

Special Session 3: The Application of Artificial Intelligence (AI) in

Medical and Healthcare.

Chairs: Shihua Cao, Hangzhou Normal University, Hangzhou, China.

Ning Deng, Zhejiang University, Hangzhou, China.

Brief Description of the Session

Artificial Intelligence (AI) is transforming the medical and healthcare sectors by significantly enhancing diagnostic accuracy and personalizing treatment plans. Through technologies like machine learning, large language models (LLMs), and natural language processing, AI enables early disease detection and predictive analytics, allowing healthcare professionals to anticipate patient needs and intervene proactively. For example, LLMs can analyze vast amounts of unstructured medical data, such as clinical notes and research articles, to provide precise insights and recommendations, further supporting diagnostic accuracy and treatment customization. These advancements not only improve patient outcomes but also streamline clinical workflows, making healthcare delivery more efficient and reducing overall costs. AI-driven tools, including those powered by LLMs, are being increasingly integrated into various healthcare applications, from advanced imaging techniques to electronic health record management, offering precise and timely insights that support clinical decision-making.

As AI continues to evolve, it presents unprecedented opportunities for precision medicine and improved patient care. LLMs, with their ability to process and generate human-like text, can facilitate patient communication, assist in medical education, and provide real-time decision support for clinicians. However, these advancements also bring forth ethical and implementation challenges. Ensuring equitable access to AI technologies, including LLMs, and addressing privacy concerns are critical to harnessing AI's full potential. Additionally, integrating AI into existing healthcare systems requires careful consideration of safety and efficacy to build trust among healthcare providers and patients alike. Ongoing research and collaboration among scientists, clinicians, and policymakers are essential to overcoming these challenges and ensuring that AI, especially LLM-enabled solutions, serves as a beneficial tool in healthcare. By addressing these concerns, AI can truly reshape the future of healthcare, making it more responsive, personalized, and accessible.

Topics

- Research hotspots and trends of AI in medical and healthcare fields
- Theory and practice of AI in medical and healthcare fields
- AI based disease prediction and diagnosis
- AI based elderly chronic disease management and healthcare
- AI based clinical treatment and nursing

Brief Introduction of Chair and Co-chairs with Photo

- [Shihua Cao](#), School of Public Health and Nursing, Hangzhou Normal University, Hangzhou, China.



Shihua Cao (Fellow, WAPS) received his Ph.D degree in Computer Applications from Macau University of Science and Technology, Macau SAR, China in 2018. He is currently a professor and master supervisor at Hangzhou Normal University, as well as a co-PhD supervisor at Maastricht University, Netherlands. He was a postdoctoral researcher at AIoT Lab of the Chinese University of Hong Kong IE department, supervised by Prof. Guoliang Xing. In

recent years, he won the silver medal at Geneva International Exhibition of Inventions in 2024, he has published over 100 papers in journals and conferences which focused on medical and healthcare informatics, non-contact vital signs monitoring. He has been granted 40 Chinese and international invention patents. He serves as the vice chairman of Zhongguancun Health Service Industry Promotion Association and vice director of Health and Disability Research Institute of Zhejiang Invention Association.

- Ning Deng, College of Biomedical Engineering and Instrument Science, Zhejiang University, Hangzhou, China.



Dr. Ning Deng received his PhD degree in Biomedical Engineering from Zhejiang University in 2007. He is currently an associate professor and PhD Supervisor at the College of Biomedical Engineering and Instrument Science, Zhejiang University. He was an assistant researcher at University of California, Los Angeles from 2007 to 2010. In recent year, Prof. Deng has published more than 50 papers, established a digital closed-loop management path for chronic obstructive pulmonary disease, hypertension and diabetes,

developed intelligent technologies and application systems for home-based respiratory rehabilitation, built a total of 17 demonstrated application for chronic disease management in China. Key technologies have been recognized and adopted by the National Health Commission and the "ICare4EU" Working Group from EU.