platforms, application demonstration, and industry ecosystem development.

110+

Members

500+

Collaborative
Partners

140+

Promising
Projects

EXPERTS

Led by Academicians
Bringing Together Leading Experts

Mu-ming Poo

Academician of the
Chinese Academy of Sciences

Xu Zhang

Academician of the
Chinese Academy of Sciences

Ningsheng Xu

Academician of the
Chinese Academy of Sciences

Jianfeng Feng

Dean of the Institute of Science
and Technology for Brain-Inspired
Intelligence, Fudan University

Luping Shi

Director of the Center for Brain-
Inspired Computing Research,
Tsinghua University

Jianxing Liao

Head of the Brain-Inspired
Intelligence Project at Huazhong
Central Research Institute

OUR MEMBERS' NETWORK

Universities &
Research Institutes

Innovation & Startups

Industry Leaders /
Scenario Partners

Investment
Institutions

Industry
Research

Standards
Development

Project
Discovery

Tech
Breakthrough

Test &
Validation

Application
Scenarios

Technology
Transfer

INITIATIVE & ACHIEVEMENTS

RESEARCH ACHIEVEMENTS

BI4DA continuously tracks the development trends of the brain-inspired intelligence industry, maps the industry, talent, and technology landscapes, strategic planning and policy recommendations for industry development, and publishes authoritative reports such as standards development guidelines and industry landscape maps.



Research Report on the
Brain-Inspired Intelligence Industry Landscape

STANDARDS DEVELOPMENT

BI4DA organizes R&D on key technologies and preparatory standardization research, supports member organizations in developing proprietary technologies and intellectual property, and engages in ongoing domestic and international discussions on standardization for brain-inspired intelligence. It also advances related standardization work in forums such as ITU-T SG21.



PUBLIC SERVICE PLATFORM

BI4DA builds common R&D support services through a three-layer architecture of "Infrastructure — data services — application services," targeting application scenarios such as intelligent connected vehicles, unmanned aerial vehicles (UAVs), and embodied intelligent robots. By improving the three key development pillars of "platform, standards, and data," BI4DA supports Shanghai in cultivating a fertile ground for brain-inspired intelligence innovation and entrepreneurship.

ECOSYSTEM

BI4DA hosts the Brain-Inspired Intelligence Innovation Competition and the Brain-Inspired Intelligence Industry Conference to foster industry collaboration and ecosystem synergy, builds cooperation platforms, and drives a globalized layout spanning technology exchange, standards coordination, talent cooperation, and industry interconnectivity.



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US

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Dr. Gong +86 18801967713 gongzheng1@caict.ac.cn



WeChat
Official Account



Join Us

类脑智能未来产业集聚区概况

20万m² 杨浦区长阳创谷，
总规划

1万m²

类脑智能孵化空间

4万m²

加速空间

类脑计算

类脑感知

产业
重点领域

类脑算法

类脑应用

培育初创型与成长型企业



超前孵化链接



功能平台支撑



场景验证引擎

构建
五位一体
孵化体系

资本赋能网络



生态协同门户



集聚态势

100余家

累计对接科技人才与企业

30余家

培育吸引代表企业齐聚

80+余家

核心企业总估值

扫描二维码

了解类脑智能产业政策

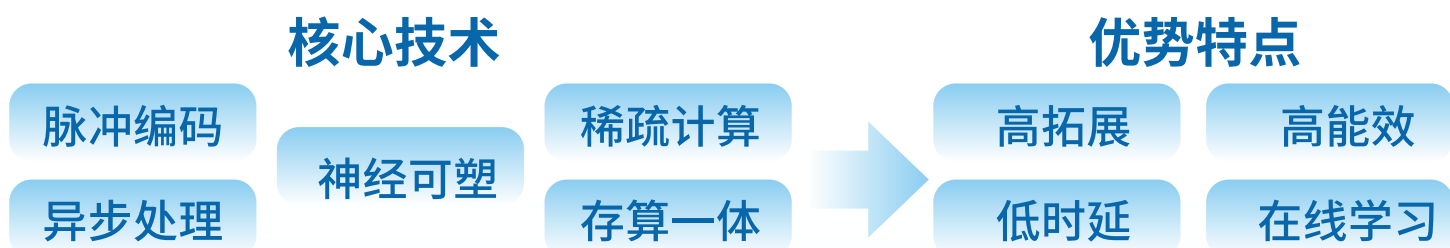
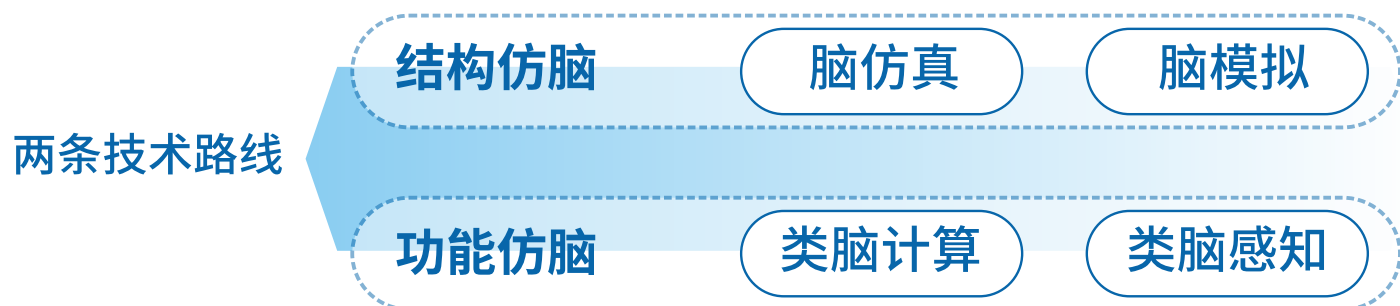


类脑智能产业概况

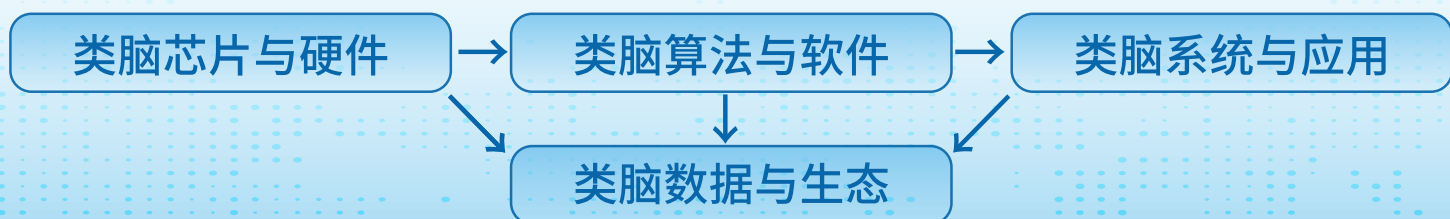
类脑智能 (Brain Inspired Intelligence)

模拟生物脑智能,是实现类似大脑信息处理机制的智能计算、方法和系统,终极目标是逼近甚至超越人脑,被认为是一条通往通用人工智能 (AGI) 的前沿性、颠覆性路径。

两条发展路线、四大核心特点 突破当前大模型局限



核心技术



Partnerships



类脑智能产业创新发展联盟
Brain-inspired Intelligence Industry Innovation and Development Alliance



Sponsors



Conference Chairs



Min Gu

Affiliation

Foreign Fellow of the Chinese Academy of Engineering;
Fellow of the Australian Academy of Science;
Fellow of the Australian Academy of Technological Sciences and Engineering;
Director of the Institute of Photonic Chips;
University of Shanghai for Science and Technology.

Biography

Professor Gu is Executive Chancellor of the University Council and Distinguished Professor of University of Shanghai for Science and Technology (USST). He was Distinguished Professor and Associate Deputy Vice-Chancellor at RMIT University, and a Laureate Fellow of the Australian Research Council, Pro Vice-Chancellor, and a University Distinguished Professor at Swinburne University of Technology. He is an author of four standard reference books and has over 550 publications in nano/biophotonics. He is an elected Fellow of the Australian Academy of Science and the Australian Academy of Technological Sciences and Engineering as well as Foreign Fellow of the Chinese Academy of Engineering. He is also an elected fellow of SPIE, Optica, IEEE, AIP, InstP and COS. He was President of the International Society of Optics within Life Sciences, Vice President of the Board of the International Commission for Optics (ICO) (Chair of the ICO Prize Committee) and a Director of the Board of Optica (formerly OSA) (Chair of the International Council). He was awarded the Einstein Professorship, the W. H. (Beattie) Steel Medal, the Ian Wark Medal, the Boas Medal and the Victoria Prize. Professor Gu is a winner of the 2019 Dennis Gabor Award (SPIE), the 2022 Emmett Norman Leith Medal (Optica), and the 2025 William Streifer Scientific Achievement Award (IEEE).



Affiliation

Senior Professor-level Engineer and Senior Professor-level Economist.

Chairman of CETHIK Group Co., Ltd.

Zongnian Chen

Biography

He served as a Deputy to the 13th National People's Congress and a Delegate to the 20th National Congress of the Communist Party of China. Currently, he is the Chairman of CETHIK Group Co., Ltd.

With solid expertise spanning technology and corporate management, Mr. Chen has in-depth theoretical foundations for innovation and abundant hands-on practical experience. Adhering to persistent reform and continuous innovation, he has led the successful transformation of a traditional research institute into a large state-owned high-tech enterprise group. He has been conferred a series of prestigious honors and awards, including the First National Outstanding Engineer Team Award (as team leader), Zhejiang Provincial Grand Science and Technology Award (as team leader), National Innovation Pioneer Award, Model Worker of Central Enterprises, Most Respected Chairman of China Listed Companies, Golden Chairman Award of China Capital Market, Distinguished Hangzhou Entrepreneur from the World Hangzhou Entrepreneurs Convention, Zhejiang Economic Figure of the Year, Meritorious Entrepreneur of Zhejiang Province, Reform Pioneer of China Electronics Technology Group Corporation, Outstanding Operator of Top Ten Industrially Contributive Enterprises in Hangzhou, and the 5th Outstanding Talent of Hangzhou.



Martin Booth

Affiliation

Chair in Optical and Photonic Engineering
at the University of Oxford, UK.

Biography

Professor Martin Booth is chair in Optical and Photonic Engineering at the University of Oxford. His research involves the development and application of adaptive optical methods in microscopy, laser-based materials processing and biomedical imaging. His group have developed numerous implementations of adaptive optics for aberration correction in high resolution microscopes and precision laser fabrication systems. He has held Royal Academy of Engineering and EPSRC Research Fellowships and in 2016 received an Advanced Grant from the European Research Council. In 2014 he was awarded the International Commission for Optics Prize. He was appointed Professor of Engineering Science in 2014 and Chair in Optics and Photonics in 2023. He is a fellow of SPIE, Optica, and the Institute of Physics and serves on the board of Optica. He has over 200 publications in peer-reviewed journals, over thirty patents, and has co-founded two spin-off companies, Aurox Ltd. and Opsydia Ltd. He is Co-Editor-in-Chief of the journal Light: Science and Applications.

Session Chairs



Jiulin Du

Biography

Vice President of the Chinese Neuroscience Society, and Deputy Director at the Center for Excellence in Brain Science and Intelligence Technology, Chinese Academy of Sciences. His team has established a whole-brain scale structure-functional research paradigm by using the larval zebrafish model. The system, akin to seeing both the forest (whole brain) and the trees (neurons), as well as the leaves (synapses), allows for the examination of entire brain networks down to the level of individual neurons and synapses. With interdisciplinary approaches and view angle of complex systems, his research delves into the neural substrates of adaptive behaviors, and leads to the Bi-Pathway Brain Function hypothesis. In particular, his team maps the whole-brain neural connectome to uncover the basic principles of brain architecture and function, conducts whole-brain simulation and computation, and develops the 'Biological Brain–Digital Brain–Intelligent Computing Brain' automatic experimental paradigm for neuroscience (Σ Brains-Lab). Recently, the team released the first vertebrate digital brain built with biological architectural and functional constraints, together with an AI neuroscientist. His achievements have been recognized with numerous prestigious awards, including the inaugural CST Outstanding Neuroscientist Award and Chang Hsiang-Tung Young Neuroscientist Award from Chinese Neuroscience Society, Shanghai Natural Science Peony Award, Shanghai Natural Science First-Class Prize, and National University Natural Science First-Class Prize.



Yikai Su

Biography

Dr. Yikai Su is currently a full professor at Shanghai Jiao Tong University where he leads a group working on silicon photonic devices and heterogeneous integration technologies. He has over 500 publications in international journals and conferences, and gave >70 invited talks at conferences including CLEO, OFC and ECOC. He holds 7 US patents and ~70 Chinese patents. Prof. Su served as an advisory board member for ACS Photonics and APL photonics. He is the chair of IEEE Photonics Society Shanghai chapter. He also served as a general co-chair of ACP 2012/2021 and OECC 2023. Prof. Su is a senior member of IEEE and a Fellow of Optica.



Lu Fang

Biography

Dr. Lu Fang is Professor of Electronic Engineering at Tsinghua University, bridging physical optics and artificial intelligence to advance next-generation imaging and neuromorphic computing. Her work has appeared in Science, Nature, and Nature Photonics. She is an OPTICA Fellow, a recipient of the Humboldt Research Fellowship for Experienced Researchers, as well as the Falling Walls Science Breakthrough of the Year 2025. Her work of photonic chiplet "Taichi" was recognized as 2024 Top 10 Scientific Advances in China.



Yanqing Lu

Biography

Professor Yanqing Lu received both his BS and Ph.D. degrees from Physics department, Nanjing University, China, in 1991 and 1996 respectively. Then he stayed in the same University as a lecture (1996) and associate professor (1998). He worked in Academia and Industry in the United States from 2000 to 2006, where he developed a serial of liquid crystal based fiber-optic devices with his colleagues in Chorum Tech., UCF and EZconn. Corp. He is currently a Zhicheng distinguished professor at Nanjing University and a Fellow of Optica, Fellow of COS (Chinese Optical Society) and Fellow of CSOE (Chinese Society for Optical Engineering). He currently serves as the director of Chinese Liquid Crystal Society, the executive editor-in-chief for Chinese Optics Letters. His research interests include softmatter photonics (Soft mattonics), nanophotonics and non-linear optics. He is the author or co-author of over 400 peer-reviewed papers in Science, Nat. Photon., Nat. Nano., Nat. Commun., Sci. Adv., PNAS, PRL, Light Sci. Appl.etc..



Xiangping Li

Biography

Professor Xiangping Li joined the Institute of Photonics Technology in Jinan University as a full professor and research leader in nanophotonic devices group in 2015. His research is focused on nanophotonics, metasurfaces and optical multiplexing. He has published over 120 internationally referred journal publications including Science, Nature Photonics, and Nature Nanotechnology. Prof. Li is a recipient of a number of prestigious awards including China's Young 1000 talents Award in 2015, Distinguished Young Scholars from National Natural Science Foundation of China in 2015 and Outstanding Scholars from National Natural Science Foundation of China in 2023, and elected Optica Fellow in 2025.



Guohai Situ

Biography

Professor Guohai Situ is the general manager of Shanghai Institute of Laser Technology Co. Ltd., and an adjunct Professor with the Shanghai Institute of Optics and Fine Mechanics, Chinese Academy of Sciences.

