

國家理論科學研究中心學術演講

2019 NCTS & NCU

Probability Seminar

題 目：Diffeomorphic Matching and Discrete Approximation of Geometric Distributions

主講人：謝希微 (University of John Hopkins)

時 間：10:00-11:30, Fri, Jun 14, 2019

地 點：國立中央大學鴻經館 M107

Abstract

We propose a new framework and algorithm pipeline to address the problem of diffeomorphic registration and discrete approximation of a large class of geometric objects that can be described as distributions of local direction vectors. It builds on the large deformation diffeomorphic metric mapping (LDDMM) model to generate deformation groups as well as the idea of representing shapes as oriented varifolds. We study in detail the construction of kernel metrics on space of varifolds and the resulting topological properties of those metrics, then propose a deformation model acting directly on the space of varifolds for diffeomorphic registration. In the LDDMM framework, such registration problem is formulated as an optimal control problem. We also address the problem of optimal finite approximations (quantization) for those metrics and show a Γ -convergence property for the corresponding registration functionals. Some numerical examples of registration (curves, surfaces, point clouds) will be demonstrated during the talk.

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