



THE UNIVERSITY OF CHICAGO

COMPUTATIONAL AND APPLIED MATHEMATICS COLLOQUIUM

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Transport Methods for Aligning Uncertain Models and Data

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Via ZOOM

ABSTRACT

A broad variety of applications demands algorithms that quantify the alignment of geometric signals, e.g. for quantifying how well a model fits a dataset or for finding correspondences between 3D shapes. While classical algorithms for this task assume a deterministic setting in which geometric figures are complete and well-sampled, a more realistic context draws inference from uncertain, incomplete models and data. In this talk, I will describe efforts to design practical tools for matching and alignment using optimal transport, leading to algorithms that are resilient to noise, sampling, and perturbation. We will consider a variety of problems, including model fusion, Bayesian inference, and statistical analysis, showing how optimal transport methods can be designed in each case for intuitive behavior and practical benefit.

Organizer:

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