Professor Situ's research focuses on computational optical imaging, in particular deep-learning-based techniques for single-pixel imaging, and imaging through scattering media. He has published over 100 peer-reviewed papers in high-impact journals.

Professor Situ is an elected Fellow of Optica (formerly OSA). He has been recognized with the National Science Fund for Distinguished Young Scholars. He also serves as an Associate Editor for Advanced Photonics.

Major Events

“1”: One Main Forum

- To lead the high-quality development of brain-inspired intelligence by coordinating dual priorities: cutting-edge academic innovation and industrial technology transformation, setting industry benchmarks and guiding the future growth of the field.
- Include keynote addresses by distinguished guests and plenary talks
- Top scientists, distinguished scholars, senior industry leaders and institutional investors in photonics and brain-inspired intelligence.

“3”: Three Supporting Sections

Section1: High level Round-table Dialogue

- To bridge academia-industry communication gaps and explore how photonic technology empowers the industrial typical application scenarios of brain-inspired intelligence led by young talents.
- It gathers company founders, technical leaders and industrial investors for in-depth exchanges and discussions.

Section 2: Exhibition and Showcase

- To intuitively demonstrate the practical performance and industrial application value of photonic and electronic technologies and products in real-world scenarios.
- The session includes a Neuromorphic Computing Innovation Competition and a Joint Exhibition of Research Achievements and Enterprise Products.
- Research teams from universities and research institutes, enterprise R&D personnel and technical practitioners engaged in photonic application and intelligent computing research.

Section 3: Parallel Sessions

- To promote in-depth progress in the interdisciplinary frontier of neuromorphic photonics covering physics, materials science, computer science and brain science.
- It gathers frontline academic researchers, interdisciplinary scholars and technical experts dedicated to basic research and frontier exploration of neuromorphic photonics and intelligent computing.

Program Overview

12 Sep.	
12:00—18:00	Registration open (Hotel lobby, Level 1)
13 Sep.	
07:30—18:00	Registration open (Conference Room A, Chuantai Park, Fuxing Island)
09:00—18:00	Brain-inspired Optoelectronic Intelligent System Development Competition (Conference Room A, Chuantai Park, Fuxing Island)
09:00—18:00	Joint Exhibition of Scientific Research Achievements and Enterprise Products (Conference Room A, Chuantai Park, Fuxing Island)
Opening Ceremony (Chair: Professor Zhong Zhang) (Conference Room A, Chuantai Park, Fuxing Island)	
09:00—09:50	Opening remarks + conference photo
09:50—10:05	Coffee/tea break
Plenary talks (Chair: Professor Martin Booth) (Conference Room A, Chuantai Park, Fuxing Island)	
10:05—10:45	Plenary talk: Intelligent Structured Light. Professor Andrew Forbes, University of the Witwatersrand
10:45—11:25	Plenary talk: Mesoscale Intravital Fluorescence Microscopy: A Decades-Long Journey from Concept to Innovation. Professor Qionghai Dai, Tsinghua University
11:25—12:05	Plenary talk: A Neuromorphic Photonic Platform Based on III-V Random Lasing Networks. Professor Kirsten Emilie Moselund, École Polytechnique Fédérale de Lausanne (EPFL)
12:05—14:00	Lunch Break
Plenary talks (Chair: Professor Qiming Zhang) (Conference Room A, Chuantai Park, Fuxing Island)	
14:00—14:40	Plenary talk: Brain Inspired Computing and Perception. Professor Luping Shi, Tsinghua University
14:40—15:20	Plenary talk: Brain-Inspired AI: From Computational Primitives to Representations. Professor Zhouchen Lin, Peking University
15:20—16:00	Plenary talk: Glass-based Optical Computing System. Mr. Huanan Pu, Lightstandard
16:00—16:40	Plenary talk: Beyond Data: Paradigm Shift in Brain-inspired Embodied Intelligence Dr. Senhua Zhu, EBKernel Technologies Co., Ltd.
16:40—16:55	Coffee/tea break

Roundtable Forum (Chair: Professor Haoyi Yu) (Conference Room A, Chuantai Park, Fuxing Island)	
16:55—18:00	Topic: Harness AI with Photonics: Optical Solutions for the Future of Brain- Inspired Intelligence Industry 1.Bowei Dong, Chief Scientist, Institute of Microelectronics, Agency for Science, Technology and Research (A*STAR), Singapore 2.Chaoran Huang, Assistant Professor, The Chinese University of Hong Kong 3.Cheng Wang, Founder, GUANGJIU Technology Co., Ltd. 4.Sishen Zhang, Managing Director, CASSTAR 5.Hansen Zhong, Founder, LightningAGI Co., Ltd.
18:00—19:00	Break
14 Sep.	
No.1-6 Parallel Sessions (Shanghai Marriott Hotel Yangpu Riverside) Session 1: Neuroinformatics and Neurotechnology Session 2: Neuromorphic Photonic Devices Session 3: Neuromorphic Systems and Applications Session 4: Neuromorphic Photonic Materials Session 5: Neuromorphic Photonic Physics Session 6: Intelligent Computational Optics	
09:00—10:20	Parallel Sessions
10:20—10:35	Coffee/tea break
10:35—11:55	Parallel Sessions
11:55—13:30	Lunch Break
13:30—14:45	Parallel Sessions
14:45—15:00	Coffee/tea break
15:00—16:20	Parallel Sessions
No.7 Parallel Session (Changyang Campus) Session7: Innovation and Application of Brain-Inspired Intelligent Algorithms	
Closing Ceremony (Chair: Professor Dayong Jin) (Shanghai Marriott Hotel Yangpu Riverside)	
16:35— 17:05	Invited Talk: Adaptive Laser Fabrication For Three-dimensional Photonic Information Processing. Professor Martin Booth,Oxford University.
17:05—17:20	Closing Remarks

Plenary Speakers



Andrew Forbes

Talk Title

Intelligent Structured Light

Biography

Professor Andrew Forbes is presently a Distinguished Professor within the School of Physics at the U. Witwatersrand (South Africa) and a Fellow of SPIE, Optica, the South African Institute of Physics (SAIP), PIERS, an elected member of the Academy of Science of South Africa. He is Director of South Africa's Quantum Technology Initiative and Editor in Chief of APL Photonics. He has won several awards, including two national awards for his contributions to photonics (2015) and quantum (2025) in South Africa, the Georg Forster prize from the Alexander von Humboldt Foundation for outstanding contributions to photonics (2020), the SAIP Gold Medal (2020), the highest award for physics in South Africa, making him the youngest winner to date, the Sang Soo Lee award (2022) from Optica and the Korean Optical Society for leadership in photonics, the TWAS Prize for Physics (2024) for advances in structured light, and the Harry Oppenheimer Trust award (2025).



Qionghai Dai

Talk Title

**Mesoscale Intravital Fluorescence Microscopy:
A Decades-Long Journey
from Concept to Innovation**

Biography

Professor Qionghai Dai is a Full Professor at Tsinghua University, the Academician of Chinese Academy of Engineering, Dean of the School of Information Science and Technology, and the director of the Institute of Brain and Cognitive Sciences at Tsinghua University. He is also the chairman of Chinese Association for Artificial Intelligence. Qionghai's research centers on the interdisciplinary study of optics, informatics, neuroscience, and cognitive sciences, with hundreds of journal papers published in Cell, Nature, Science, etc. Specifically, he has pioneered the development of mesoscale imaging systems and data analysis methods, facilitating simultaneous multi-scale intravital observation of biological dynamics spanning from organelles, cells, tissue, and organs in different pathological or physiological states at a system level. He is now working on system neuroscience, artificial intelligence, computational imaging, large-scale data analysis methods, and neuromorphic optoelectronic devices.



Kirsten Emilie Moselund

Talk Title

A Neuromorphic Photonic Platform Based on III-V Random Lasing Networks.

Biography

Kirsten E. Moselund holds a M.Sc in Engineering from DTU in Denmark and a Ph.D in microelectronics from EPFL Switzerland. She worked for IBM Research Europe-Zurich from 2008-2021 in a number of different positions, lastly, she managed the Materials Integration and Nanoscale Devices group.

Since 2022 she is full professor of Electrical and Microengineering in the Faculty of Engineering and Technology at EPFL. She is head of the new Laboratory of Nano and Quantum Technologies (LNQ) at Paul Scherrer Institut (PSI), where among other things she is responsible for the clean-room and the ETHZ-PSI quantum computing hub. She is also adjunct professor at the technical University of Denmark, DTU.

She serves on a number of different boards, including – co-founder and executive board member of Swiss PIC, executive board of Swiss Photonics, the Swiss Quantum Commission, and the scientific advisory board of IHP Mikroelektronik.

She is co-founder and co-CTO of the start-up Rayd in London working on commercializing a photonic AI platform based on random lasing networks.

Throughout her career, she has worked on various topics related to semiconductor devices and technology development, such as low-power electronics, cryogenic electronics, neuromorphic computing, and integrated photonics. She is author/co-author of more than 100 papers and holds more than 35 patents.



Luping Shi

Talk Title

Brain Inspired Computing and Perception.

Biography

Luping Shi is a professor, director of the optical memory national engineering research center, founding director of center for brain inspired computing research (CBICR), at Tsinghua university (THU), China. He received his Ph.D from Cologne university, Germany in 1992. He is an International institute of cognitive information and cognitive computing (I2CICC) fellow and a Society of Photo-Optical Instrumentation Engineers (SPIE) fellow. Chairman of the Brain-Inspired Intelligence Industry Innovation Alliance. His research interests include brain-inspired computing, perception and intelligence, brain-inspired smart medicine, information storage, and intelligent instrumentation. He proposed a hybrid architecture for brain-inspired computing and led the development of "Tianjic," the world's first hybrid, integrated storage-and-computing brain-inspired chip. Furthermore, he introduced a primitive-based paradigm for brain-inspired perception and led the creation of "Tianmouc," the world's first primitive-based complementary visual chip. The research results for "Tianjic" and "Tianmouc" were published as cover articles in Nature in 2019 and 2024, respectively, and were both selected by academicians of the Chinese Academy of Sciences and the Chinese Academy of Engineering as one of China's Top Ten S&T Advances for their respective years. The resulting products have been applied in key fields such as brain simulation, smart medicine, digital brains, and smart cities, pioneering the global deployment and practical application of brain-inspired computing technologies. He has been awarded honors including the National Innovation and Pioneer Award, the Zu Chongzhi Prize, and the First-class Beijing Natural Science Award.



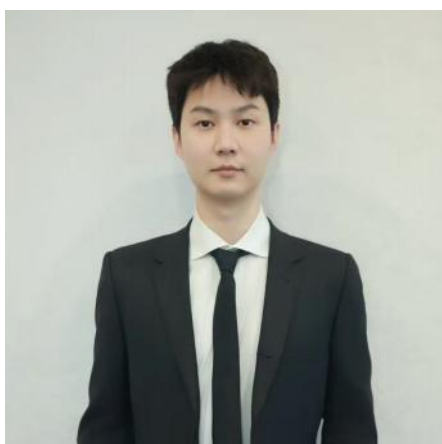
Zhouchen Lin

Talk Title

Brain-Inspired AI: From Computational Primitives to Representations.

Biography

Zhouchen Lin is Vice Dean and Boya Distinguished Professor at the School of Intelligence, Peking University. His research interests cover machine learning and computer vision. He has authored more than 390 papers in top-tier AI journals and conferences, and published five monographs in both Chinese and English, with over 45,000 Google Scholar citations. He has served as Area Chair and Senior Area Chair for numerous premier academic conferences. He received the First Prize of Natural Science Award from CAA (2024), CAAI (2023), and CCF (2020), as the first recipient for all three awards. He is the former Chair of the Machine Vision Technical Committee of the China Society for Image and Graphics (CSIG), and Deputy Director of the Pattern Recognition and Machine Intelligence Technical Committee of the Chinese Association of Automation. He is a Fellow of IAPR, IEEE, CSIG and CCF. He is also a recipient of the National Science Fund for Distinguished Young Scholars, and Principal Investigator of the Major Project under the STI Innovation 2030-“New Generation Artificial Intelligence” Initiative of the Ministry of Science and Technology.



Tangsheng Cheng

Talk Title

Glass-based optical computing system

Biography

Tangsheng Cheng is Co-founder and CEO of Lightstandard. He pursued his doctoral studies under the supervision of Professor Harish Bhaskaran, Fellow of the Royal Academy of Engineering at the Department of Materials, University of Oxford, a world-leading authority on phase-change materials for photonic computing. His research focuses on photonic computing chip design, physical-layer architecture and industrial engineering implementation. He leads the hardware architecture development of photonic computing systems, as well as the on-chip integration and deployment technologies combining phase-change materials with silicon photonics.



Senhua Zhu

Talk Title

Beyond Data: Paradigm Shift in Brain-inspired Embodied Intelligence

Biography

Dr. Senhua Zhu is the Founder and CEO of EBKernel Technologies Co., Ltd. Former director of the AI Algorithm Innovation Lab at Huawei Cloud and the pioneer in Huawei's Embodied AI initiatives. He led the technical innovation and commercial validation of the Brain-inspired AI platform, the CloudRobo platform, and the Pangu Embodied Large Model in Huawei Cloud. He is a senior expert in the fields of Cognitive Neuroscience and Brain-inspired AI, possessing a rare combination of top-tier academic credentials and extensive industry experience.

Academic Background: He completed his doctoral research on the intersection of AI and brain cognition at Sun Yat-sen University and the University of Pennsylvania. Subsequently, he conducted postdoctoral research on brain-inspired AI at the State Key Laboratory of Brain and Cognitive Science (Chinese Academy of Sciences) under the mentorship of Academician Chen Lin.

Industry Experience: Throughout his career at startups and Huawei, he has consistently focused on technical innovation and industrial application of AI in fields such as medical imaging, brain science, and embodied intelligence. He brings over five years of industry experience in brain-inspired intelligence and embodied intelligence.

