



THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

SEMINAR ON APPLIED MATHEMATICS

**Image Reconstruction Using Shape Prior,
Statistical Prior, and Beyond**

By

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Abstract

As the advances in imaging modalities in which the image reconstruction problems are mathematically inverse problems, many new kinds of inverse problems have emerged and trends to being high dimensional but with low-cost data acquisition. In order to efficiently and stably solve the under-determined and ill-conditioned inverse problems in high-dimensional medical imaging and compressed sensing, we established accurate statistical models for data fitting and images priors such as shape priors, statistical priors by generative models. In this presentation, I will introduce some of these methods and our recent results for image reconstruction, such as 4DCBCT reconstruction, joint image reconstruction and indirect registration, phase retrieval and some other nonlinear inverse problems.

Biography

Dr. Jiulong Liu is a tenure-track associate professor at Academy of Mathematics and Systems Science, Chinese Academy of Sciences. He received his Ph.D. at Shanghai Jiaotong University in 2017, and he was engaged in postdoctoral research at the Department of Mathematics, National University of Singapore from 2018 to 2021. His main research interests are computational inverse problems, medical image reconstruction, and machine learning. His publications in these field appear in SIAM Journal on Imaging Sciences, Inverse Problems, IEEE Transactions on Medical Imaging, ICLR, CVPR, and MICCAI.

Date : 8 December 2022 (Thursday)

Time : 9:00am – 10:00am

Zoom Meeting : <https://hkust.zoom.us/j/91499516475> (Passcode: 436311)

All are Welcome!