MICHIGAN STATE UNIVERSITY
Department of Statistics and Probability

COLLOQUIUM

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Noise, non-linearity, and low-dimensionality in high-dimensional inference

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10:00am – 10:50am
Refreshments 9:45am
C405 Wells Hall

Abstract

What is the appropriate notion of the dimension or complexity of a signal that is being subsampled? The answer can depend on the kind of measurements being taken. For example, a signal belonging to a smooth manifold may always be reconstructed from a number of noiseless linear measurements proportional to the manifold dimension. However, if one adds a small amount of noise, the manifold dimension can be far too optimistic and must be replaced by a more global measure of complexity. Non-linear measurements add a new layer with interesting surprises. For example, noise can help to reveal the signal rather than obfuscate it. We explore the interplay between these concepts in high-dimensional inference.

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