Session Program

Session 1: Neuroinformatics and Neurotechnology

(Junior Ballroom 1, 3rd Floor, Shanghai Marriott Hotel Yangpu Riverside)

Time	Talk Details & Speakers
09:00 – 10:30	Sub-session 1.1 Session Chair: Prof. Jiulin Du (<i>Center for Excellence in Brain Science and Intelligence Technology, CAS</i>)
09:00 – 09:05	Opening Remarks
09:05 – 09:40	Keynote Talk: Optical stimulation of intelligent brain organoids by nanoscale opto-electrodes Dayong Jin, University of Technology Sydney, Australia
09:40 – 10:05	Invited Talk: Neuronal and circuit mechanisms underlying cognitive flexibility Ninglong Xu, Center for Excellence in Brain Science and Intelligence Technology, CAS, China
10:05 – 10:30	Invited Talk: Hierarchical Attractor Dynamics Support History-Dependent Decision-Making Yu Mu, Center for Excellence in Brain Science and Intelligence Technology, CAS, China
10:30 – 10:45	Coffee Break
10:45 – 12:00	Sub-session 1.2 Session Chair: Prof. Jiulin Du (<i>Center for Excellence in Brain Science and Intelligence Technology, CAS</i>)
10:45 – 11:10	Invited Talk: Brain composition and mechanics Chengyu Li, Lingang Laboratory, China
11:10 – 11:35	Invited Talk: Towards bidirectional optical brain interfaces Lingjie Kong, Tsinghua University, China
11:35 – 12:00	Invited Talk: Fidelity-Ensured Computational Fluorescence Microscopy: Background Removal, Deconvolution, and Large-view Restoration Peng Xi, Peking University, China
12:00 – 13:30	Lunch Break
13:30 – 14:55	Sub-session 1.3 Session Chair: Prof. Jiulin Du (<i>Center for Excellence in Brain Science and Intelligence Technology, CAS</i>)
13:30 – 14:05	Keynote Talk: Human Brainnetome Atlas Guided Neuromodulation Methods and Device for Brain Diseases Tianzi Jiang, Institute of Automation, CAS, China
14:05 – 14:30	Invited Talk: Multimodal AI Identification of Pathogenic Bacteria in Central Nervous System Infections Jiong Ma, Fudan University, China
14:30 – 14:55	Invited Talk: Macroscopic Digital Twin Brain Empowers Fundamental Brain Research Daqing Guo, University of Electronic Science and Technology of China, China
14:55 – 15:10	Coffee Break
15:10 – 16:25	Sub-session 1.4 Session Chair: Prof. Jiulin Du (<i>Center for Excellence in Brain Science and Intelligence Technology, CAS</i>)
15:10 – 15:35	Invited Talk: From Interface to Integration: AI as the Core Engine of Brain-Computer Interaction Meng Li, Shanghai Institute of Microsystem and Information Technology, CAS, China
15:35 – 16:00	Invited Talk: Active Devices & Materials for Implantable Neural Interfaces Enming Song, Institute of Optoelectronics, Fudan University, China
16:00 – 16:25	Invited Talk: Seeing From the Blind Eyes: Artificial Vision Empowered by Nanowire Arrays Jiayi Zhang, Fudan University, China

Session 2: Neuromorphic Photonic Devices

(Grand Ballroom, 2nd Floor, Shanghai Marriott Hotel Yangpu Riverside)

Time	Talk Details & Speakers
09:00 – 10:20	Sub-session 2.1 Session Chair: Prof. Xuhan Guo (<i>Shanghai Jiao Tong University, China</i>)
09:00 – 09:05	Opening Remarks
09:05 – 09:40	Keynote Talk: Bioinspired in-sensor intelligence for artificial vision Yang Chai, The Hong Kong Polytechnic University, China
09:40 – 10:00	Invited Talk: Programmable electromagnetic diffractive neural network based on information metamaterials Qian Ma, Southeast University, China
10:00 – 10:20	Invited Talk: Research Progress on Metasurface-Based Optical Computing Diffractive Neural Networks Siyu Dong, Tongji University, China
10:20 – 10:35	Coffee Break
10:35 – 11:55	Sub-session 2.2 Session Chair: Prof. Ye Zhou (<i>Shenzhen University, China</i>)
10:35 – 10:55	Invited Talk: Three-Dimensional Photodetectors Based on Rolled-Up Nanomembranes Gaoshan Huang, Fudan University, China
10:55 – 11:15	Invited Talk: Glass-based laser direct writing 3D waveguides for optical interconnects Ting Lei, Shenzhen University, China
11:15 – 11:35	Invited Talk: In-substrate integrated spectral encoding structures for spectroscopic applications Bo Zhang, Zhejiang University, China
11:35 – 11:55	Invited Talk: High-precision Infrared Polarization Detection via Optoelectronic Metadevices Jing Zhou, Shanghai Institute of Technical Physics, CAS, China
11:55 – 13:30	Lunch Break
13:30 – 14:45	Sub-session 2.3 Session Chair: Prof. Jiafang Li (<i>Beijing Institute of Technology, China</i>)
13:30 – 13:55	Invited Talk: Neuromorphic photodiodes for bionic vision Zhuoran Wang, Beijing Institute of Technology, China
13:55 – 14:20	Invited Talk: Optoelectronic Neuromorphic Devices for Functional Applications Ye Zhou, Shenzhen University, China
14:20 – 14:45	Invited Talk: TBD Shuang Zheng, Huazhong University of Science and Technology, China
14:45 – 15:00	Coffee Break
15:00 – 16:00	Sub-session 2.4 Session Chair: Prof. Gaoshan Huang (<i>Fudan University, China</i>)
15:00 – 15:20	Invited Talk: Brain-Inspired Perception and Computing with Memristive Dynamics Xumeng Zhang, Fudan University, China
15:20 – 15:40	Invited Talk: In-Sensor-Memory Computing Technologies: Challenges and Opportunities for Post-Von Neumann Intelligence Hongyu Tang, Fudan University, China
15:40 – 16:00	Invited Talk: TBD Yuhui He, Huazhong University of Science and Technology, China

Session 3: Neuromorphic Systems and Applications

(Junior Ballroom 2, 3rd Floor, Shanghai Marriott Hotel Yangpu Riverside)

Time	Talk Details & Speakers
09:00 – 10:20	Sub-session 3.1 Session Chair: Prof. Jianji Dong (<i>Huazhong University of Science and Technology, China</i>)
09:00 – 09:05	Opening Remarks
09:05 – 09:40	Keynote Talk: TBD Daoxin Dai, Zhejiang University, China
09:40 – 10:00	Invited Talk: TBD Nuannuan Shi, Institute of Semiconductors, CAS, China
10:00 – 10:20	Invited Talk: Ultra-high Parallel Photonic Computing Chips Peng Xie, Shanghai Institute of Optics and Fine Mechanics, CAS, China
10:20 – 10:35	Coffee Break
10:35 – 11:55	Sub-session 3.2 Session Chair: Prof. Daoxin Dai (<i>Zhejiang University, China</i>)
10:35 – 10:55	Invited Talk: Integrated Photonics for Intelligent Light Computing Xuhan Guo, Shanghai Jiao Tong University, China
10:55 – 11:15	Invited Talk: The Evolution of All-Analog Photoelectronic Computing: From Visual Classification to Large-Scale Content Generation Yitong Chen, Shanghai Jiao Tong University, China
11:15 – 11:35	Invited Talk: Intelligent sensing based on distributed networks of optical microresonators Anton Saetchnikov, Ruhr University Bochum, Germany
11:35 – 11:55	Invited Talk: Multi-dimensional Signal Processing for Optical Interconnection and Computing Junwen Zhang, Fudan University, China
11:55 – 13:30	Lunch Break
13:30 – 14:45	Sub-session 3.3 Session Chair: Prof. Junwen Zhang (<i>Fudan University, China</i>)
13:30 – 14:05	Keynote Talk: Autoregressive Photonic Intelligence Jianji Dong, Huazhong University of Science and Technology, China
14:05 – 14:25	Invited Talk: In-situ Training of Optical Computing Systems with Model-free Optimization Xin Shu, The Chinese University of Hong Kong, China
14:25 – 14:45	Invited Talk: Optoelectronic Ising Machines: A New Computing Paradigm for Combinatorial Optimization Ye Xiao, Beijing Ising Intelligent Technology Co., Ltd., China
14:45 – 15:00	Coffee Break
15:00 – 16:20	Sub-session 3.4 Session Chair: Prof. Xin Shu (<i>The Chinese University of Hong Kong, China</i>)
15:00 – 15:20	Invited Talk: AI & Optics Empowered Novel Imaging Zihan Geng, Tsinghua University, China
15:20 – 15:40	Invited Talk: Toward Robust Neuromorphic Chips: Signal Integrity Modeling and Hardware-Software Co-Design Hanzhi Ma, Zhejiang University, China
15:40 – 16:00	Invited Talk: High-dimensional Photonic Tensor Convolution: Dimension Mapping, Interaction, and Fusion Wenjia Zhang, Shanghai Jiao Tong University, China
16:00 – 16:20	Invited Talk: Brain-inspired sparse network science for next generation efficient and sustainable AI Carlo V. Cannistraci, Tsinghua University, China

Session 4: Neuromorphic Photonic Materials

(Junior Ballroom 3, 3rd Floor, Shanghai Marriott Hotel Yangpu Riverside)

Time	Talk Details & Speakers
09:00 – 10:20	Sub-session 4.1 Session Chair: Prof. Yanqing Lu (<i>Nanjing University, China</i>)
09:00 – 09:05	Opening Remarks
09:05 – 09:40	Keynote Talk: Silicon Optical Neural Network Computing Chip Xiaoyong Hu, Peking University, China
09:40 – 10:00	Invited Talk: Photonic Glass and Applications Dezhi Tan, Zhejiang University, China
10:00 – 10:20	Invited Talk: Photonic In-Memory Computing Zengguang Cheng, Fudan University, China
10:20 – 10:35	Coffee Break
10:35 – 11:55	Sub-session 4.2 Session Chair: Prof. Dezhi Tan (<i>Zhejiang University, China</i>)
10:35 – 10:55	Invited Talk: Deciphering the Nanoscopic Working Mechanism of Neuromorphic Devices Songhua Cai, The Hong Kong Polytechnic University, China
10:55 – 11:15	Invited Talk: Ferroelectric Devices for In-Memory Computing Bobo Tian, East China Normal University, China
11:15 – 11:35	Invited Talk: Material-Native Visual Perception: From Non-Pixelated Photocarrier Dynamics to Reconfigurable In-Sensor Recognition Junpeng Lu, Southeast University, China
11:35 – 11:55	Invited Talk: Multi-Physical Laser Micro/Nano-Fabrication and Applications on Biomimetic Photonics Yunlu Sun, Fudan University, China
11:55 – 13:30	Lunch Break
13:30 – 14:45	Sub-session 4.3 Session Chair: Prof. Yaoyu Cao (<i>Jinan University, China</i>)
13:30 – 14:05	Invited Talk: Integrated Ultraviolet Optoelectronics for Communication and Imaging Haiding Sun, University of Science and Technology of China, China
14:05 – 14:25	Invited Talk: Optical neuromorphic computing for multimodal perceptual recognition Xi Chen, University of Shanghai for Science and Technology, China
14:25 – 14:45	Invited Talk: Ultra high-density nanoscale super-resolution optical data storage Jing Wen, Zhangjiang Lab, China
14:45 – 15:00	Coffee Break
15:00 – 16:00	Sub-session 4.4 Session Chair: Prof. Xi Chen (<i>University of Shanghai for Science and Technology, China</i>)
15:00 – 15:20	Invited Talk: Optoelectronic Retinal Implant and Cardiac Pacemakers Based on Quantum Dots Sedat Nizamoglu, Koç University, Türkiye
15:20 – 15:40	Invited Talk: Chiral Superstructures for Dynamic Planar Optics Peng Chen, Nanjing University, China
15:40 – 16:00	Invited Talk: Functional Brain Organoids with 3D-Printed Artificial Vessels Haibo Ding, Southeast University, China

Session 5: Neuromorphic Photonic Physics

(Meeting Room 2, 3rd Floor, Shanghai Marriott Hotel Yangpu Riverside)

Time	Talk Details & Speakers
09:00 – 10:20	Sub-session 5.1 Session Chair: Prof. Xiangping Li (<i>Jinan University, China</i>)
09:00 – 09:05	Opening Remarks
09:05 – 09:40	Keynote Talk: TBD Qing Yang, Zhejiang University, China
09:40 – 10:00	Invited Talk: Transferable Metasurfaces: Nonlocality and Device Applications Shaojun Wang, Soochow University, China
10:00 – 10:20	Invited Talk: Ultrafast Laser 3D Micro-Nano Manufacturing Techniques for Integrated Photonic Circuits Zhi Chen, Kunming University of Science and Technology, China
10:20 – 10:35	Coffee Break
10:35 – 11:55	Sub-session 5.2 Session Chair: Prof. Qing Yang (<i>Zhejiang University, China</i>)
10:35 – 10:55	Invited Talk: Creation of a computational Space Chao Qian, Zhejiang University, China
10:55 – 11:15	Invited Talk: Nonlinear Frequency Conversion and Smart Imaging with Optical Metasurfaces Tingting Liu, Nanchang University, China
11:15 – 11:35	Invited Talk: Reservoir computing based nonlinear micro-nano photonic devices Can Huang, Harbin Institute of Technology, China
11:35 – 11:55	Invited Talk: Vectorial optics and photonics Chao He, University of Oxford, UK
11:55 – 13:30	Lunch Break
13:30 – 14:45	Sub-session 5.3 Session Chair: Prof. Chao He (<i>University of Oxford, UK</i>)
13:30 – 14:05	Keynote Talk: Compressive transmission matrix for dynamic scattering imaging Yi Xu, Guangdong University of Technology, China
14:05 – 14:25	Invited Talk: OAM-based cavity-enhanced narrow-band entangled source and heralded high-dimensional photon-photon gate Xi-Lin Wang, Nanjing University, China
14:25 – 14:45	Invited Talk: Fundamental Physics and Functional Applications based on Metasurfaces Lingling Huang, Beijing Institute of Technology, China
14:45 – 15:00	Coffee Break
15:00 – 16:20	Sub-session 5.4 Session Chair: Prof. Lingling Huang (<i>Beijing Institute of Technology, China</i>)
15:00 – 15:20	Invited Talk: Intelligent Light Manipulation and Imaging with 3D Nanophotonics Hongtao Wang, Beijing Institute of Technology, China
15:20 – 15:40	Invited Talk: Intelligent Control of Quantum Optical Systems: From Quantum Memory Optimization to Predictive Phase Locking Jinxian Guo, Shanghai Jiao Tong University, China
15:40 – 16:00	Invited Talk: Research on fractal recursive optical computing architectures and reconfigurable photonic chips Hui Zhang, Tongji University, China
16:00 – 16:20	Invited Talk: Superconducting Nanowire Single Photon Detectors (SNSPDs): Beyond Quantum Chaolin Lv, Photec, China

Session 6: Intelligent Computational Optics

(Meeting Room 3, 3rd Floor, Shanghai Marriott Hotel Yangpu Riverside)

Time	Talk Details & Speakers
09:00 – 10:20	Sub-session 6.1 Session Chair: Prof. Guohai Situ (<i>Shanghai Institute of Optics and Fine Mechanics, CAS</i>)
09:00 – 09:05	Opening Remarks
09:05 – 09:40	Keynote Talk: Intelligent vision processor based on metasurface Liangcai Cao, Tsinghua University, China
09:40 – 10:00	Invited Talk: Neural-Network-Enabled Large Scale Adaptive Glasses-Free Foveated 3D Displays Wen Qiao, Soochow University, China
10:00 – 10:20	Invited Talk: Metasurface Multi-Kernel Convolution Imaging and Image Recognition Based on Arrayed Point Spread Functions Kun Huang, University of Science and Technology of China, China
10:20 – 10:35	Coffee Break
10:35 – 11:55	Sub-session 6.2 Session Chair: Prof. Liangcai Cao (<i>Tsinghua University, China</i>)
10:35 – 10:55	Invited Talk: High-Speed Multi-Degree-of-Freedom Control and Information Reconstruction of Spatial Optical Fields in Scattering Media Jiamiao Yang, Shanghai Jiao Tong University, China
10:55 – 11:15	Invited Talk: Research on Computational Imaging Inspired by Biological Vision Tao Yue, Nanjing University, China
11:15 – 11:35	Invited Talk: Physics-Informed Diffusion for Stable Phase Recovery in High Dynamic Range Single-Shot Structured Light Wei Tao, Shanghai Jiao Tong University, China
11:35 – 11:55	Invited Talk: Water-related optical imaging technology for submarine cable projects Zhe Sun, Northwestern Polytechnical University & Institute of Artificial Intelligence, China Telecom, China
11:55 – 13:30	Lunch Break
13:30 – 14:30	Sub-session 6.3 Session Chair: Prof. Yuecheng Shen (<i>East China Normal University, China</i>)
13:30 – 13:50	Invited Talk: Object classification with efficient optical neural network inference Qi Hu, University of Oxford, UK
13:50 – 14:10	Invited Talk: Computational Surface Metrology for Precision Optics Manufacturing Rong Su, Shanghai Institute of Optics and Fine Mechanics, CAS, China
14:10 – 14:30	Invited Talk: Non-line-of-sight single-photon imaging Xing Fu, Tsinghua University, China
14:30 – 14:45	Coffee Break
14:45 – 16:20	Sub-session 6.4 Session Chair: Prof. Yanlei Hu (<i>University of Science and Technology of China, China</i>)
14:45 – 15:05	Invited Talk: Multi-wavelength Holographic Microstructure Reconstruction Technique Xiao Yang, Northwestern Polytechnical University, China
15:05 – 15:40	Keynote Talk: Remote Sensing Visual Generative Models Leyuan Fang, Hunan University, China
15:40 – 16:00	Invited Talk: Recent Advances in Non-Line-of-Sight Imaging Wenwen Li, University of Science and Technology of China, China
16:00 – 16:20	Invited Talk: Wide-field single-pixel complex-field microscopy through a multimode fiber Yuecheng Shen, East China Normal University, China

