# Towards Multimodal Data Integration for Precision Oncology via Foundation Model

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| Date | : | 22 January 2025 (Wednesday) |
| Time | : | 2:30pm |
| Venue | : | Room 1122, William M W Mong Engineering Building, CUHK |

## Abstract

Artificial intelligence (AI), especially deep learning with large-scale training datasets, has dramatically advanced the recognition performance in many domains including speech recognition, visual computing and natural language processing. Despite its breakthroughs in above domains, its application to precision oncology remains yet to be explored, where large-scale fully and high-quality annotated datasets are not easily accessible. In this talk, I will share our recent progress on computational pathology with multimodal data integration for precision oncology through the lens of information theory and foundation model, including cross-modal consistency, multimodal alignment and knowledge decomposition, with versatile applications to disease diagnosis, treatment response prediction, prognosis, etc. Challenges and future directions will also be discussed.

## Biography

Prof. Hao Chen is an Assistant Professor at the Department of CSE&CBE, and Division of Life Science, The Hong Kong University of Science and Technology. He leads the Smart Lab focusing on trustworthy AI for healthcare. He serves as Director of Collaboration Center for Medical and Engineering Innovation and Associate Director in Center of Medical Imaging and Analysis, HKUST. He received the Ph.D. degree from The Chinese University of Hong Kong (CUHK) in 2017. He has 200+ publications (Google Scholar Citations 29K+, h-index 68) in MICCAI, IEEE-TMI, MIA, CVPR, ICCV, AAAI, Nature Communications, Lancet Digital Health, Nature Machine Intelligence, JAMA, etc. He also has rich industrial research experience (e.g., Siemens and Startup), and holds a dozen of patents in AI and medical image analysis. He received several premium awards such as Asian Young Scientist Fellowship, MICCAI Young Scientist Impact Award, and several best paper awards. He serves as the Associate Editor of multiple journals including IEEE TMI, TNNLS, JBHI, CMIG, etc. He serves as the Program Committee of multiple international conferences including Area Chair of ICLR 2025, CVPR 2024-2025, MICCAI 2021-2023, ACM MM 2024, etc. He also led the team winning 15+ medical grand challenges.

**\*\*\* ALL ARE WELCOME \*\*\***

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