THE UNIVERSITY OF CHICAGO | THE COMMITTEE ON COMPUTATIONAL AND APPLIED MATHEMATICS

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Solving Stochastic Inverse Problems by Using Statistical Scoring Rules

THURSDAY, May 19, at 4:00PM
Jones 303, 5747 S. Ellis Ave. Chicago, IL 60637

ABSTRACT

I will discuss a general strategy to calibrate probabilistic computational models from sample data using scoring functions. Examples of such scoring functions include the scalar continuous ranked probability score and its extension to high-dimensional contexts. These functions are developed to evaluate the difference between samples generated by probabilistic models and target distributions. The functions are commonly used in forecast verification to rank and quantitatively evaluate calibrated models. However, these scoring rules can be cast as divergences under mild theoretical assumptions. I will use these scoring functions to formulate stochastic variational inverse problems and propose efficient numerical solutions. This strategy will be illustrated on partial and differential algebraic problems with stochastic forcing, stochastic differential equations, and a generative model inspired by a nuclear physics problem.

Organizer:
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