

**Indiana University-Purdue University
Indianapolis**
Department of Mathematical Sciences

STATISTICS SEMINAR

12:15pm—1:15pm, Tuesday, December 03, 2019
LD 265

Speaker: **Ran Mo**
Department of Mathematical Sciences, IUPUI

Title: **Two models of double descent for weak features**

Abstract:

The "double descent" risk curve was recently proposed to qualitatively describe the out-of-sample prediction accuracy of variably-parameterized machine learning models. This article provides a precise mathematical analysis for the shape of this curve in two simple data models with the least squares/least norm predictor. Specifically, it is shown that the risk peaks when the number of features p is close to the sample size n , but also that the risk decreases towards its minimum as p increases beyond n . This behavior is contrasted with that of "prescient" models that select features in an a priori optimal order.