THE UNIVERSITY OF CHICAGO

Computational and Applied Mathematics & Statistics Student Seminar

---

OWEN MELIA

Department of Computer Science
The University of Chicago

"Deep Learning for Inverse Scattering in a Highly-Nonlinear Regime"

TUESDAY, January 9, 2024, 12:30-1:30 pm
Searle 240A, 5735 S. Ellis Avenue

ABSTRACT

We consider the inverse scattering problem, which is to recover a two-dimensional scattering potential from scattered wave measurements. Variants of this imaging modality have applications in seismic imaging, medical imaging, and nondestructive testing of materials. In this talk, we discuss this inverse problem and past attempts to learn an inversion map from data. We present a new neural network architecture and training method, and we discuss the inversion algorithm that inspired our design. Finally, we show with experiments that our method can produce accurate reconstructions in challenging problem settings.