

國立中央大學數學系

專題演講

主 講 人：Dr. Jyh-Miin Lin, MD, MSc, PhD (University of Cambridge)

演講題目：The role of computing in medical image reconstruction

演講茶會：2021年01月14日(星期四) 3:30 p.m. ~ 4:00 p.m.

茶會地點：中央大學鴻經館M306

演講時間：2021年01月14日(星期四) 4:00 p.m. ~ 5:00 p.m.

演講地點：中央大學鴻經館M107

Abstract：

The ever-increasing importance of computing in medical image reconstruction can hardly be overestimated, and fast medical image reconstruction is the research focus of AI technologies and healthcare. In this talk, Dr. Lin will review some topics, from fundamental computing methods of magnetic resonance imaging (MRI) and computerized tomography (CT), to recent advances in MRI reconstruction methods. Some of his studies of the compressed sensing MRI, iterative reconstruction of the PROPELLER technique, spatiotemporal reconstruction, and open-source software are covered in this talk. One aspect of his work is the Python non-uniform fast Fourier transform (PyNUFFT), which allows researchers to share the same infrastructure and it is still actively maintained. It offers high-performance computing through PyCUDA and PyOpenCL backends. Thanks to the accurate min-max interpolator algorithm (Fessler and Sutton, IEEE TSP 2003), PyNUFFT has been used in MRI reconstruction, accelerated tomography, learning-based MRI reconstruction, motion estimation, and the ISMRM reproducible study.

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