Session 7: Innovation and Application of Brain-Inspired Intelligent Algorithms (Changyang Campus)

Time	Details
14:05-14:15	Opening Remarks
14:15-15:05	Keynote Speech
15:05-16:45	Theme Presentation
16:45-16:50	Launch Ceremony of the Technical White Paper on Brain-Inspired Cognitive World Models
16:50-17:30	Panel Discussion: Industry-Research Synergy — Empowering Global Leadership of China's Foundational Brain-Inspired Embodied Technologies

Keynote&Invited Speakers

Session 1: Neuroinformatics and Neurotechnology

[Keynote Talk]

Optical Stimulation of Intelligent Brain Organoids by Nanoscale Opto-Electrodes

Speaker: Prof. Dayong Jin **Affiliation:** University of Technology Sydney, Australia

Biography

Prof. Dayong Jin is a Clarivate Highly Cited Researcher, ranking among the world's top 0.1% of influential researchers across multiple disciplines. He has spent the past decade advancing the translation of photonics and advanced materials into high-precision analytical, diagnostic, and imaging devices for disease detection, including cancer. He earned his Ph.D. from Macquarie University in 2007, where he subsequently served as Lecturer, Senior Lecturer, Associate Professor, and Professorial Fellow. In 2015, he joined the University of Technology Sydney (UTS) as a Chair Professor, establishing and directing the Institute for Biomedical Materials and Devices (IBMD). Prof. Jin has also founded the ARC Industry Transformation Research Hub for Integrated Devices for End-user Analysis at Low Levels (ARC IDEAL Research Hub), the Australia-China Joint Research Centre for Point of Care Testing (DISER POCT), and the UTS-SUSTech Joint Research Centre. Since 2019, he has held a joint appointment as Chair Professor at the Southern University of Science and Technology. He is a Fellow of the Australian Academy of Technology and Engineering (FTSE) and has received numerous honors, including the Australian Museum Eureka Prize (2015), the Australian Academy of Science Engineering Science Medal (2017), the Australian Prime Minister's Prize for Science – Physical Scientist of the Year (2017), and the ARC Laureate Fellowship (2021).

[Keynote Talk]

Human Brainnetome Atlas Guided Neuromodulation Methods and Device for Brain Diseases

Speaker: Prof. Tianzi Jiang

Affiliation: Key Laboratory of Brainnetome and Brain-Computer Interface,
Institute of Automation, Chinese Academy of Sciences, China

Biography

Prof. Tianzi Jiang is Professor and Director of the Key Laboratory of Brainnetome and Brain-Computer Interface at the Institute of Automation, Chinese Academy of Sciences (CASIA), and Director of the International Institute for Brain-Machine Intelligence at Harbin Institute of Technology (Shenzhen). He received his B.Sc. from Lanzhou University and his Ph.D. from Zhejiang University. He served as the Chair of the Organization for Human Brain Mapping (OHBM, 2024–2025). Prof. Jiang is an elected Member of the Academy of Europe (Academia Europaea), an IEEE Fellow, an IAPR Fellow, and an AIMBE Fellow. He has authored over 400 peer-reviewed journal papers with more than 45,000 citations. His honors include the Glass Brain Award, the Hermann von Helmholtz Award, the Turan Itil Career Contribution Award, and the National Natural Science Award of China.

[Invited Talk]

Neuronal and Circuit Mechanisms Underlying Cognitive Flexibility

Speaker: Dr. Ninglong Xu

Affiliation: Center for Excellence in Brain Science and Intelligence Technology,
Chinese Academy of Sciences, China

Biography

Dr. Ninglong Xu is a Senior Investigator at the Institute of Neuroscience / Center for Excellence in Brain Science and Intelligence Technology (CEBSIT), Chinese Academy of Sciences. He earned his B.S. from Sichuan University (1999) and his Ph.D. in Neurobiology from the Institute of Neuroscience, CAS (2006). He conducted postdoctoral research with Dr. Zach Mainen at Cold Spring Harbor Laboratory (2006–2008) and with Dr. Jeff Magee at the Howard Hughes Medical Institute (HHMI) Janelia Research Campus (2008–2013). Dr. Xu joined CEBSIT as a Principal Investigator in 2013 and received the National Science Fund for Distinguished Young Scholars from the NSFC in 2021. His laboratory combines quantitative behavioral paradigms with cellular-resolution two-photon imaging, high-density electrophysiology, and cell-type-specific optogenetic circuit perturbations to investigate fundamental cognitive functions, including sensory perception and decision-making. His discoveries have been published in *Nature*, *Nature Neuroscience*, and *Neuron*.

[Invited Talk]

Hierarchical Attractor Dynamics Support History-Dependent Decision-Making

Speaker: Dr. Yu Mu

Affiliation: Center for Excellence in Brain Science and Intelligence Technology,
Chinese Academy of Sciences, China

Biography

Dr. Yu Mu is a Senior Principal Investigator at the Institute of Neuroscience, Center for Excellence in Brain Science and Intelligence Technology, Chinese Academy of Sciences. He received his Ph.D. in Neuroscience from the Institute of Neuroscience, CAS, and subsequently conducted postdoctoral research at HHMI's Janelia Research Campus before establishing his laboratory in Shanghai. His group combines brain-wide neural recording, closed-loop virtual reality, targeted optogenetic perturbation, computational modeling, and systems neuroscience to investigate how neural circuits translate sensory inputs and past experience into adaptive choices. Using larval zebrafish as a complete vertebrate model, his laboratory decodes brain-wide population dynamics, memory persistence, decision switching, and glia-neuron interactions. His work has appeared in *Nature*, *Cell*, *Neuron*, *Nature Neuroscience*, and *Nature Methods*. His honors include the National Excellent Young Scientists Fund (Overseas), the CAS Hundred Talents Program, the Shanghai Pujiang Talent Program, and the First Prize of the Shanghai Natural Science Award.

[Invited Talk]

Brain Composition and Mechanics

Speaker: Dr. Chengyu Li

Affiliation: Lingang Laboratory, China

Biography

Dr. Chengyu Li is Chief Scientist for Brain-Computer Interfaces (BCI) and Director of the Department of Brain Technology and Engineering at Lingang Laboratory. His research focuses on brain-machine interfaces, cortical mapping, and the neural substrates of working memory. He has led full-stack technological development across the BCI pipeline, including neural micro-sensors, flexible active electrode arrays, low-power neuromorphic acquisition chips, decoding algorithms, and non-human primate validation of motor and visual neural prostheses. He directed a multi-institutional team to construct a single-cell spatial transcriptomic atlas of the macaque cerebral cortex, as well as a mesoscopic whole-brain projection atlas of the primate hippocampus at single-axon resolution. Using optogenetics and chronic multi-channel recording, his group has elucidated circuit dynamics underlying working memory. His research has been published in leading international journals, secured extensive patent portfolios, and translated into clinical-grade medical instrumentation.

[Invited Talk]

Towards Bidirectional Optical Brain Interfaces

Speaker: Prof. Lingjie Kong

Affiliation: Tsinghua University, China

Biography

Prof. Lingjie Kong is a Full Professor in the Department of Precision Instrument at Tsinghua University. His research focuses on biomedical optics, neurophotronics, and high-speed optical instrumentation. He has pioneered diverse imaging technologies that operate faster, deeper, and across wider fields of view, while establishing novel concepts in optical sensing and intelligent clinical prognosis. He was awarded the National Science Fund for Distinguished Young Scholars by the National Natural Science Foundation of China (NSFC) in 2024.

[Invited Talk]

Fidelity-Ensured Computational Fluorescence Microscopy: Background Removal, Deconvolution, and Large-View Restoration

Speaker: Prof. Peng Xi

Affiliation: Peking University, China

Biography

Dr. Peng Xi is a Boya Distinguished Professor in the College of Future Technology at Peking University, China. His research focuses on optical super-resolution microscopy and computational imaging instrumentation. He is a recipient of the National Science Fund for Distinguished Young Scholars and serves as Chief Scientist for the National Key Research and Development Program of China. Prof. Xi serves on the editorial boards of five SCI journals, including Light: Science & Applications and Advanced Photonics. With over 120 publications in journals such as Nature, Nature Photonics, and Nature Methods, his citations exceed 8,500. His honors include the China Optics Important Achievement Award, the Guangdong Provincial Natural Science Second Prize, and a Gold Medal at the International Exhibition of Inventions. He is an elected Fellow of Optica and IAAM.

[Invited Talk]

Multimodal AI Identification of Pathogenic Bacteria in Central Nervous System Infections

Speaker: Prof. Jiong Ma

Affiliation: Fudan University, China

Biography

Prof. Jiong Ma is a Professor and Doctoral Supervisor at the Future Institute of Information Innovation, Fudan University. He received his B.S. in Physics (2003) and Ph.D. in Optics (2008) from Fudan University. He conducted research as a visiting scholar at Rhodes University (South Africa) and the University of Oslo (Norway), followed by postdoctoral appointments in Biological Sciences and Photochemical Sciences at Bowling Green State University (USA) and a Research Assistant Professorship in Biology at Temple University (USA). In 2015, he joined the Department of Optical Science and Engineering at Fudan University. His research focuses on composite super-resolution biomedical microscopy and multiscale optical sorting systems. He has published over 80 SCI papers, led multiple national research projects, and been selected for the National Thousand Talents Program (Youth), the Shanghai Qimingxing Program, and the CAS Innovation Interdisciplinary Team.

[Invited Talk]

Macroscopic Digital Twin Brain Empowers Fundamental Brain Research

Speaker: Prof. Daqing Guo

Affiliation: University of Electronic Science and Technology of China, China

Biography

Prof. Daqing Guo is a Full Professor and Youth Changjiang Scholar at the University of Electronic Science and Technology of China (UESTC). He serves as Deputy Director of the Key Laboratory for Neuroinformatics of the Ministry of Education and PI of the China-Cuba Joint Laboratory for Frontier Research in Neural Technology and Brain-Machine Interface. He is Vice Chair of the Computational Neuroscience and Neural Engineering Branch of the Chinese Neuroscience Society. Prof. Guo's research focuses on computational neuroscience, macroscopic brain dynamics modeling, and brain-inspired intelligence. He has led multiple grants under the National Natural Science Foundation of China and the National Key R&D Program, publishing over 90 papers in leading journals. He is a recipient of the Huang Jiasi Biomedical Engineering Award (Second Prize, 2019) and the Chinese Society of Theoretical and Applied Mechanics Natural Science Award (Second Prize, 2023).

[Invited Talk]

From Interface to Integration: AI as the Core Engine of Brain-Computer Interaction

Speaker: Dr. Meng Li

**Affiliation: Shanghai Institute of Microsystem and Information Technology,
Chinese Academy of Sciences, China**

Biography

Dr. Meng Li is a Distinguished Core Researcher and Doctoral Supervisor at the Shanghai Institute of Microsystem and Information Technology (SIMIT), Chinese Academy of Sciences. He previously served as a Postdoctoral Fellow at Harvard University and as a Research Scientist within the Max Planck Society, Germany. His research investigates the intersection of systems neuroscience, neural decoding algorithms, and artificial intelligence. He has authored high-impact publications in *Nature* (2020, 2024) and holds leadership appointments on the Neural Modulation Committee of the Chinese Neuroscience Society and the Human-Computer Interaction Committee of the China Computer Federation. He has been selected for multiple national, CAS, and Shanghai municipal talent programs, and was recognized on the Forbes China Top 100 Overseas Returnees list.

[Invited Talk]

Active Devices & Materials for Implantable Neural Interfaces

Speaker: Prof. Enming Song

Affiliation: Institute of Optoelectronics, Fudan University, China

Biography

Prof. Enming Song is a Full Professor and Doctoral Supervisor at the Institute of Optoelectronics, Fudan University. He has been selected for the National High-Level Young Talents Program, serves as a Young Chief Scientist for the National Science and Technology Innovation 2030 Major Project, and is recognized under the Shanghai Leading Talents Program. He has authored 56 peer-reviewed papers as first or corresponding author in journals such as *Cell*, *Nature Materials*, *Nature Biomedical Engineering*, *PNAS*, *Science Advances*, and *Advanced Functional Materials*. His awards include the MIT Technology Review TR35 (Asia Pacific), the DAMO Academy Young Fellow (Orange) Award, the Xiaomi Young Scholar Award, and the MINE Young Scientist Award. He was the primary contributor to one of the 15 Major BCI Breakthroughs at the 2026 Zhongguancun Forum and holds 10 authorized Chinese and US patents on neural interface technologies.

[Invited Talk]

Seeing from the Blind Eyes: Artificial Vision Empowered by Nanowire Arrays

Speaker: Prof. Jiayi Zhang

Affiliation: Fudan University, China

Biography

Dr. Jiayi Zhang is a Professor at the Institutes of Brain Science, Fudan University. She earned her B.Sc. from Hong Kong Baptist University and her Ph.D. in Physics from Brown University. She was a Brown-Coxe Postdoctoral Fellow at Yale University before joining Fudan University in 2012. Her research focuses on neural decoding, optoelectronic neuro-prosthetics, and the restoration of visual function. Her discoveries have been published in *Science*, *Nature Biomedical Engineering*, *Neuron*, and *Nature Communications*. Prof. Zhang received the Xplorer Prize (2025), the State Science and Technology Advancement Award (2023), and the Young Innovative Woman Award of Shanghai (2020). She serves as Vice Chair of the Neurotechnology Panel of the Chinese Neuroscience Society and is an editorial board member of *Progress in Retina and Eye Research*.

