

20th International Symposium on Neural Networks (ISNN 2026)

August 18-21, 2026
Hanzhong, Shannxi, China

Final Program



Sponsors/organizers:



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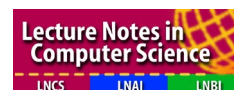
International Neural
Network Society

Proceedings publisher:



Springer

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Lecture Notes in Computer Science

Welcome Messages

On behalf of the Organizing Committee of the 20th International Symposium on Neural Networks (ISNN 2026), we are delighted to extend our warm welcome to all participants. Held in Hanzhong, Shaanxi, China from August 18 to 21, 2026, ISNN continues its high-standard academic tradition built over nineteen previous sessions, offering a top-tier international platform for exchanging advances in neural network theory, intelligent algorithms and industrial applications. The technical program features plenary speeches delivered by a world-renowned scholar, regular sessions with broad topical coverage, and special sessions dedicated to emerging and trending research areas.

This year, the conference received 120 submissions. Each manuscript was rigorously reviewed by at least two, and on average three, Program Committee members. Following a strict peer review process, 28 papers were accepted for presentation and inclusion in the conference proceedings. These accepted papers span a diverse range of topics, including computational neuroscience, deep learning, neurodynamic optimization, intelligent control, computer vision, industrial fault diagnosis, financial engineering, and other frontier research areas. In addition to the contributed papers, the conference program features a distinguished plenary speech. We are deeply honored to have Professor Yuanqing Li (Professor at South China University of Technology and a Fellow of the IEEE) as our plenary speaker, who will share his insightful perspectives on cutting-edge topics in Brain-Computer Interfaces.

The conference's success relies on generous support from numerous institutions and individuals. We sincerely thank sponsor Northwestern Polytechnical University, co-sponsors Shaanxi University of Technology and City University of Hong Kong, and technical co-sponsors the International Neural Network Society and Asian Pacific Neural Network Society. Special gratitude goes to the program committee reviewers for strict quality control of papers, Distinguished Professor Yuanqing Li for delivering the keynote address, all organizing committee members and volunteers for thoughtful on-site service, and every author and attendee for their valuable contributions. We wish all participants fruitful academic exchanges and a pleasant stay in historic, scenic Hanzhong!

Lei Wang & Zhen Wang, General Chairs
Longquan Yong, Pengchao Zhang, Local Organizing Chairs
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Program at a Glance

August 18, 2026

On-site Registration @ hotel lobby, Hanzhong Shengshi International Hotel, 13:00 - 17:00.

August 19, 2026

Opening Ceremony, Technical Sessions, Meeting Room 1 (20th floor)	
09:00 - 09:10	Opening Ceremony
09:10 - 10:10	Plenary talk by Professor Yuanqing Li
10:10 - 10:30	Coffee break
10:30 - 12:10	Sessions S1
12:10 - 14:30	Lunch break
14:30 - 17:10	Session S2
18:00 - 19:30	Banquet

August 20, 2026

Online Sessions	
10:00 - 12:00	Session S3
12:00 - 14:10	Lunch break
14:30 - 16:30	Session S4

Plenary Speech

Key Technologies, Products, and Applications of Wearable Non-invasive Brain-Computer Interfaces

Professor Yuanqing Li

Pazhou Laboratory; South China University of Technology, Guangdong

Abstract

Improving target detection and enabling multidimensional control are two fundamental challenges in brain-computer interface (BCI) research and essential issues for clinical translation. We first introduce several multimodal brain-computer interaction methods that improve target detection or enable multidimensional control. We then present clinical applications. For patients with high-level paraplegia caused by cervical spinal cord injury, we developed an environmental control system integrating a wheelchair, home appliances, and a nursing bed, enabling brain control and improving independent living. For stroke patients, we developed a BCI-based upper-limb rehabilitation system. For patients with disorders of consciousness, we developed BCI systems for consciousness detection, assisted diagnosis, and rehabilitation prognosis; compared with clinical behavioral scales, these methods and systems have clear advantages. To improve mental health, we developed BCI-based emotion regulation, attention training, and mindfulness meditation systems. Finally, we introduce commercialization progress. Based on these systems, we have developed wearable BCI products, including a brain-controlled AI mouse, brain-controlled AI wheelchair, brain-controlled AI smart ward, and BCI-based attention training products. In particular, the BCI-based mindfulness meditation product can support stress reduction, sleep, mood improvement, relief of depression and anxiety, and prevention of motion sickness (a first reported finding in China and abroad), receiving positive user feedback.



