Local and Optimal Transport Perspectives on Uncertainty Quantification

In many scientific areas, deterministic models (e.g., differential equations) use numerical parameters. In real-world settings, however, such parameters might be uncertain or noisy. A more comprehensive model should therefore provide a statistical description of the quantity of interest. Underlying this computational problem is a fundamental question—if two "similar" functions push-forward the same measure, would the new resulting measures be close, and if so, in what sense? The speaker will first show how the probability density function (PDF) of the quantity of interest can be approximated, using spectral and local methods. The speaker will then discuss the limitations of PDF approximation, and present an alternative viewpoint: through optimal transport theory, a Wasserstein-distance formulation of our problem yields a much simpler and widely applicable theory.

Amir Sagiv, Ph.D.

Assistant Professor
Columbia University

Date: Thursday, Oct 14, 2021
Time: 2:30 – 3:30 p.m. US Central Time
Physical location: Blocker 302
Zoom Meeting ID: 922 7758 0520
Passcode: 314

Biography

Amir Sagiv is a Chu Assistant Professor of Applied Mathematics at Columbia University, and earned his Ph.D. in Applied Mathematics at Tel Aviv University in 2019.

This seminar is both in person and online available. For more information about this TAMIDS Tech Talk, please contact Dr. Gregory Berkolaiko at gberkolaiko@tamu.edu

You can click this link to join the seminar https://tamu.zoom.us/j/92277580520?pwd=Z2RVUEU4bnFjT1ZXd09iV05oRzBzUT09

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