Session 2: Neuromorphic Photonic Devices

[Keynote Talk]

Bioinspired In-Sensor Intelligence for Artificial Vision

Speaker: Prof. Yang Chai

Affiliation: The Hong Kong Polytechnic University, China

Biography

Prof. Yang Chai is a Chair Professor of Semiconductor Physics, Associate Dean (Research) of the Faculty of Science, and Director of the Research Institute for Artificial Intelligence of Things at The Hong Kong Polytechnic University. He received his Ph.D. from the Hong Kong University of Science and Technology. Prof. Chai is an elected Member of The Hong Kong Young Academy of Sciences, an IEEE Fellow, an Optica Fellow, an IOP Fellow, and an AAIA Fellow. He has served as an IEEE Distinguished Lecturer, Vice President of the Physical Society of Hong Kong, and Associate Editor of *ACS Nano*. His research focuses on low-dimensional electronic and optoelectronic devices, in-sensor computing, and bioinspired neuromorphic vision systems. Prof. Chai is a recipient of the Falling Walls Breakthrough Prize in Engineering and Technology (2024), the BOCHK Science and Technology Innovation Prize (2024), the Croucher Senior Research Fellowship (2026), and the RGC Early Career Award. His works appear regularly in *Nature*, *Nature Electronics*, and *Nature Nanotechnology*.

[Invited Talk]

Neuromorphic photodiodes for bionic vision

Speaker: Prof. Zhuoran Wang

Affiliation: Beijing Institute of Technology, China

Biography

Zhuoran Wang, received his PhD in the department of Mining and Materials Engineering from the McGill University, QC, Canada in 2017. In 2019 he joined the Institute of Photonic Sciences (ICFO), Barcelona, as a postdoctoral /Marie-Curie research fellow. He is currently a professor at the Institute of Flexible Electronics, School of Integrated Circuits and Electronics, Beijing Institute of Technology, Beijing. He is also an early-career editorial board member of Journal of Semiconductors, Science Bulletin, Explorations. He had won several awards such as National Young Talents, Marie-Curie Fellowship, BIT “Teli” young scholar award, etc. His current research focuses on advanced optoelectronic sensors for biomimic vision, with 40 published articles in peer-reviewed journals including Nature Electronics, Nature Communications, Advanced Materials, etc.

[Invited Talk]

Programmable Electromagnetic Diffractive Neural Network Based on Information Metamaterials

Speaker: Prof. Qian Ma

Affiliation: Southeast University, China

Biography

Prof. Qian Ma is a Professor in the School of Information Science and Engineering at Southeast University. His research focuses on digital coding metamaterials, programmable metasurfaces, information metamaterials, and wave-based diffractive neural networks. He has published over 60 SCI-indexed journal papers, including more than 50 as first or corresponding author in high-impact journals such as Nature Electronics, Nature Communications, and Light: Science & Applications. He has led multiple competitive grants under the National Natural Science Foundation of China.

[Invited Talk]

Research Progress on Metasurface-Based Optical Computing Diffractive Neural Networks

Speaker: Prof. Siyu Dong

Affiliation: Tongji University, China

Biography

Prof. Siyu Dong is a Professor in the School of Physical Science and Engineering at Tongji University. His research focuses on optical metasurfaces, subwavelength field manipulation, and diffractive deep neural networks (D2NN). He has authored numerous publications in leading optics journals and has led multiple projects funded by national research programs.

[Invited Talk]

Three-Dimensional Photodetectors Based on Rolled-Up Nanomembranes

Speaker: Prof. Gaoshan Huang

Affiliation: Fudan University, China

Biography

Prof. Gaoshan Huang is a Full Professor in the Department of Materials Science at Fudan University. He received his Ph.D. in Condensed Matter Physics from Nanjing University in 2007, worked as a guest scientist at the Leibniz Institute for Solid State and Materials Research (IFW Dresden) from 2007 to 2009, and conducted research at IMRE, Singapore, before joining Fudan University in 2010. Prof. Huang has authored over 200 papers in journals such as Nature Communications, Light: Science & Applications, and Advanced Materials (h-index 45), and holds over 20 granted patents. His honors include the First Prize of the Science and Technology Award from the Chinese Materials Research Society and the Shanghai Pujiang Talent Program.

[Invited Talk]

Glass-Based Laser Direct Writing 3D Waveguides for Optical Interconnects

Speaker: Prof. Ting Lei

Affiliation: Shenzhen University, China

Biography

Prof. Ting Lei is a Full Professor in the College of Physics and Optoelectronic Engineering at Shenzhen University. He received his Ph.D. in Optical Engineering from Tianjin University. His research focuses on integrated optical interconnects, femtosecond laser 3D micromachining, and spatial mode multiplexing chips. He is a recipient of the National Excellent Young Scientists Fund (NSFC) and has published widely in Light: Science & Applications, Optica, and Nature Communications.

[Invited Talk]

In-Substrate Integrated Spectral Encoding Structures for Spectroscopic Applications

Speaker: Prof. Bo Zhang

Affiliation: Zhejiang University, China

Biography

Prof. Bo Zhang is a Professor in the College of Optical Science and Engineering at Zhejiang University. His research focuses on ultrafast laser-matter interactions, micro/nano-photonics fabrication, and optical information storage. He has published over 30 papers as first or corresponding author in Nature Electronics, Nature Communications, Light: Science & Applications, and Advanced Materials, and holds 5 authorized Chinese patents. His outcomes were recognized among China's Top Ten Optical Industry Technologies.

[Invited Talk]

High-Precision Infrared Polarization Detection via Optoelectronic Metadevices

Speaker: Prof. Jing Zhou

Affiliation: Shanghai Institute of Technical Physics, Chinese Academy of Sciences, China

Biography

Prof. Jing Zhou is a Professor at the Shanghai Institute of Technical Physics (SITP), Chinese Academy of Sciences. He is a recipient of the National Excellent Young Scientists Fund and the CAS Hundred Talents Program. His research investigates novel infrared detection physics, optoelectronic metadevices, and polarimetric focal plane arrays. He has published 83 SCI papers in journals including Nature Electronics, Nature Communications, Light: Science & Applications, and Physical Review Letters, accumulating over 2,500 citations (h-index 27) and 9 granted patents.

[Invited Talk]

Optoelectronic Neuromorphic Devices for Functional Applications

Speaker: Prof. Ye Zhou

Affiliation: Shenzhen University, China

Biography

Prof. Ye Zhou is a Full Professor, Doctoral Supervisor, and Head of the Physics Discipline at the Institute for Advanced Study, Shenzhen University. He is an elected Fellow of the Royal Society of Chemistry (FRSC), Fellow of the Institute of Physics (FInstP), and Fellow of the Institution of Engineering and Technology (FIET). He received his B.S. from Nanjing University, M.S. from HKUST, and Ph.D. from City University of Hong Kong. His research focuses on functional nanomaterials, organic/inorganic optoelectronic devices, and neuromorphic devices. He has published over 150 SCI papers in journals such as Science, Nature Electronics, Chemical Reviews, and Advanced Materials, receiving more than 15,000 citations.

[Invited Talk]

Speaker: Prof. Yuhui He

Affiliation: Huazhong University of Science and Technology, China

Biography

Yuhui He is a Professor and Doctoral Supervisor at the School of Integrated Circuits, Huazhong University of Science and Technology (HUST). He received his Ph.D. in Microelectronics and Solid-State Electronics from Peking University in 2009 and subsequently conducted postdoctoral research at the Institute of Microelectronics, Chinese Academy of Sciences, and the Institute of Scientific and Industrial Research, Osaka University, Japan. He joined HUST in 2015 and was selected for the National Overseas High-Level Talent Program (Young Project) in 2016. His research focuses on interdisciplinary micro/nanoelectronics and biology, including brain-inspired AI devices and chips (probabilistic computing, reinforcement learning, and hardware–software co-design) and DNA data storage/nanopore DNA sequencing chips. His group has published in top venues such as IEEE Transactions on Neural Networks and Learning Systems, IEDM, Nature Electronics, Advanced Materials, and Nano Letters, with IEDM papers in 2019 and 2021 recognized as historical breakthroughs for HUST's microelectronics department and the IEDM memory session, respectively.

[Invited Talk]

Brain-Inspired Perception and Computing with Memristive Dynamics

Speaker: Dr. Xumeng Zhang

Affiliation: Fudan University, China

Biography

Dr. Xumeng Zhang is a Young Associate Researcher at the Academy for Engineering and Technology, Fudan University. He is a recipient of the National High-Level Young Talents Program, the National Excellent Young Scientists Fund (NSFC), and the Shanghai Rising-Star Program. His research focuses on emerging neuromorphic devices, memristive neural networks, and biologically inspired sensory processing systems. He has published over 30 papers as first or corresponding author in Nature Materials, Nature Communications, Science Advances, Advanced Materials, IEDM, and DAC, garnering over 7,000 Google Scholar citations. His honors include the CAS President's Special Award and the Quest Outstanding Young Scholar Award from the Shanghai Brain Science Center.

[Invited Talk]

In-Sensor-Memory Computing Technologies:

Challenges and Opportunities for Post-Von Neumann Intelligence

Speaker: Prof. Hongyu Tang

Affiliation: Fudan University, China

Biography

Prof. Hongyu Tang is a Research Professor in the Academy for Engineering and Technology at Fudan University. She received her Ph.D. from Nanyang Technological University, Singapore. Her research interests focus on emerging neuromorphic devices, van der Waals heterojunctions, nanophotonics, and in-sensor-memory computing (ISMC) architectures. She has published over 60 papers in high-profile journals including Nano-Micro Letters, Advanced Science, and Laser & Photonics Reviews. She is an IEEE Senior Member, a recipient of the Shanghai Overseas Leading Talents Award, and the recipient of the Chinese Government Award for Outstanding Self-Financed Students Abroad.

[Invited Talk]

Speaker: Prof. Shuang Zheng

Affiliation: Huazhong University of Science and Technology, China

Biography

Shuang Zheng, Ph.D., Associate Professor, Doctoral Supervisor, selected for the Hubei Provincial High-level Young Talent Program. His research interests focus on high-speed optoelectronic devices for computing-power interconnection (optical interconnection, optical computing, and optical field manipulation). He has led (undertaken) 2 projects funded by the National Natural Science Foundation of China (NSFC), 2 GF Innovation Fund project topics, 3 tasks in major/key projects, and 1 Hubei Provincial Key R&D Program project, etc. He also participated in 1 NSFC Key Program (ranked 2nd) and multiple collaborative projects with leading enterprises. As first and corresponding author, he has published more than 50 papers in journals such as Nature Communications, Light: Science & Applications, and Laser & Photonics Reviews, including multiple cover papers, annual highly cited papers, and Editor's Picks. He has published more than 30 papers at top international academic conferences such as OFC, ECOC, and CLEO, with multiple oral presentations, including one OFC Top-Scored paper. He has been granted 6 invention patents, received the First Prize of the Science and Technology Progress Award of the Chinese Institute of Electronics, and supervised a project that won the Silver Award at the national finals of the China International College Students' Innovation Competition, among other achievements.

Session 3: Neuromorphic Systems and Applications

[Keynote Talk]

Speaker: Prof. Daoxin Dai **Affiliation: Zhejiang University, China**

Biography

Prof. Daoxin Dai is a Qishui Distinguished Professor and Dean of the College of Optical Science and Engineering at Zhejiang University. He is Director of the International Joint Innovation Center for Photonics and Technology (Ministry of Education) and Director of the Zhejiang Provincial Key Laboratory for Optoelectronic Information Technology. He received his Ph.D. in Optical Engineering from the Royal Institute of Technology (KTH), Sweden. Prof. Dai is a recipient of the National Science Fund for Distinguished Young Scholars, a Changjiang Distinguished Professor of the Ministry of Education, and an elected Fellow of IEEE, Optica, and SPIE. His research investigates silicon photonic integrated devices, multi-dimensional optical multiplexing, high-capacity optical interconnects, and scalable optical computing architectures. He has authored over 300 peer-reviewed papers in high-impact journals, including Nature, Nature Photonics, Nature Communications, and Light: Science & Applications.

[Keynote Talk]

Autoregressive Photonic Intelligence

Speaker: Prof. Jianji Dong

Affiliation: Huazhong University of Science and Technology, China

Biography

Prof. Jianji Dong is a Full Professor at Huazhong University of Science and Technology (HUST) and serves as Assistant Director of the Wuhan National Laboratory for Optoelectronics (WNLO). He has led research initiatives funded by the National Key Research and Development Program of China and the National Science Fund for Distinguished Young Scholars (NSFC). He is an elected Fellow of Optica. Prof. Dong's research investigates integrated photonics, high-speed signal processing, and analog optical computing. He has published over 100 papers in optoelectronic journals, including eLight, Nature Communications, Light: Science & Applications, and Optica. His achievements have been recognized with the First Prize of the Hubei Provincial Natural Science Award and the First Prize of the Ministry of Education Natural Science Award.

[Invited Talk]

Speaker: Prof. Nuannuan Shi

Affiliation: Institute of Semiconductors, Chinese Academy of Sciences, China

Biography

Nuannuan Shi, Ph.D., Research Professor and Doctoral Supervisor at the Institute of Semiconductors, Chinese Academy of Sciences. Her research focuses on microwave photonics and integration technology, and optical artificial intelligence processing technology. She has undertaken five national-level projects, including as Principal Investigator one NSFC Young Scientists Fund project, one NSFC General Program project, and one National Key R&D Program Disruptive Technology Special Pilot Project. She has published 13 SCI-indexed papers (8 as first or corresponding author, including 2 invited papers) and 5 international conference papers, and has applied for 38 invention patents, including 4 U.S. patents and 11 granted patents.

[Invited Talk]

Ultra-High Parallel Photonic Computing Chips

Speaker: Prof. Peng Xie

Affiliation: Shanghai Institute of Optics and Fine Mechanics,
Chinese Academy of Sciences, China

Biography

Prof. Peng Xie is a Full Professor at the Shanghai Institute of Optics and Fine Mechanics (SIOM), Chinese Academy of Sciences, and serves as Principal Investigator of the Photonic Chips and Computing Group. He holds an adjunct professorship at the Center of Materials Science and Optoelectronics Engineering, University of Chinese Academy of Sciences. His research focuses on nanophotonics, integrated optical computing, and high-dimensional optical neural processing architectures.

[Invited Talk]

Integrated Photonics for Intelligent Light Computing

Speaker: Prof. Xuhan Guo

Affiliation: Shanghai Jiao Tong University, China

Biography

Prof. Xuhan Guo received his B.S. from Huazhong University of Science and Technology in 2009 and his Ph.D. from the University of Cambridge, UK, in 2014. He continued as a Research Associate at Cambridge until 2017, when he joined Shanghai Jiao Tong University, where he is currently a Full Professor and Director of the Advanced Photonics and Optoelectronic Systems (APOS) Laboratory. His research investigates silicon photonics and optoelectronic systems for optical computing, sensing, and high-speed data transmission. He has published over 50 journal articles in Nature Photonics, eLight, Nature Communications, Light: Science & Applications, and Optica, and has delivered more than 30 invited conference talks. Prof. Guo serves as an Associate Editor for APL Photonics and the IEEE Journal of Quantum Electronics, and was Technical Co-Chair of ACP 2022 and Workshop Co-Chair of OECC 2023.

[Invited Talk]

The Evolution of All-Analog Photoelectronic Computing: From Visual Classification to Large-Scale Content Generation

Speaker: Dr. Yitong Chen

Affiliation: Shanghai Jiao Tong University, China

Biography

Dr. Yitong Chen received her bachelor's degree from the Qian Xuesen Elite Class at Tsinghua University in 2019 and her Ph.D. from the Department of Automation at Tsinghua University in 2024. From 2018 to 2019, she was a visiting researcher at Harvard Medical School. In 2024, she joined Shanghai Jiao Tong University. Her research focuses on high-speed, low-power photoelectronic intelligent computing chips and system architectures. Dr. Chen has published multiple first-author papers in Nature and Science. Her work demonstrated all-analog computing chips operating thousands of times faster and with an energy efficiency improvement of approximately one million times over cutting-edge electronic processors on complex visual tasks. Her research was recognized among the Major Academic Advances by the NSFC and featured widely in domestic and international media. She also serves as an active reviewer for Nature and IEEE journals.

