

## Data Science Seminar

Hosted by the Department of Mathematics and Statistics

- Date: Tuesday, February 21, 2023
- Time: 12:00pm - 1:00pm
- Room: Whitney Hall 100E
- Speaker: Dr. Xuming He (University of Michigan)
- Title: How Good is Your Best Selected Subgroup.

### ***Abstract***

Subgroup analysis is often performed by “slicing and dicing” the data to find one or more subgroups that show distinctive characteristics. However, evaluation of the best selected subgroup tends to be overly optimistic. In this presentation, we use the subgroup evaluation in clinical trials as an example to discuss the risk of selection bias in subgroup evaluations. In particular, we propose a novel bootstrap-based inference procedure for the best selected subgroup effect. The proposed inference procedure is model-free, easy to compute, and asymptotically sharp. We show, through both theory and empirical investigations, that how a subgroup is selected post hoc should play an important role in any statistical analysis. Much of the talk is based on joint work with Dr. Xinzhou Guo.

Biography of the speaker: Dr. He is H.C. Carver Professor of Statistics, University of Michigan. Currently He is President-Elect of the International Statistical Institute (ISI). He served as Program Director of Statistics at the National Science Foundation and Co-Editor of the Journal of the American Statistical Association (JASA). Xuming He is Fellow of the American Association for the Advancement of Science (AAAS), the American Statistical Association (ASA), and the Institute of Mathematical Statistics (IMS). His recent honors and awards also include the Distinguished Faculty Achievement Award from the University of Michigan, the Founders Award (2021) from the American Statistical Association and the Carver Medal (2022) from the Institute of Mathematical Statistics. His research interests include theory and methodology in robust statistics, quantile regression, Bayesian computation, and post-selection inference. His interdisciplinary research aims to promote the better use of statistics in biosciences, climate studies, concussion research, and social-economic studies.

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