Yuanqing Li is a professor and doctoral supervisor at South China University of Technology; Executive Deputy Director of the Guangdong Artificial Intelligence and Digital Economy Laboratory (Guangzhou)/Pazhou Laboratory; Chairman and Chief Scientist of South China Brain-Control (iHNNK) Company; an IEEE Fellow; a recipient of the National Science Fund for Distinguished Young Scholars; and a Distinguished Professor under the Ministry of Education's Changjiang Scholars Program. He has received one Second Prize of the State Natural Science Award, one First Prize of the Natural Science Award of the Ministry of Education, two First Prizes of the Guangdong Provincial Natural Science Award, one First Prize of the Guangdong Provincial Technological Invention Award, one First Prize of the Wu Wenjun Artificial Intelligence Technology

Invention Award, and one First Prize of the Technological Invention Award of the Chinese Association of Automation, among others. He serves as Associate Editor of IEEE Transactions on Human-Machine Systems and other journals. He graduated from Lixian No. 1 High School in 1984, received his bachelor's degree from the Department of Mathematics, Wuhan University, in 1988, his master's degree from the Department of Mathematics, South China Normal University, in 1994, and his Ph.D. from the Department of Automatic Control Engineering, South China University of Technology, in 1997. Since 2000, he has pursued research in independent component analysis and blind source separation, sparse coding, machine learning, EEG and fMRI signal analysis, brain-computer interfaces, and their applications. To date, he has published more than 200 papers in leading international journals and conferences, including IEEE Transactions on Biomedical Engineering, IEEE Signal Processing Magazine, Proceedings of the IEEE, Brain, Nature Biomedical Engineering, Human Brain Mapping, NeuroImage, and NIPS, and has filed and been granted more than 80 patents. The projects he has led include national "Two Priorities" projects, projects under the China Brain Project, projects under the National Key R&D Program of China, and Key Programs of the National Natural Science Foundation of China. He also serves as an Executive Council Member of the Chinese Association of Automation, a Council Member of the Chinese Association for Artificial Intelligence, and a Council Member of the Chinese Society of Biomedical Engineering, among others.

August 18, 2026

On-site registration

August 19, 2026

Meeting Room 1, 20th Floor, Hanzhong Shengshi International Hotel

- 9:00 – 9:10 Opening Ceremony
- 9:10 – 10:10 Plenary Speech by Professor Yuanqing Li
Key Technologies, Products, and Applications of Wearable Non-invasive Brain-Computer Interfaces
- 10:10 – 10:30 Coffee Break

S1: Neurodynamics and Intelligent Optimization Algorithms

Chairs: Zhan Li and Zoltán Domokos

Meeting Room 1, 20th Floor, Hanzhong Shengshi International Hotel

- 10:30 - 10:50 Zeroing Neurodynamics-Based Cascade Tracking Control for Two-Mode Bose-Einstein Condensates with Desired Population Dynamics
Pengfei Guo, Ya Xi, Chaolong Zhang, Yunong Zhang
- 10:50 - 11:10 A Discretized Zeroing Neural Networks with Low Computational Complexity for Real Time Robotic Kinematic Control
Yuxuan Li, Junpei Yang, Zhan Li
- 11:10 - 11:30 Distributed Synchronized Control of Multiple Robotic Arms: A Multi-Objective Optimization via State-Coupled Neural Network
Qi Wang, Xingru Li, Zhijun Zhang
- 11:30 - 11:50 On the Possibility of Enhancing Structured Pruning by Input Space Partitioning
Zoltán Domokos, Richárd D. Király
- 11:50 – 14:30 Lunch break

