**THE UNIVERSITY OF CHICAGO** | **DEPARTMENT OF STATISTICS**

# MASTER'S THESIS PRESENTATION

Jimmy Melican

Department of Statistics
The University of Chicago

## Sharpness-Aware Minimization

TUESDAY, May 2, 2023, at 1:00 PM
Zoom Meeting

## ABSTRACT

Sharpness-aware minimization (SAM) is a training technique used to improve the generalization performance of neural networks. It is motivated by the empirical observation that loss sharpness (the change in the loss value resulting from a small change to the weights) is negatively associated with a trained model's performance on new data. The method was introduced in 2021 by Foret et al. and is used in conjunction with stochastic gradient descent to efficiently minimize both the loss value and sharpness, and it has achieved state-of-the-art results on multiple image classification benchmarks. Subsequent work has raised questions about what aspects of SAM are driving the performance improvements. In this paper, I investigate the relationship between the degree of improvement provided by training with SAM and the model complexity, amount of training data, and sub-batch size used in the training.