CANSSI Showcase 2022 – Presenters

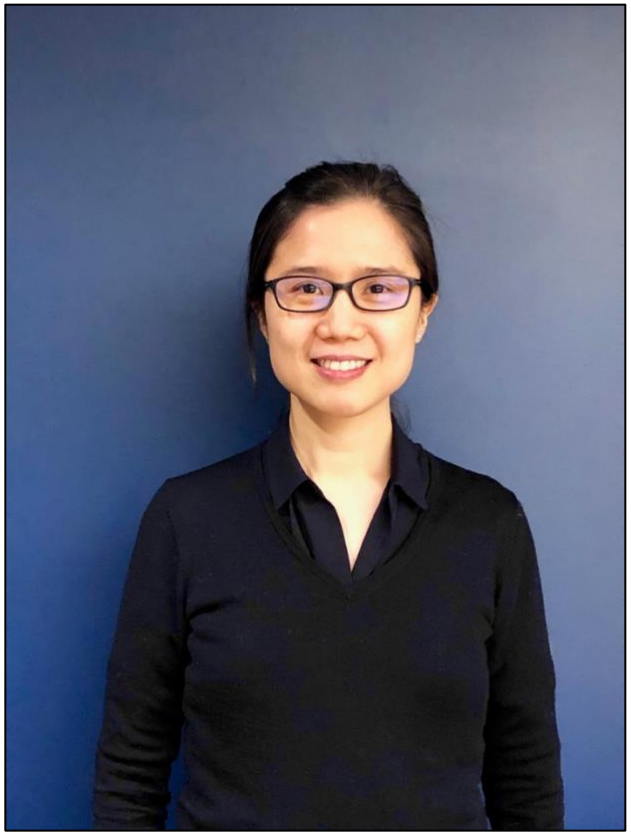
Postdoc / CRT Talks

Alina Selega

Dr. Alina Selega is a postdoctoral fellow with Dr. Kieran Campbell at the Lunenfeld-Tanenbaum Research Institute. She works on automated machine learning for biomedical pipelines and on machine learning (ML) methods for genomics in the context of understanding the role of tumor microenvironment in cancer development. Before that, she was a postdoctoral fellow at the University of Toronto, working with Dr. Quaid Morris on ML methods for tumor evolution. Dr. Selega earned her PhD from the University of Edinburgh, where she developed statistical tools for the analysis of RNA-sequencing data. She holds an MSc in Computational Neuroscience and Neuroinformatic from the University of Edinburgh and BSc in Computer Science and Mathematics from the University of York.

Francois-Michel Boire

François-Michel Boire is a postdoctoral research fellow in the Department of Decision Sciences at HEC Montréal. His current work focuses on the development and calibration of capital structure models for contingent capital valuation. Capital structure models are of particular relevance to corporate security issuers and investors, and to financial regulators and policymakers in need of a more sophisticated and realistic tool to assess counterparty credit risk.



Teresa Tsui

Teresa Tsui's research interests are in developing and applying health economic methods, including the use of real-world health utilities to inform clinical and policy decisions. Her co-supervisors are Dr. Kelvin Chan at the Canadian Centre for Applied Research in Cancer Control (ARCC) and Dr. Eleanor Pullenayegum at the Hospital for Sick Children. She was awarded a Mitacs Accelerate postdoctoral fellowship and CANSSI Ontario postdoctoral top-up.

Teresa completed her PhD in Pharmaceutical Sciences at the University of Toronto, and Toronto Health Economics and Technology Assessment (THETA) Collaborative to develop the core of a novel breast cancer preference instrument. Teresa has a BSc (Hon) in Pharmacology (specialist) and Psychology (minor) and MSc in Pharmaceutical Sciences, both from the University of Toronto. Her MSc was in understanding the role of patient values in decision making. She has worked at the University of Toronto as a Research Manager, lecturer, and small group facilitator.

Arafeh Bigdeli

Dr. Arafeh Bigdeli is an Analytical Chemist with expertise in chemometrics and nanosctructure-based optical sensor arrays. She is currently a postdoctoral research fellow at Brigham and Women's Hospital, Harvard Medical School (HMS). Prior to joining HMS, she was a postdoctoral research fellow at the Department of Statistics, University of British Columbia working with Dr. Gabriela Cohen-Freue, Dr. Tom Blydt-Hansen, and experts at the CANSSI Collaborative Research Team. Her current research is directed towards point of care diagnostics and implementation of machine learning methods in medical diagnosis and prognosis.

Rim Cherif

Rim Chérif is an assistant professor of finance at the American University in Cairo. She obtained a PhD in financial engineering from HEC Montréal. She is a specialist in mathematical and numerical finance. Her main fields of research are stochastic-dynamic programming, derivatives pricing, mathematical modelling, risk management and credit risk.

