

**The Hong Kong Polytechnic University
Department of Applied Mathematics**

AMA Distinguished Seminar Series in Data Science and Machine Learning

Statistical Learning Methods for Neuroimaging Data Analysis with Applications

By

**Prof. Hongtu ZHU
University of North Carolina at Chapel Hill**

Abstract

The aim of this talk is to provide a comprehensive review of statistical challenges in neuroimaging data analysis from neuroimaging techniques to large-scale neuroimaging studies to statistical learning methods. We briefly review eight popular neuroimaging techniques and their potential applications in neuroscience research and clinical translation. We delineate the four common themes of neuroimaging data and review major image processing analysis methods for processing neuroimaging data at the individual level. We briefly review four large-scale neuroimaging-related studies and a consortium on imaging genomics and discuss four common themes of neuroimaging data analysis at the population level. We review nine major population-based statistical analysis methods and their associated statistical challenges and present recent progress in statistical methodology to address these challenges. This talk is based on my recent paper (<https://arxiv.org/pdf/1807.05313.pdf>) with Drs. Tengfei Li and Bingxin Zhao that will appear in Annual Review of Biomedical Data Science in 2023.

Biography

Hongtu Zhu is a tenured professor of biostatistics, statistics, computer science, and genetics at University of North Carolina at Chapel Hill. He was DiDi Fellow and Chief Scientist of Statistics at DiDi Chuxing and Endowed Bao-Shan Jing Professorship in Diagnostic Imaging at MD Anderson Cancer Center.



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Date: 20 December 2022 (Tuesday)

Time: 9:30-10:30 (Hong Kong Standard Time GMT +8)

Venue: Online Talk via Zoom (Meeting ID: 953 2798 2544)

Speaker: Prof. Hongtu Zhu, University of North Carolina at Chapel Hill

Host: Prof. Xingqiu Zhao, The Hong Kong Polytechnic University

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<https://polyu.zoom.us/j/95327982544?pwd=SFBUbERWRGhCbVRuMys3Q1VEVU12UT09>

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