S2: Visual Modeling, Multimodal and Self-Supervised Learning

Chairs: Shuang Cong and Xiaoping Wang

Meeting Room 1, 20th Floor, Hanzhong Shengshi International Hotel

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|---------------|---|
| 14:30 - 14:50 | Semantic Factorization for 3D Shape Generation
Yanran Guan, Bining Long, Oliver van Kaick |
| 14:50 - 15:10 | U-IMANet: U-Shaped Interactive Multi-Scale Attention Network for Building Extraction from Remote Sensing Images
Tianwei Liang, Ming Yin |
| 15:10 - 15:30 | Memristive Circuit Design of Nonlinear Enhancement for Audio-Visual Modalities
Moshu Xing, Xiaoping Wang, Ruoxin Wu |
| 15:30 - 15:50 | Coffee Break |
| 15:50 - 16:10 | Quantum Information Compression and Reconstruction of Pure States
Shuang Cong, Limin Lin |
| 16:10 - 16:30 | Topoformer: A Topological Transformer Framework for 3D Shape Classification
Junfeng Long, Yan Guo, Chenwei Sun, Xianggen Liu, and Jiancheng Lv |
| 16:30 - 16:50 | Mixed-Precision Quantization for Small Object Detection in Remote Sensing Images
Xizai Hou, Wenqiang Zhou, Deng Xiong, Rong Xiao, Wei Ju, Xianggen Liu, Chenwei Tang, Jiancheng Lv |
| 16:50 - 17:10 | EDSNN: Entire-Domain Steep Neural Network for Optimizing a Dual-Mobile Manipulators System
Zhijun Zhang and Ruixu Jiao |

August 20, 2026

S3: Deep Learning, Game Equilibrium, and Medical Intelligent Perception

Chairs: Na Liu and Nhut Minh Hua

<https://cityu.zoom.us/j/84765569666>

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| 10:00 - 10:20 | Distributed Nash Equilibrium Seeking for Constrained N-Coalition Game
Yiyao Xu, Chengshuo Huang, Na Liu, Sitian Qin |
| 10:20 - 10:40 | Self-Supervised Academic Trajectory Prediction on StarkNet Layer 2 Blockchain Using Joint Embedding Predictive Architecture
Nhut Minh Hua, Nghia Quoc Phan, An Cong Tran, Hiep Xuan Huynh |
| 10:40 - 11:00 | Energy-Based Hyperparameter Optimization for Joint-Embedding Predictive Architectures
Thuy Thi Tran, Nghia Quoc Phan, Hiep Xuan Huynh |
| 11:00 - 11:20 | Energy Correlation for Fairness-Aware Bias Detection in Neural Recommendation Systems
Gam Hong Thi Le, Khoi Nguyen-Tan, Hiep Xuan Huynh |
| 11:30 - 11:50 | V-JEPA 2 as Temporal World Model for Fetal Cardiac Rhythm Disorder Detection in Ultrasound
Nhi Yen Duong Banh, Cuong Danh Tran, Hiep Xuan Huynh |
| 11:40 - 12:00 | ClusterSuit: Accelerating In-Run Data Shapley via Dynamic Clustering
Mengkai Han |

S4: Adaptive Control and Fault-Tolerant Optimization of Robotic Systems

Chairs: Dongsheng Guo and Shiyuan Zheng

<https://cityu.zoom.us/j/84765569666>

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|---------------|--|
| 14:30 - 14:50 | An Improved Anti-Interference Motion Control Scheme for Differential-Wheeled Mobile Manipulators
Xiyuan Zhang, Qiuyan Li, Jifan Yang, Kai Tang, Dongsheng Guo |
| 14:50 - 15:10 | Adaptive Event-Triggered Tracking Control of Nonlinear Networked Systems Under Dynamic Quantization
Xiujiao Li, Hailing Wang |

