Statistical Sciences
UNIVERSITY OF TORONTO

SEMINAR SERIES

When:	**Thursday, April 19, 2018**
Time:	**3:30 – 4:30 pm**
	Refreshments at 3:15 pm
Where:	**Sidney Smith Hall Rm 1069**
Speaker:	**WENXIN ZHOU, University of California, San Diego**
Host:	**Qiang Sun**

Revisiting Huber's M-Estimation: A Tuning-Free Approach

The robustification parameter, which balances bias and robustness, has played critical role in recent development on robust estimation for heavy-tailed data.

Practically, it can be tuned by cross-validation, a general computation-based model fitting technique that is commonly used to predict the performance of a model on a validation set. The underpinning mathematical principle, however, is disregarded. Guided by its theoretically optimal expression and also inspired by the censored moment equation approach [*Ann. Probab.* **18**, 1284–1341], we propose a new turning-free scheme to adaptively choose the robustification parameter from data.

Starting with the basic problem of estimating the mean, we further extend the proposed method to regressions in both low and high dimensional settings. In a unified manner, the proposed method will be referred to as the data-adaptive Huber method. We illustrate its promising performance with extensive numerical experiments.