[Invited Talk]

Intelligent Sensing Based on Distributed Networks of Optical Microresonators

Speaker: Dr. Anton Saetchnikov

Affiliation: Ruhr University Bochum, Germany

Biography

Dr. Anton Saetchnikov is a Research Fellow in the Department of Applied Laser Technologies at Ruhr University Bochum, Germany. His research centers on high-Q optical microresonators, laser-based micro/nano-fabrication, and optical sensor systems enhanced by hybrid artificial intelligence frameworks. Dr. Saetchnikov investigates methods for constructing compact, multi-parameter optical sensing platforms for environmental monitoring, industrial process control, and biomedical diagnostic applications.

[Invited Talk]

Multi-Dimensional Signal Processing for Optical Interconnection and Computing

Speaker: Prof. Junwen Zhang

Affiliation: Fudan University, China

Biography

Prof. Junwen Zhang is a Full Professor in the School of Information Science and Technology at Fudan University. He previously studied and worked at Fudan University, Georgia Institute of Technology, ZTE TX, and CableLabs, investigating broadband optical and wireless communication networks. He has published over 300 journal and conference articles, authored two book chapters, and holds over 15 granted US patents. Prof. Zhang has served as TPC Member for OFC (2018–2021) and SPIE Photonics West (2018–2023), Subcommittee Chair for OFC 2022, and Co-Chair of the IEEE Summer Topical Meeting 2019. He was awarded the Marconi Society Paul Baran Young Scholar Award (2016), the Shanghai S&T 35U35 Award (2024), the First Prize in Natural Science from the China Institute of Communications (2024), and was listed as an Elsevier Highly Cited Chinese Researcher (2023, 2024). He received the IEEE JLT Best Reviewer Award (2019) and the Optica Outstanding Reviewer Recognition (2024).

[Invited Talk]

In-Situ Training of Optical Computing Systems with Model-Free Optimization

Speaker: Dr. Xin Shu

Affiliation: The Chinese University of Hong Kong, China

Biography

Dr. Xin Shu is a Research Assistant Professor in the Department of Biomedical Engineering at The Chinese University of Hong Kong (CUHK). Her research operates at the intersection of computational optics, optical computing, biomedical microscopy, and artificial intelligence, focusing on training methodologies and real-time inference using physical optical networks.

[Invited Talk]

Optoelectronic Ising Machines: A New Computing Paradigm for Combinatorial Optimization

Speaker: Dr. Ye Xiao

Affiliation: Beijing Ising Intelligent Technology Co., Ltd., China

Biography

Dr. Ye Xiao is the Founder and CEO of Beijing Ising Intelligent Technology Co., Ltd. He received his Ph.D. from the Institute of Semiconductors, Chinese Academy of Sciences. His research focuses on microwave photonics, nonlinear dynamics in optoelectronic oscillators (OEOs), ultrafast full-parameter optical diagnostics, and system architectures for optoelectronic Ising machines (OEIMs). Dr. Xiao developed an iterative nonlinear gain model that describes complex nonlinear bifurcations and steady-state dynamics in OEO systems. He has led a National Natural Science Foundation of China (NSFC) Young Scientists Fund project and participated in the National Key R&D Program of China, publishing over 10 SCI papers and filing more than 10 patents.

[Invited Talk]

AI & Optics Empowered Novel Imaging

Speaker: Prof. Zihan Geng

Affiliation: Tsinghua University, China

Biography

Prof. Zihan Geng is an Associate Professor and Doctoral Supervisor at Tsinghua University. She serves on the Computational Imaging Technical Committee of the Chinese Society for Optical Engineering and the 3D Imaging and Display Technical Committee, and is the Leader of the Imaging Group for the journal Infrared and Laser Engineering. She has received awards including the Outstanding Achievement Award in Optical Engineering Frontier Cross-Discipline, the Micro/Nano Manufacturing Achievement Award, and the Outstanding Achievement Award at the Computational Imaging & 3D Vision Exhibition. Her research focuses on computational imaging algorithms and devices. As first or corresponding author, she has published approximately 50 papers in top-tier journals and conferences such as Nature Communications, Light: Science & Applications, and Advanced Science. In 2025, multiple papers by her as corresponding author were featured as covers in leading optics journals including Photonix, Photonics Insights, and Laser & Photonics Reviews, were selected as Editor's Picks, and were reported by official media including Optica. Editorial Board Member of Advanced Photonics Nexus (Q1, top-tier in Optics) and Youth Editorial Board Member of Opto-Electronic Advances (Q1, top-tier in Optics). She has been invited to deliver over 30 academic talks.

[Invited Talk]

Toward Robust Neuromorphic Chips: Signal Integrity Modeling and Hardware-Software Co-De-

Speaker: Prof. Hanzhi Ma

Affiliation: Zhejiang University, China

Biography

Prof. Hanzhi Ma is an Assistant Professor in the College of Electrical Engineering at Zhejiang University. She received her B.S. and Ph.D. degrees in Electrical Engineering from Zhejiang University and was an Adjunct Assistant Professor at the University of Illinois Urbana-Champaign (UIUC) from 2023 to 2025. Her research investigates signal and power integrity analysis for neuromorphic computing chips and machine-learning-assisted EDA methodologies. Prof. Ma has served as Guest Editor for IEEE TCPMT, Youth Editor for Electromagnetics Science, Vice Chair of the IEEE EMC Society SC-3 Technical Committee, and Young Professional Ambassador for the IEEE EMC Society. She is an IEEE MTT-S Outstanding Young Professional Lecturer and recipient of the IEEE EMC Society President's Memorial Award, the IEEE Herbert K. Mertel Young Professional Award, and the PIERS Young Scientist Award.

[Invited Talk]

High-Dimensional Photonic Tensor Convolution: Dimension Mapping, Interaction, and Fusion

Speaker: Prof. Wenjia Zhang Affiliation: Shanghai Jiao Tong University, China

Biography

Dr. Wenjia Zhang is a Full Professor in the State Key Laboratory of Advanced Optical Communication Systems and Networks at Shanghai Jiao Tong University. His research focuses on intelligent optical computing, including large-scale photonic Ising machines, optical tensor convolution chips, and optical interconnect architectures. He has published over 100 papers in peer-reviewed journals and international conferences and holds more than 10 national invention patents. Prof. Zhang serves on technical program committees for ECOC 2025/2026, on the Youth Editorial Board for Study on Optical Communications, and as an independent technical consultant for Huawei and Peng Cheng Laboratory. He has led multiple General and Key projects funded by the NSFC and is an honoree of the Shanghai Oriental Talents Program.

[Invited Talk]

Brain-inspired Sparse Network Science for Next Generation Efficient and Sustainable

Speaker: Prof. Carlo V. Cannistraci

Affiliation: Tsinghua University, China

Biography

Carlo Vittorio Cannistraci is a theoretical engineer and computational innovator. He is a Chair Professor in the Tsinghua Laboratory of Brain and Intelligence (THBI) and a member of the Department of Psychological and Cognitive Sciences, the Department of Computer Science and Technology, and the School of Biomedical Engineering at Tsinghua University. He directs the Center for Complex Network Intelligence (CCNI) in THBI, which pioneers algorithms at the interface between information science, physics of complex systems, complex networks and machine intelligence, with a focus in brain/life-inspired computing for efficient artificial intelligence and big data analysis. These computational methods are often applied to precision biomedicine, neuroscience, social and economic science.

Session 4: Neuromorphic Photonic Materials

[Keynote Talk]

Silicon Optical Neural Network Computing Chip

Speaker: Prof. Xiaoyong Hu **Affiliation:** Peking University, China

Biography

Prof. Xiaoyong Hu is a Boya Distinguished Professor in the School of Physics at Peking University. He is a recipient of the National Science Fund for Distinguished Young Scholars (NSFC), a Changjiang Distinguished Professor of the Ministry of Education, and a National "Ten Thousand Talents Program" Leading Scientist. He has served as Principal Investigator for National Key R&D Projects. Prof. Hu's research centers on photonic crystal micro-devices, ultrafast third-order nonlinear optical materials, and on-chip silicon optical computing architectures. He has published over 150 papers in journals such as Nature Photonics, Physical Review Letters, Advanced Materials, and Nano Letters. His honors include the National Natural Science Award of China (Second Class), the Beijing Science and Technology Award (First Class), the Wang Daheng Optics Award, and the China Youth Science and Technology Award.

[Keynote Talk]

High-Performance All-Dielectric Metasurfaces and Their Applications

Speaker: Prof. Shumin Xiao

Affiliation: Harbin Institute of Technology, Shenzhen, China

Biography

Prof. Shumin Xiao is a Full Professor in the School of Science at Harbin Institute of Technology (Shenzhen). She received her Ph.D. from Purdue University, USA, in 2010 and joined HIT Shenzhen in 2011. She is a recipient of the National Science Fund for Distinguished Young Scholars and a Changjiang Distinguished Professor of the Ministry of Education. Her research investigates micro/nano-optics, nanophotonics, semiconductor optoelectronic devices, all-dielectric metasurfaces, non-linear optics, and perovskite photonics. Prof. Xiao has published over 100 papers in journals including Science, Nature Communications, Advanced Materials, and Nano Letters.

[Invited Talk]

Photonic Glass and Applications

Speaker: Prof. Dezhi Tan

Affiliation: Zhejiang University, China

Biography

Prof. Dezhi Tan is a Full Professor in the State Key Laboratory of Modern Optical Instrumentation at Zhejiang University. His research focuses on ultrafast laser-matter interactions, photonic glasses, inside-glass 3D micro/nano-fabrication, and optical data storage. He has published over 60 papers as first or corresponding author in journals including Science, Science Advances, and Nature Communications. His awards include the Youth Science and Technology Award from the Chinese Ceramic Society, and his research has been recognized among the Top 10 Optical Advances in China.

[Invited Talk]

Photonic In-Memory Computing

Speaker: Prof. Zengguang Cheng

Affiliation: Fudan University, China

Biography

Prof. Zengguang Cheng is a Young Associate Researcher in the Department of Materials Science at Fudan University. He received his Ph.D. from the Chinese University of Hong Kong and conducted postdoctoral research at the University of Oxford, UK. His research focuses on non-volatile phase-change materials, integrated photonic memory, and photonic in-memory computing devices. He has published first-author papers in Science Advances, Nature Communications, Advanced Materials, and Optica.

[Invited Talk]

Deciphering the Nanoscopic Working Mechanism of Neuromorphic Devices

Speaker: Dr. Songhua Cai

Affiliation: The Hong Kong Polytechnic University, China

Biography

Dr. Songhua Cai is a Research Assistant Professor in the Department of Applied Physics at The Hong Kong Polytechnic University. His research employs atomic-resolution in situ transmission electron microscopy (TEM) and electron energy-loss spectroscopy (EELS) to investigate structural phase transitions, ionic migration, and operational mechanisms in memristive and neuromorphic functional devices. He has published in journals including Nature Materials, Nature Electronics, and Advanced Materials.

[Invited Talk]

Ferroelectric Devices for In-Memory Computing

Speaker: Prof. Bobo Tian

Affiliation: East China Normal University, China

Biography

Prof. Bobo Tian is a Full Professor in the Key Laboratory of Polar Materials and Devices (Ministry of Education) at East China Normal University. He is a recipient of the National Excellent Young Scientists Fund (NSFC). His research investigates ferroelectric thin-film materials, ferroelectric tunnel junctions, and their applications in non-volatile in-memory computing. He has published extensively in Nature Materials, Nature Communications, and Advanced Materials.

[Invited Talk]

Material-Native Visual Perception: From Non-Pixelated Photocarrier Dynamics to Reconfigurable In-Sensor Recognition

Speaker: Prof. Junpeng Lv Affiliation: Southeast University, China

Biography

Prof. Junpeng Lv is a Full Professor in the School of Physics at Southeast University. He received his B.S. in Optical Information Science and Technology from Shandong University (2009) and his Ph.D. in Physics from the National University of Singapore (2013). He served as a Research Fellow at NUS before joining Southeast University in 2017. His research investigates physical electronics, micro/nano-optoelectronics, 2D semiconductor photodetectors, and in-sensor intelligent computing. Prof. Lu has published over 90 SCI papers, including more than 60 as first or corresponding author in journals such as Nature Electronics, Nature Communications, and Advanced Materials. He has received national and provincial talent honors and was appointed to a Ministry of Education Distinguished Professor program in 2022.

[Invited Talk]

Multi-Physical Laser Micro/Nano-Fabrication and Applications on Biomimetic Photonics

Speaker: Prof. Yun-Lu Sun Affiliation: Fudan University, China

Biography

Prof. Yun-Lu Sun is a Professor and Principal Investigator at the Future Information Innovation Institute, Fudan University. His research focuses on multi-physical field laser micro/nano-processing, femtosecond laser direct writing, and biomimetic functional photonics/electronics. He has published high-impact papers as first or corresponding author in journals such as Nature Communications, with his findings featured across prominent international and domestic science media outlets.

[Invited Talk]

Optical Neuromorphic Computing for Multimodal Perceptual Recognition

**Speaker: Prof. Xi Chen
Affiliation: University of Shanghai for Science and Technology, China**

Biography

Prof. Xi Chen is a Full Professor and Doctoral Supervisor at the University of Shanghai for Science and Technology. He received his B.S. and Ph.D. in Chemistry from Nankai University. He leads several national and provincial/ministerial research projects, including the General Program of the NSFC. His research focuses on optical artificial intelligence, artificial synapses, and laser micro/nano-fabrication. Prof. Chen has published widely in high-impact journals such as Advanced Materials, Nano Letters, and ACS Nano.

[Invited Talk]

Integrated Ultraviolet Optoelectronics for Communication and Imaging

Speaker: Prof. Haiding Sun

Affiliation: University of Science and Technology of China, China

Biography

Prof. Haiding Sun is a Full Professor in the School of Microelectronics at the University of Science and Technology of China (USTC), where he directs the iGaN Laboratory. His research focuses on wide-band-gap group-III nitride semiconductors for ultraviolet (UV) optoelectronics and integrated photonics. Prof. Sun has published over 200 SCI journal papers in journals including Nature Photonics (2), Nature Electronics (3), Nature Communications (2), Science Advances, and Advanced Materials (5), along with more than 90 conference papers (IEDM, CLEO). He has co-authored 4 book chapters on UV LEDs/lasers/photodetectors and holds 5 US and over 20 Chinese patents. He serves as Associate Editor for IEEE Photonics Technology Letters, the SPIE Journal of Nanophotonics, and the Journal of Semiconductors, and is a TPC member for IEDM and CLEO.

[Invited Talk]

Optoelectronic Retinal Implant and Cardiac Pacemakers Based on Quantum Dots

Speaker: Prof. Sedat Nizamoglu

Affiliation: Koç University, Türkiye

Biography

Prof. Sedat Nizamoglu is a Full Professor in the Department of Electrical and Electronics Engineering and the Department of Biomedical Engineering at Koç University, Türkiye. He completed his Ph.D. at Bilkent University and conducted research in the United States as a Bullock-Wellman Fellow at Harvard Medical School and the Wellman Center for Photomedicine at Massachusetts General Hospital. His research focuses on bioelectronics, optoelectronics, nanotechnology, and neural engineering, with an emphasis on light-driven interfaces for clinical therapeutics. He is a recipient of the European Research Council (ERC) Starting, Consolidator, and Proof of Concept Grants, and is an elected Member of the Young Academy of Europe.

