

# Distinguished Seminar Series on Data Science & Artificial Intelligence

## Medical Artificial Intelligence: A Brief Introduction of Tencent Jarvis Lab

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🕒 10:30 - 11:30 (HKT, UTC+8)

📍 Online via Zoom

🗣️ English

✍️ Please register at <https://polyu.hk/NuvU0>  
or scan the QR code



**All are welcome!**

### Abstract

Tencent Jarvis Lab is dedicated to medical artificial intelligence, covering three broad technology fields, namely medical image analysis, natural language processing, and big data analytics. This talk will give you a brief introduction of our lab by presenting a few recent works from each field. It is organized as three parts. In part one, I will present a multi-rater learning based method for medical image segmentation. To obtain ground truth, medical images are usually labeled by multiple experts. Due to different training backgrounds and personal preferences of the experts, inconsistencies often exist in the multi-rater annotations. Instead of learning from the consolidated label after majority voting, we directly learn from the inconsistent labels to leverage more information from the raw annotations to improve the segmentation accuracy. In part two, I will present our recent work on medical natural language processing, including knowledge graph extraction and alignment, as well as interactive dialogue-based disease diagnosis. These technologies can be integrated into a clinical decision support system to assist physicians to improve their diagnosis accuracy. In the last part, I will introduce a new intelligent COVID-19 surveillance system we are currently developing in collaboration with the Center for Disease Control of Shenzhen. It analyzes massive medical data from a city of 17 million people in real time using natural language processing and big data analytics technologies to automatically identify the high-risk cohort. Such an automatic system can complement the existing infectious disease surveillance system, which is currently based on hierarchical reporting from physicians during daily clinical practice.

### About the Speaker

Yefeng Zheng received B.E. and M.E. degrees from Tsinghua University, Beijing, China in 1998 and 2001, respectively, and a Ph.D. degree from University of Maryland, College Park, USA in 2005. After graduation, he worked at Siemens Corporate Research in Princeton, New Jersey, USA on medical image analysis before joining Tencent in Shenzhen, China in 2018. He is now a Distinguished Scientist and Director of Tencent Jarvis Lab, leading the company's initiative on medical AI. He has published 200+ papers on top journals/conferences and invented 70+ US patents. His work has been cited 8500+ times with h-index of 48. He is a Fellow of Institute of Electrical and Electronics Engineers (IEEE), a Fellow of American Institute for Medical and Biological Engineering (AIMBE), an Associate Editor of IEEE Transactions on Medical Imaging (IF=10.0), and was a Program Co-Chair of International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI) 2021.