An Exploration of Medical Artificial Intelligence Methods Driven by Data, Algorithms, and Knowledge

Assoc. Prof. Jingpeng Li
South China University of Technology, China

Biography: Dr. Li is IEEE Senior Member, Associate Professor at the School of Automation, South China University of Technology, and PhD advisor. His main research interests focus on AI and its applications in medicine. He obtained his PhD in 2019 from the National Key Laboratory of Pattern Recognition, Institute of Automation, Chinese Academy of Sciences. Over the past five years, he has been granted 6 national and provincial-level projects. He has published more than 60 papers in international journals and conferences, including TPAMI, TNNLS, TCYB, ACL, and MICCAI. He serves as a reviewer for the National Natural Science Foundation of China and journals such as TPAMI. His research projects include large-scale multimodal medical data analysis system, and motion function rehabilitation equipment based on brain-machine interfaces. He has won several awards in provincial and municipal innovation competitions.

Abstract: In recent years, the deep intersection of artificial intelligence and biomedicine has become a hot topic in scientific research. This lecture explores how to combine medical health data, algorithms, and medical knowledge to construct precise, efficient, and reliable AI systems. The lecture focuses on multimodal medical imaging data analysis and brain-machine interfaces, introducing the role of machine learning—especially techniques such as transfer learning, self-supervised learning, and weakly-supervised learning—in supporting disease prediction, diagnosis, and clinical decision-making. The aim is to promote the deep integration of computer science and medicine, and to advance developments in related fields.