[Invited Talk]

Chiral Superstructures for Dynamic Planar Optics

Speaker: Prof. Peng Chen

Affiliation: Nanjing University, China

Biography

Prof. Peng Chen is an Associate Professor in the College of Engineering and Applied Sciences at Nanjing University, China. He earned his B.S. and Ph.D. degrees from Nanjing University. His research focuses on liquid-crystal nanophotonics, self-assembled chiral liquid-crystal superstructures, optical field engineering, and reconfigurable planar optical devices. As first or corresponding author, he has published over 40 peer-reviewed papers in journals including Nature Communications, Light: Science & Applications, and Advanced Materials, and serves as an Early Career Editor for Chinese Optics Letters.

[Invited Talk]

Functional Brain Organoids with 3D-Printed Artificial Vessels

Speaker: Dr. Haibo Ding

Affiliation: Southeast University, China

Biography

Dr. Haibo Ding is an Associate Professor in the School of Biological Science and Medical Engineering at Southeast University (SEU). He received his B.S. in Measurement and Control Technology (2011) and his Ph.D. in Biomedical Engineering (2018) from SEU under the supervision of Prof. Zhongze Gu. From 2015 to 2017, he was a visiting doctoral student in Prof. Min Gu's laboratory at Swinburne University of Technology and RMIT University, Australia. His research focuses on the intersection of advanced laser microfabrication, biomaterials, and organoid tissue engineering.

[Invited Talk]

Ultra-High-Density Nanoscale Super-Resolution Optical Data Storage

Speaker: Dr. Jing Wen

Affiliation: Zhangjiang Laboratory, China

Biography

Dr. Jing Wen is a Research Fellow at the Shanghai Key Laboratory of Ultra-high-density Optical Data Storage, Zhangjiang Laboratory. Her research investigates nanoscale optical data storage, super-resolution optical imaging, computational optics, and optical metamaterials. She has published approximately 50 papers in leading journals such as Nature, Laser & Photonics Reviews, and ACS Nano. Her research contributions were selected among the Top 10 Science and Technology Advances News in China, the Top 10 Optical Advances in China (2024), and the Light 10 Events of 2024.

Session 5: Neuromorphic Photonic Physics

[Keynote Talk]

Endocytoscopy and Optical Brain-Computer Interface

Speaker: Prof. Qing Yang

Affiliation: Zhejiang University, China

Biography

Prof. Qing Yang is a Qiusi Distinguished Professor in the College of Optical Science and Engineering at Zhejiang University. She is a recipient of the National Science Fund for Distinguished Young Scholars and a Changjiang Distinguished Professor of the Ministry of Education. Her research centers on nanophotonics, subwavelength optical waveguides, high-resolution micro-endoscopy, and photonic device physics. Prof. Yang has published widely in journals including Science Advances, Nature Communications, and Light: Science & Applications, and has received numerous provincial and national research honors.

[Keynote Talk]

Compressive Transmission Matrix for Dynamic Scattering Imaging

Speaker: Prof. Yi Xu

Affiliation: Guangdong University of Technology, China

Biography

Prof. Yi Xu is a Full Professor in the School of Information Engineering at Guangdong University of Technology. He earned his B.S. and Ph.D. degrees from South China Normal University. He was a visiting scholar at the Nonlinear Physics Center, Australian National University (2010–2011) and at Peking University (2020). His research centers on computational imaging through complex scattering media, wavefront shaping, and random media optical physics. Prof. Xu has authored over 100 peer-reviewed papers in journals including Nature Photonics, Physical Review Letters, and Nature Communications, and serves on the Young Editorial Board of Acta Optica Sinica.

[Invited Talk]

Transferable Metasurfaces: Nonlocality and Device Applications

Speaker: Prof. Shaojun Wang

Affiliation: Soochow University, China

Biography

Prof. Shaojun Wang is a Full Professor and Ph.D. Supervisor in the School of Optoelectronic Science and Engineering at Soochow University, where he serves as Deputy Director of the Key Laboratory of Modern Optical Technologies (Ministry of Education). Since earning his Ph.D. in 2016, his research has focused on resonant nanophotonics, plasmonics, all-dielectric non-local metasurfaces, and non-destructive transfer-printing processes for compact laser systems, wireless communication optics, and low-dose X-ray imaging devices.

[Invited Talk]

Ultrafast Laser 3D Micro-Nano Manufacturing Techniques for Integrated Photonic Circuits

Speaker: Prof. Zhi Chen

Affiliation: Kunming University of Science and Technology, China

Biography

Prof. Zhi Chen received his Ph.D. (2017) from South China University of Technology under the supervision of Prof. Jianrong Qiu. He conducted postdoctoral research at Florida State University (2017–2018) on halide perovskite microlasers, and served as an EU Horizon 2020 research fellow at the University of Pisa, Italy (2018–2021). After returning to China, he served as an Associate Professor at Zhejiang Lab and is currently a Full Professor at Kunming University of Science and Technology. His research focuses on ultrafast laser 3D micro/nano-fabrication of integrated photonic chips. He has published over 80 SCI papers in journals such as Nature Communications, Light: Science & Applications, and Advanced Materials, and is a recipient of the Yunnan Provincial Outstanding Youth Fund.

[Invited Talk]

Creation of a Computational Space

Speaker: Dr. Chao Qian

Affiliation: Zhejiang University, China

Biography

Dr. Chao Qian is an Assistant Professor in the College of Information Science and Electronic Engineering at Zhejiang University. His research focuses on intelligent electromagnetic metasurfaces, electromagnetic scattering, inverse design algorithms, and wave-based physical computing. His findings have been published in Nature Photonics, Nature Communications, and Physical Review Letters.

[Invited Talk]

Nonlinear Frequency Conversion and Smart Imaging with Optical Metasurfaces

Speaker: Prof. Tingting Liu

Affiliation: Nanchang University, China

Biography

Prof. Tingting Liu is an Associate Professor in the School of Physics and Materials Science at Nanchang University. Her research investigates optical field manipulation, non-linear optics, and metasurface-based optical computing. She has authored over 90 peer-reviewed papers (h-index 31, >4,400 citations) and is recognized on Clarivate's Highly Cited Researchers list.

[Invited Talk]

Reservoir Computing Based on Nonlinear Micro-Nano Photonic Devices

Speaker: Prof. Can Huang

Affiliation: Harbin Institute of Technology, China

Biography

Prof. Can Huang is a Full Professor in the School of Science at Harbin Institute of Technology (Shenzhen). His research focuses on micro/nano-photonic devices, coupled microcavity laser dynamics, non-linear optics, and optical reservoir computing. He has published over 50 papers in journals including Nature Communications, Advanced Science, and Advanced Photonics.

[Invited Talk]

Vectorial Optics and Photonics

Speaker: Dr. Chao He **Affiliation:** University of Oxford, UK

Biography

Dr. Chao He directs the Vectorial Optics and Photonics Group in the Department of Engineering Science at the University of Oxford. His research develops optical methods for vectorial light-field manipulation, structured light, adaptive optics, and polarimetric sensing across complex media. His research has appeared in journals including Nature Communications, Light: Science & Applications, and Optica.

[Invited Talk]

OAM-Based Cavity-Enhanced Narrow-Band Entangled Source and Heralded High-Dimensional Photon-Photon Gate

Speaker: Prof. Xi-Lin Wang **Affiliation:** Nanjing University, China

Biography

Prof. Xi-Lin Wang is a Full Professor in the School of Physics at Nanjing University. He is a recipient of the National Excellent Young Scientist Fund (NSFC) and the Jiangsu Provincial Innovation Talent Program. His research focuses on structured light fields, high-dimensional quantum states, and quantum photonic gates. He has published over 20 papers in journals such as Nature (1), Nature Photonics (1), Physical Review Letters (7), and Optica (4), accumulating over 4,500 citations. His work has been recognized among the International Physics Breakthroughs of the Year and China's Top 10 Scientific Advances. He received the First Prize of the Rao Yutai Prize in Fundamental Optics from the Chinese Optical Society.

[Invited Talk]

Fundamental Physics and Functional Applications Based on Metasurfaces

Speaker: Prof. Lingling Huang **Affiliation:** Beijing Institute of Technology, China

Biography

Prof. Lingling Huang is a Full Professor in the School of Optics and Photonics at Beijing Institute of Technology. She received her Ph.D. in Optical Engineering from Tsinghua University in 2014, including joint doctoral research at the University of Birmingham, UK. She is an elected Fellow of Optica and a recipient of the Friedrich Wilhelm Bessel Research Award from the Alexander von Humboldt Foundation. Her research investigates nanophotonics, optical metasurfaces, diffractive deep neural networks, and digital holography.

[Invited Talk]

Intelligent Light Manipulation and Imaging with 3D Nanophotonics

Speaker: Prof. Hongtao Wang **Affiliation:** Beijing Institute of Technology, China

Biography

Prof. Hongtao Wang is a Tenure-Track Professor in the School of Optics and Photonics at Beijing Institute of Technology. He completed his Ph.D. through a joint program between the National University of Singapore and the Singapore University of Technology and Design. His research focuses on 3D micro/nanofabrication, nanophotonics, structured light, structural color, and optical encryption. He has published over 40 papers in journals including Nature Nanotechnology, Nature Reviews Physics, Nature Communications, Science Advances, and Nano Letters. His honors include the IEEE-SPC Young Scientist Award and the COES Micro/Nano Manufacturing Outstanding Achievement Award. He serves on the editorial boards of Nano-Micro Letters and Opto-Electronic Advances.

[Invited Talk]

Intelligent Control of Quantum Optical Systems: From Quantum Memory Optimization to Predictive Phase Locking

Speaker: Dr. Jinxian Guo **Affiliation:** Shanghai Jiao Tong University, China

Biography

Dr. Jinxian Guo is an Associate Researcher in the School of Physics and Astronomy at Shanghai Jiao Tong University. His research focuses on atom-light quantum interactions, quantum memory, and quantum-correlated sensing. He has demonstrated broadband quantum storage efficiencies of 94.6% and storage of 22-dimensional quantum states. His work has appeared in Nature Communications, Science Advances, Physical Review Letters, Optica, and npj Quantum Information, and was recognized with the First Prize of the Shanghai Natural Science Award.

[Invited Talk]

Research on Fractal Recursive Optical Computing Architectures and Reconfigurable Photonic

Speaker: Prof. Hui Zhang **Affiliation:** Tongji University, China

Biography

Prof. Hui Zhang is an Associate Professor and Ph.D. Supervisor in the School of Physics Science and Engineering, Institute of Precision Optical Engineering (IPOE), at Tongji University. She is a recipient of the National Young Talents Program and the Shanghai Overseas High-Level Talents Program. She received her B.S. from Xi'an Jiaotong University in 2016 and her Ph.D. from Nanyang Technological University (NTU), Singapore, in 2021, joining Tongji University in 2024. Her research investigates silicon photonic integrated circuits, optical quantum computing, and complex-valued optical neural networks. Her research has been published in Nature Communications, Science Advances, Light: Science & Applications, and Physical Review Letters.

[Invited Talk]

Superconducting Nanowire Single-Photon Detectors (SNSPDs): Beyond Quantum

Speaker: Dr. Chaolin Lv **Affiliation:** Photec, China

Biography

Dr. Chaolin Lv is Chief Technology Officer at Photon Technology (Zhejiang) Co., Ltd. (Photec). He has long been engaged in the technical development, manufacturing, and commercial translation of superconducting nanowire single-photon detectors (SNSPDs). His work has advanced the deployment of single-photon counting instrumentation across quantum communication, space LiDAR, deep-tissue biological imaging, and neuromorphic optoelectronics.

Session 6: Intelligent Computational Optics

[Keynote Talk]

Intelligent Vision Processor Based on Metasurface

Speaker: Prof. Liangcai Cao Affiliation: Tsinghua University, China

Biography

Prof. Liangcai Cao is a Tenured Full Professor in the Department of Precision Instruments at Tsinghua University. He received his B.S. and Ph.D. degrees from Harbin Institute of Technology (1999, 2005) and joined the faculty at Tsinghua University, where he was promoted to Tenured Professor. He conducted research as a visiting scholar at the University of California, Santa Cruz (2009) and the Massachusetts Institute of Technology (2014). Prof. Cao's research investigates digital holography, holographic 3D display, metasurfaces, and computational optical imaging. He is an elected Fellow of Optica and SPIE.

[Keynote Talk]

Remote Sensing Visual Generative Models

Speaker: Prof. Leyuan Fang Affiliation: Hunan University, China

Biography

Prof. Leyuan Fang is a Full Professor in the College of Electrical and Information Engineering at Hunan University, where he serves as Deputy Director of the Academic Affairs Office and Director of the Student Innovation and Entrepreneurship Center. He is Chair of the Technical Committee on Image Application and System Integration of the China Society of Image and Graphics (CSIG). Prof. Fang is a recipient of the National Science Fund for Distinguished Young Scholars and a Changjiang Distinguished Professor of the Ministry of Education. He has been recognized on Clarivate's Highly Cited Researchers and Elsevier's Highly Cited Chinese Researchers lists. His research centers on remote sensing image processing, computational vision, and multi-modal information fusion. He has authored over 200 papers in IEEE TPAMI, IJCV, and IEEE TIP, receiving more than 20,000 citations. His honors include the National Natural Science Award of China (Second Class) and the Wu Wenjun Artificial Intelligence Science and Technology Award.

[Invited Talk]

Neural-Network-Enabled Large Scale Adaptive Glasses-Free Foveated 3D Displays

Speaker: Prof. Wen Qiao Affiliation: Soochow University, China

Biography

Prof. Wen Qiao is a Full Professor in the School of Optoelectronic Science and Engineering at Soochow University. Her research investigates micro/nano-photonic structures, diffractive optical elements, augmented reality displays, and glasses-free 3D light-field displays. She has authored over 60 papers in journals including Advanced Materials, Light: Science & Applications, and Optica, and holds more than 100 granted/applied patents. Her honors include the SID Outstanding Display Young Talent Award and the First Prize of the Jiangsu Provincial Science and Technology Award (2022).

[Invited Talk]

Metasurface Multi-Kernel Convolution Imaging and Image Recognition Based on Arrayed Point Spread Functions

Speaker: Prof. Kun Huang

Affiliation: University of Science and Technology of China, China

Biography

Prof. Kun Huang is a Professor in the Department of Optics and Optical Engineering at the University of Science and Technology of China (USTC). He was selected for the CAS Young Talents Program in 2019 and received the Excellent Young Scientists Fund from the NSFC in 2023. His research focuses on subwavelength optical field manipulation, point spread function (PSF) engineering, miniaturized computational imaging, and all-optical neural computing. He has published over 50 papers as first or corresponding author in journals such as Nature Communications (4), Advanced Materials (2), Light: Science & Applications (5), and PNAS, with citations exceeding 5,900.