- 15:10 - 15:30 A Fault-Resilient Distributed Adaptive ZNN Estimator for
Multisensor Systems Under Multiplicative Noises
Chenfu Yi, Zhi Xie, Yuhuan Chen, Yang Li
- 15:30 - 15:50 EDSNN: Entire-domain Steep Neural Network for Optimizing a
Dual-mobile Manipulators System
Zhijun Zhang, Ruixu Jiao
- 15:50 - 16:10 Zeroing Neural Network Control for Underwater Manipulators
with Unknown Kinematics
Haode Ye, Dan Xiang, Junliu Zhong, Jing Ling, Shuo Yang,
Yaqiong Ding
- 16:10 - 16:30 A Neural Dynamic Solver for Optimizing Deep Networks in
Polyp Segmentation
Zhijun Zhang, Shiyuan Zheng, Yu He

- Adjournment -

Map of the Conference Venue



21th International Symposium on Neural Networks

Hangzhou, Zhejiang, China

March 26-28, 2027



Call for Papers

<https://conference.cs.cityu.edu.hk/isnn/>

Sponsors/organizer: Zhejiang Normal University

Co-sponsors: Zhejiang University and City University of Hong Kong

Technical co-sponsors: Asia Pacific Neural Network Society, International Neural Network Society

Proceedings publisher: Springer Lecture Notes in Computer Science

The 21st International Symposium on Neural Networks (ISNN 2027) will be held in Hangzhou, Zhejiang, China, from March 26 to 28, 2027. As a “heaven” on earth in a Chinese saying, Hangzhou is located by West Lake (a UNESCO World Heritage Site) in southeastern China, with numerous historic and natural tourist attractions. Following the success of previous events, ISNN2027 aims to provide a high-level international forum for scientists, engineers, and educators to present the state of the art in neural network research and applications across related fields. The symposium will feature plenary speeches given by world-renowned scholars, regular sessions with broad coverage, and special sessions focusing on popular topics.

Call for Papers and Special Sessions

Prospective authors are invited to contribute high-quality papers to ISNN2027. In addition, proposals for special sessions within the technical scopes of the symposium are solicited. Special sessions, to be organized by internationally recognized experts, aim to bring together researchers in specially focused topics. Papers submitted for special sessions are to be peer-reviewed using the same criteria as for contributed papers. Researchers interested in organizing special sessions are invited to submit formal proposals to ISNN2027. A special session proposal should include the session title, a brief description of the scope and motivation, names, contact information, and brief biographical information of the organizers.

Topic Areas

Topics areas include, but are not limited to, computational neuroscience, connectionist theory, and cognitive science, mathematical modeling of neural systems, neurodynamic analysis, neurodynamic optimization, adaptive dynamic programming, embedded neural systems, probabilistic and information-theoretic methods, principal and independent component analysis, hybrid intelligent systems, supervised learning, unsupervised learning, reinforcement learning, deep learning, brain imaging, neural information processing, neuroinformatics, bioinformatics, support vector machines, kernel methods, transformer, autonomous mental development, data mining, pattern recognition, time series analysis, image and signal processing, robotics, control systems, telecommunications, transportation systems, intrusion detection, fault diagnosis, natural language processing, large language models, hardware implementation, financial engineering, business intelligence, real-world applications.

Paper Submission

Authors are invited to submit full-length papers by the submission deadline through the online submission system. Potential organizers are also invited to enlist five or more papers with cohesive topics to form special sessions. The submission of a paper implies that the paper is original and has not been submitted under review or is not copyright-protected elsewhere, and will be presented by an author if accepted. All submitted papers will be refereed by experts in the field based on the criteria of originality, significance, quality, and clarity. The authors of accepted papers will have the opportunity to revise their papers and incorporate the referees' comments and suggestions. The proceedings of ISNN2027 will be published in the Springer LNCS series, and selected good papers will be included in special issues of SCI journals.

Special session proposals deadline	September 1, 2026
Paper submission deadline	October 1, 2026
Notification of acceptance	November 1, 2026
Camera-ready copy and author registration	December 1, 2026

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