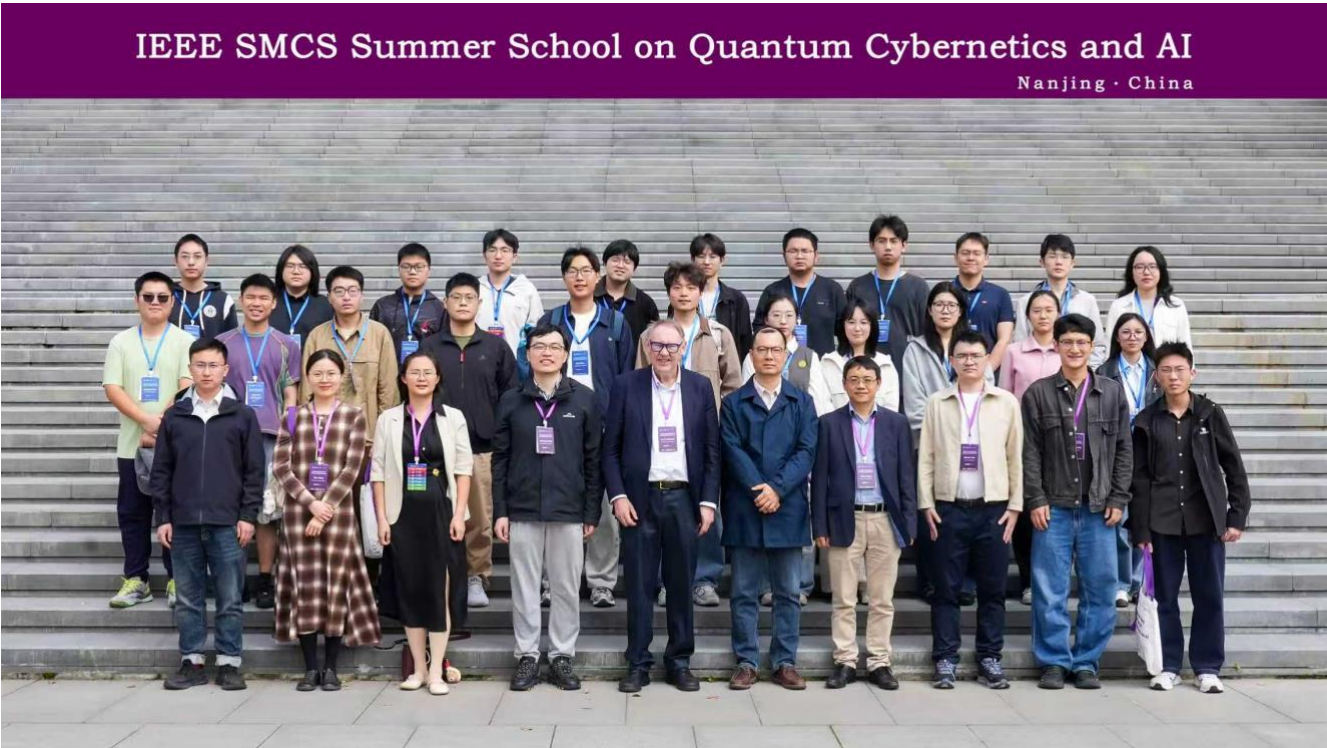


IEEE SMCS Summer School on Quantum Cybernetics and AI 2026

The IEEE SMCS Summer School on Quantum Cybernetics and AI was held at the **Nanjing University**, China, from 17 to 20 April 2026. Supported by the **IEEE Systems, Man, and Cybernetics Society (SMCS)** and organized in collaboration with **IEEE CYBCON 2026**, the summer school brought together graduate students and early-career researchers from diverse disciplinary backgrounds who shared an interest in the rapidly developing intersection of quantum technologies, systems and control, cybernetics, artificial intelligence, and machine learning.

Over four days, participants attended an intensive program of lectures and tutorials, together with selected plenary and keynote sessions of IEEE CYBCON 2026. The School introduced foundational ideas in quantum cybernetics while highlighting both theoretical developments and emerging applications. Topics ranged from quantum control and system identification to quantum tomography and quantum machine learning.



IEEE SMCS Summer School on Quantum Cybernetics and AI
Nanjing · China

Speakers, organizers, and participants at the IEEE SMCS Summer School on Quantum Cybernetics and AI 2026.

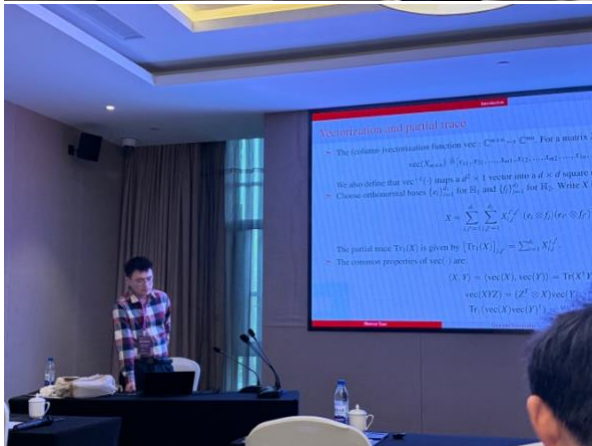
Opening Lectures



Opening remarks and lectures on the first day of the Summer School.

The Summer School opened with welcoming remarks by **Hailan Ma**, who introduced the objectives of the event and outlined its program. The first day then featured a series of keynote lectures on fundamental topics in quantum cybernetics and control. **Ian R. Petersen** introduced linear quantum control engineering, followed by **Daoyi Dong**, who presented an introduction to quantum system identification. **Re-Bing Wu** concluded the first day's program with a lecture on learning for quantum control and control techniques for quantum learning. On the following day, participants attended plenary and keynote sessions of IEEE CYBCON 2026, connecting the focused tutorials of the Summer School with broader developments in cybernetics and intelligent systems.

Further Technical Lectures



Technical lectures covering emerging topics in quantum control, measurement, and machine learning.

The remaining lectures covered a diverse range of emerging topics in quantum control, measurement, and machine learning. **Yuanlong Wang** introduced quantum noise spectroscopy, while **Chuan-Cun Shu** discussed precise quantum control of molecular systems, from qubits to qudits. **Weichao Liang** presented feedback stabilization of a continuously measured qubit, and **Haixu Yu** introduced reinforcement learning methods for quantum control. **Shuixin Xiao** discussed algorithm design and optimization techniques for quantum state, process, and detector tomography. The technical program concluded with a lecture by **Yabo Wang**, who provided a foundational perspective on quantum machine learning beyond heuristic approaches.

Community Building and Impact

In addition to technical training, the in-person format created opportunities for discussion and networking among speakers and participants throughout the School. These exchanges encouraged interdisciplinary connections among researchers working in quantum control, AI, machine learning, and cybernetics. The event strengthened the visibility of IEEE SMCS activities in quantum technologies and demonstrated the Society's commitment to education and community building in emerging research areas.

Organizing Committee

- Hailan Ma, Nanyang Technological University
- Zhi Wang, Nanjing University
- Chunlin Chen, Nanjing University
- Rebecca TY Thien, Université Paris-Saclay
- Qinyu Xu, Nanjing University

The event was funded by the IEEE Systems, Man, and Cybernetics Society (SMCS).

