



THE UNIVERSITY OF
CHICAGO

Department of Statistics
STATISTICS COLLOQUIUM

ANDREA MONTANARI

Department of Electrical Engineering,
Department of Statistics, and (by courtesy) Department of Mathematics
Stanford University

Tractability, Generalization and Overparametrization in
Linear and Nonlinear Models

MONDAY, October 18, 2021 at 4:30 PM
Via Zoom

ABSTRACT

Empirical risk minimization (ERM) is the dominant paradigm in statistical learning. Optimizing the empirical risk of neural networks is a highly non-convex optimization problem but, despite this, it is routinely solved to optimality or near optimality using first order methods such as stochastic gradient descent. It has recently been argued that overparametrization plays a key role in explaining this puzzle: overparametrized models are simple to optimize, achieving vanishing or nearly vanishing training error. Surprisingly, the overparametrized models learnt by gradient-based methods appear to have good generalization properties. I will present recent results on these phenomena both in linear models that are directly motivated by the analysis of two-layer neural networks, and in some simple nonlinear models.

[Based on joint work with Yiqiao Zhong and Kangjie Zhou]

For further information and inquiries about building access for persons with disabilities, please contact Jonathan Rodriguez at 773.702.8333 or send him an email at jgrodriquez@galton.uchicago.edu. If you wish to subscribe to our email list, please visit the following website:
<https://lists.uchicago.edu/web/subscribe/statseminars>.