[Invited Talk]

High-Speed Multi-Degree-of-Freedom Control and Information Reconstruction of Spatial Optical Fields in Scattering Media

Speaker: Prof. Jiamiao Yang

Affiliation: Shanghai Jiao Tong University, China

Biography

Prof. Jiamiao Yang is a Full Professor in the School of Mechanical Engineering at Shanghai Jiao Tong University. He has been selected for the National Overseas High-Level Talent Recruitment Program, the National Metrology Talent Program, and the Shanghai Pujiang Talent Program. His research investigates high-precision optical metrology, complex light-field manipulation, anti-scattering wavefront shaping, and biomedical photonics. He has led research grants from the NSFC, the Science and Technology Commission of Shanghai, and industrial research partnerships. Prof. Yang has published over 30 papers in journals including Nature Communications, Science Advances, Light: Science & Applications, and Optica.

[Invited Talk]

Research on Computational Imaging Inspired by Biological Vision

Speaker: Prof. Tao Yue

Affiliation: Nanjing University, China

Biography

Prof. Tao Yue is a Full Professor in the School of Electronic Science and Engineering at Nanjing University. His research focuses on computational photography, imaging in extreme environments, high-dimensional light-field reconstruction, and bio-inspired visual sensing systems. He has published over 60 peer-reviewed papers in journals including Nature Communications and IEEE TPAMI. Prof. Yue has led multiple research projects supported by the NSFC and national programs, holds more than 30 granted invention patents, and was awarded the First Prize of the Technical Invention Award from the Chinese Institute of Electronics.

[Invited Talk]

Physics-Informed Diffusion for Stable Phase Recovery in High Dynamic Range Single-Shot Structured Light

Speaker: Prof. Wei Tao **Affiliation:** Shanghai Jiao Tong University, China

Biography

Prof. Wei Tao is a Full Professor in the School of Mechanical Engineering at Shanghai Jiao Tong University. She has directed over 30 research projects, including grants from the National Key R&D Program of China and the NSFC Major Scientific Instrument Special Program. She has authored over 60 journal publications and holds more than 30 national patents. Her awards include the First Prize for Technological Invention from the China Instrument and Control Society, the First Prize for Industry-University-Research Cooperation in Shanghai, and teaching awards from Shanghai Jiao Tong University. Prof. Tao serves as a Council Member of the International Society for Intelligent Sensing Technology (ISST).

[Invited Talk]

Water-Related Optical Imaging Technology for Submarine Cable Projects

Speaker: Prof. Zhe Sun
Affiliation: Northwestern Polytechnical University & Institute of Artificial Intelligence, China Telecom, China

Biography

Prof. Zhe Sun is an Associate Professor at Northwestern Polytechnical University and a Joint Research Scientist at the Institute of Artificial Intelligence, China Telecom. He was a Postdoctoral Researcher at the University of Jena and the Helmholtz Association in Germany. He is an honoree of the Western Young Scholar Award of the Chinese Academy of Sciences and has served as Chief Designer for projects under the National Key R&D Program. He serves on the Marine Optics Committee of the Chinese Society for Optical Engineering and the 3D Imaging Committee of CSIG. He has led projects funded by the NSFC, the Sino-German Postdoctoral Exchange Program, and the CAS Western Light Program, authoring over 70 papers and holding more than 30 patents.

[Invited Talk]

Object Classification with Efficient Optical Neural Network Inference

Speaker: Dr. Qi Hu **Affiliation:** University of Oxford, UK

Biography

Dr. Qi Hu completed her doctoral studies in the Department of Engineering Science at the University of Oxford (2017–2021), where she was a member of St Hilda's College and developed adaptive optics techniques for aberration correction in multi-photon microscopy. In 2021, she received an EPSRC Doctoral Impact Award. In 2023, she was elected a Schmidt AI in Science Fellow and an Associate Research Fellow at Reuben College. In 2025, she was appointed Departmental Lecturer in Photonics, and in 2026 was elected an Official Fellow in AI & ML and member of the Governing Body of Reuben College, University of Oxford. Her research investigates the interface between artificial intelligence and optics, including AI for optical hardware control and photonic architectures for machine learning inference.

[Invited Talk]

Computational Surface Metrology for Precision Optics Manufacturing

Speaker: Prof. Rong Su

Affiliation: Shanghai Institute of Optics and Fine Mechanics,
Chinese Academy of Sciences, China

Biography

Prof. Rong Su is a Full Professor at the Shanghai Institute of Optics and Fine Mechanics (SIOM), Chinese Academy of Sciences. He earned his Ph.D. in Optical Metrology from KTH Royal Institute of Technology, Sweden, and conducted research for six years at the National Physical Laboratory (NPL) and the University of Nottingham in the UK before joining SIOM. His research focuses on precision optical metrology, interferometry, coherence scanning, and optical surface characterization for microelectronics and precision optics. Prof. Su has published over 60 papers, holds more than 10 patents, and was elected a Fellow of the Chinese Academy of Sciences in 2021. He serves on the ISO TC213/WG16 standardization committee and sits on editorial boards for three scientific journals, including *Light: Advanced Manufacturing*.

[Invited Talk]

Non-Line-of-Sight Single-Photon Imaging

Speaker: Prof. Xing Fu

Affiliation: Tsinghua University, China

Biography

Prof. Xing Fu is a Professor in the Department of Precision Instruments at Tsinghua University. His research investigates single-photon counting detection, non-line-of-sight (NLOS) imaging, laser beam shaping, and solid-state laser systems. He has published over 100 papers in journals such as *Nature Communications*, *Light: Science & Applications*, and *Photonix*. He is a recipient of the Dimitris N. Chorafas Prize and the Wang Daheng Optics Award. Prof. Fu serves as Deputy Director of the Key Laboratory of Photonic Control Technology (Ministry of Education) and Deputy Dean of Weixian College at Tsinghua University.

[Invited Talk]

Multi-Wavelength Holographic Microstructure Reconstruction Technique

Speaker: Prof. Xiao Yang

Affiliation: Northwestern Polytechnical University, China

Biography

Prof. Xiao Yang is an Associate Professor in the School of Mechanical Engineering at Northwestern Polytechnical University. He received his B.E. and Ph.D. degrees from Shanghai Jiao Tong University and conducted postdoctoral research there before joining NPU. His research focuses on industrial vision inspection, intelligent image processing, digital holography, and precision optical 3D measurement for complex manufacturing. He has published more than 20 papers and led nine research projects, including grants from the NSFC Young Scientists Fund and industrial collaborative programs. He has been selected for the Jiangsu Province Double Innovation Doctor Program and serves as Deputy Director of the Xi'an Key Laboratory of Chip Security.

[Invited Talk]

Recent Advances in Non-Line-of-Sight Imaging

Speaker: Prof. Wenwen Li

Affiliation: University of Science and Technology of China, China

Biography

Prof. Wenwen Li is an Associate Professor in the Department of Optics and Optical Engineering at the University of Science and Technology of China (USTC). Her research centers on computational optical imaging, non-line-of-sight (NLOS) imaging, single-photon detection, and quantum optical imaging. She has published as first or corresponding author in Nature Computational Science, Physical Review Letters, Optica, ACM Transactions on Graphics, and Laser & Photonics Reviews. Her research was highlighted in Optica's Optics in 2025 annual feature. She has led multiple projects funded by national research programs.

[Invited Talk]

Wide-Field Single-Pixel Complex-Field Microscopy Through a Multimode Fiber

Speaker: Prof. Yuecheng Shen

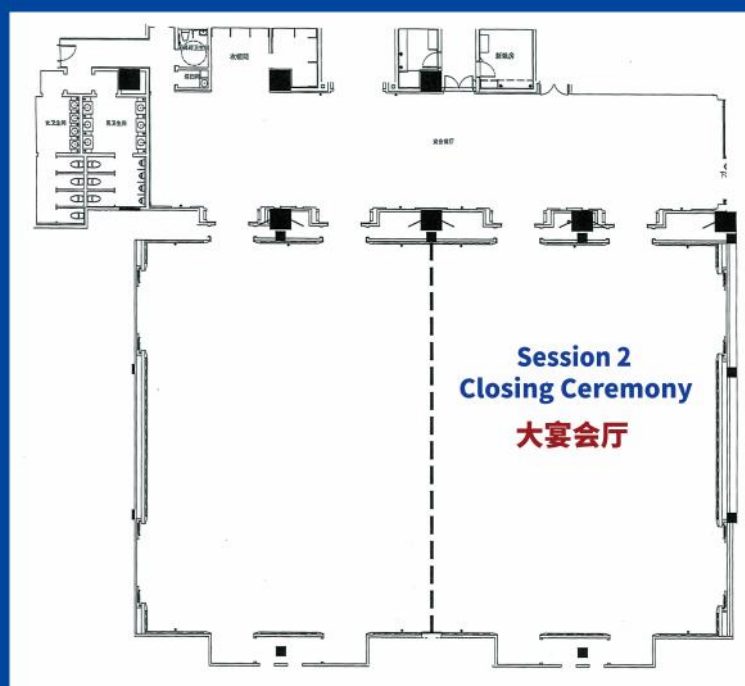
Affiliation: East China Normal University, China

Biography

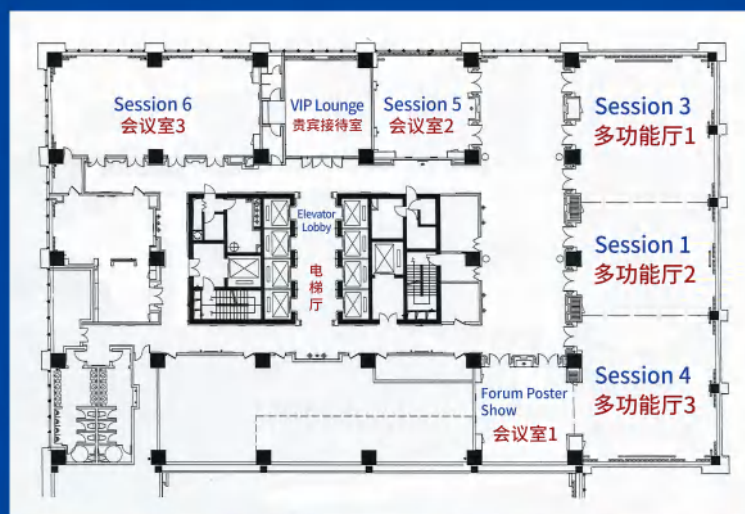
Prof. Yuecheng Shen is a Full Professor in the School of Physics and Electronic Science at East China Normal University. His research investigates wavefront shaping, complex optical field control, single-pixel imaging, and endoscopic imaging through multimode fibers and disordered media. He has published first/corresponding-author articles in Nature Communications, Light: Science & Applications, and Optica, and has led several national research projects.

Locations of Each Session

Conference Contact: Xinya Lu 15023750826



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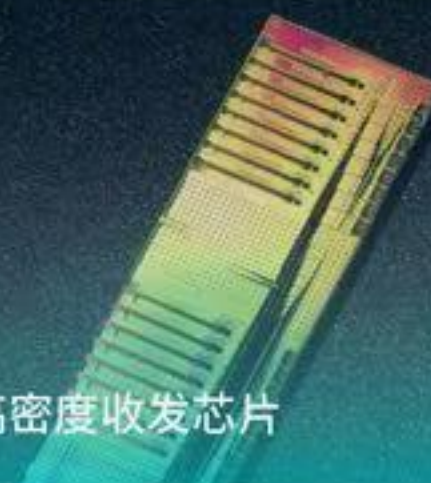
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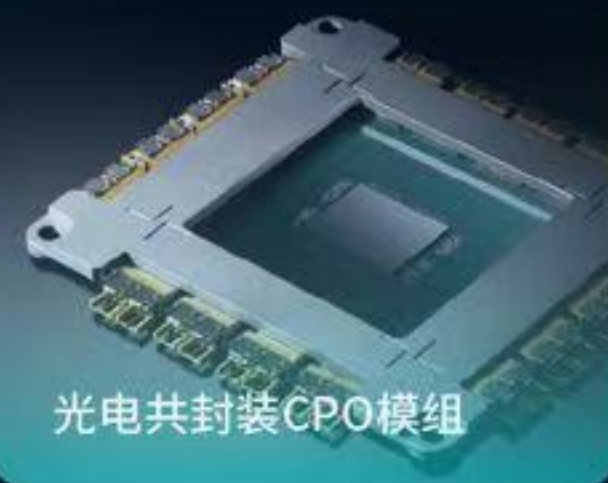
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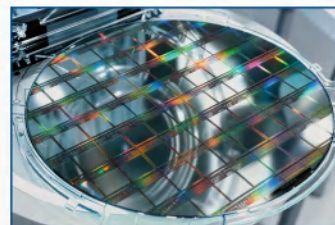
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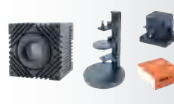
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麓邦高度重视技术创新与研发投入，组建了一支专业水平突出的研发团队，研发人员占比大于30%，其中博士及硕士学历人员占比超过50%，跨学科、高素质的研发团队为公司持续的技术突破和产品创新提供了坚实保障。目前麓邦业务范围已覆盖全国及部分海外国家与地区，服务200余所高校及科研院所，300余家创新型企业的30,000多名科研人员。



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2[↑]

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| 光学平台与面包板



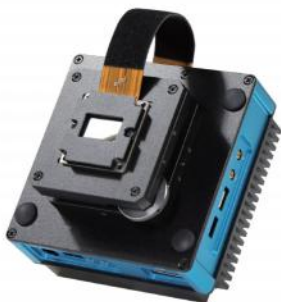
| 运动控制



FSLM-2K73系列



FSLM-2K70系列



相位型DMD



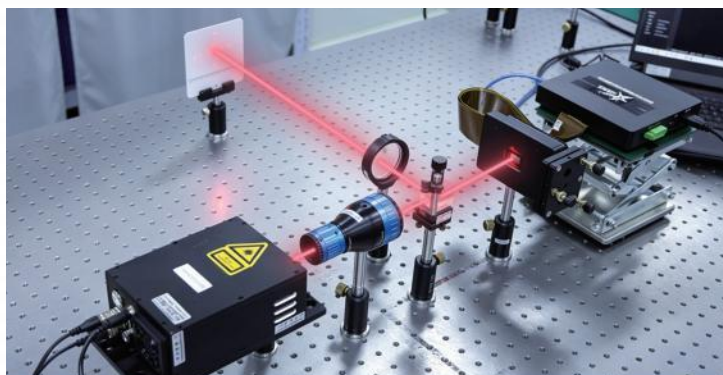
FSLM-2K73 紫外系列



☑ 新品亮点

- ◆ 360-430 nm 波段，专为紫外光场调控打造
- ◆ $2\text{W}/\text{cm}^2$ @405nm 连续激光下稳定运行 $\geq 220\text{h}$
- ◆ 2K 分辨率、 $6.4\mu\text{m}$ 像元、 $13.1 \times 13.1\text{mm}$ 有效区
- ◆ 相位 / 振幅双型号，全场景紫外光场调控
- ◆ 专业软件 + SDK，支持同步触发与二次开发
- ◆ 一体式 / 外甩式，光路集成灵活

彩色全息系统 (DMD)



☑ 相位型DMD参数

- ◆ $0-2\pi$ 相位调制
- ◆ 分辨率 $960 \times 540 / 1348 \times 800$
- ◆ 光谱范围 405-600nm; $10.8\mu\text{m}$ 像元
- ◆ 填充因子 94.5%
- ◆ 0级衍射效率 $> 70\%$
- ◆ 高刷新率 180Hz - 5.76KHz

☑ 实验效果

