Statistics Seminar

Department of Mathematics and Statistics

DATE:	Thursday, August 28, 2025
TIME:	1:30pm – 2:30pm
LOCATION:	WH 100E
SPEAKER:	Pratik Misra, Binghamton University
TITLE:	Structural identifiability and causal discovery in Gaussian graphical models

Abstract

Algebraic Statistics is an emerging field of research that uses techniques from Algebraic Geometry, Combinatorics and Commutative Algebra to enhance our understanding of statistical and causal inference problems. A key area of research in this field is the Gaussian graphical models, where the dependence structure between jointly normal random variables is determined by a graph. In this talk, I will present the problem of structural identifiability and causal discovery in Gaussian graphical models. Specifically, I will demonstrate how introducing symmetry conditions in the model can ensure structural identifiability. I will also (briefly) talk about a new causal discovery algorithm developed by using algebraic techniques. Finally, I will highlight some key algebraic properties satisfied by these models and outline some open problems in this direction.