



McGill

Department of
Epidemiology, Biostatistics
and Occupational Health

SPECIAL RESEARCH TALK & LECTURE



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RESEARCH TALK: Variable Selection and Prediction in High-Dimensional Data Analysis

Thursday, March 31st, 2022 - 1:00 – 2:00PM

<https://mcgill.zoom.us/j/89793058788>

Abstract: In high-dimensional data, where the number of covariates greatly exceeds the number of observations, estimation can benefit from the bet-on-sparsity principle, i.e., only a few predictors are relevant in the response. This assumption can lead to more interpretable models, improved predictive accuracy, and algorithms that are computationally efficient. There has been a particular interest in variable selection methods and their application to datasets in the health sciences, where sample sizes are small relative to the number of measured features. In this talk, I will first introduce several analytical challenges that arise in large-scale genetics data, followed by some of our proposed solutions and their software implementations. I then share some recent applications of these methods for variant discovery, polygenic risk scores, and gene-environment interactions. This will be followed by a discussion of future directions with a particular focus on statistical fine-mapping, optimization techniques, and dataset shift.

Bio: Sahir Bhatnagar is an Assistant Professor of Biostatistics at McGill. His work focuses on developing statistical methods for analyzing high-dimensional data in genomics and radiomics. He is a proponent of open-source software and has authored several R packages which have been downloaded over 200K times according to official CRAN logs. He enjoys working on multidisciplinary teams and has active collaborations with epidemiologists, colorectal surgeons, radiologists, and human geneticists. His M.O. is the bio comes before statistics in the word biostatistics, i.e., the biological question drives his methodological contributions. For more information, please visit <https://sahirbhatnagar.com/>

LECTURE: Introduction to Single-Sample Confidence Intervals for the Population Proportion and the Population Mean

Friday, April 1, 2022 – 11AM-12PM

<https://mcgill.zoom.us/j/89793058788>

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