Lightning Talks

Devan Becker

Devan Becker completed his B.Sc. in mathematics at Wilfrid Laurier University, where he found a love for the connection between math and data. He moved on to get his master's and Ph.D. from Western University, where he studied point processes and spatial Bayesian models applied to forest fire locations as well as sports analytics. His postdoctoral research involved detection of specific variants of concern of the virus that causes Covid-19 from wastewater samples. As a professor at Wilfrid Laurier University, he is expanding this research to account for detection of various variants, incorporating information from neighbouring wastewater treatment plants and previous estimates, and in the presence of uncertainty of the definitions of the variants.

Inesh Prabuddha Munaweera Arachchilage

I obtained my B.Sc. Special Degree in Statistics at the University of Sri Jayewardenepura, Sri Lanka.

I did my M.Sc. in Statistics from the Department of Statistics, University of Manitoba.

I'm currently enrolled in Ph.D. in statistics at the Department of Statistics, University of Manitoba.

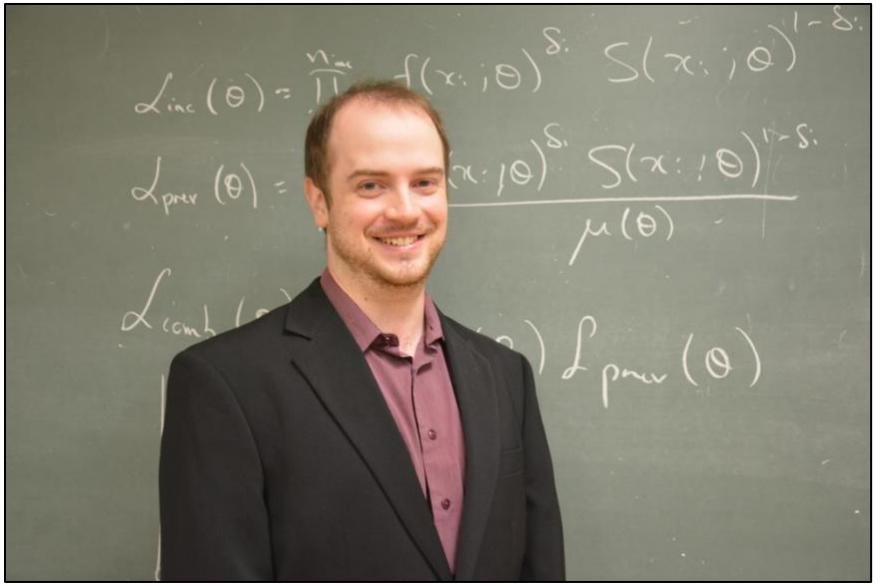
My current research is on applications of Bayesian statistical methods in ecology.

Other research interests: Regularized regression methods, Machine Learning

Some awards:

- Award for Outstanding Academic Performance by a Ph.D. Student from the Department of Statistics, University of Manitoba in 2022
- Award for Outstanding Academic Performance by an M.Sc. Student from the Department of Statistics, University of Manitoba in 2018
- R. A. Dayananda Gold Medal for Statistics, Department of Statistics, University of Sri Jayewardenepura, Sri Lanka 2014.

James McVittie



Dr. James McVittie is an assistant professor in the department of mathematics and statistics at the University of Regina. He holds an HBSc in mathematics and statistics from the University of Toronto (2015) and an MSc (2017) and PhD (2022) in statistics from McGill University. His research interests include the development of survival analysis modelling techniques for combined cohort data and measurement error problems in partially observed time to event data.

Japjeet Singh

I am a Computer Science Master's student in the University of Manitoba. My research interests lie in Computational and statistical methods for Risk modelling of assets traded at a high frequency, specifically the blockchain powered digital assets. I am a passionate advocate of Data-driven decision-making, and firm believer in widespread adoption of statistical and machine learning models for solving complex problems across diverse set of industries.

Jinhan Xie

I obtained my PhD degree in Statistics at Yunnan University in 2019, working with Professor Niansheng Tang. I was a post-doctoral fellow at the Chinese University of Hong Kong between 2019 and 2020, working with Professor Yuanyuan Lin. Now I am a post-doctoral fellow at the University of Alberta from 2021 to now, working with Professors Linglong Kong and Bei Jiang. My research interest lies in missing data, case-control design, and high-dimensional data analysis. My recent focus is on the development of online updating methods in high-dimensional regression models with the main focus on statistical inference.

Mark Parsons

Marc completed both his BSc (Honours) in Statistics (2013) and MSc in Epidemiology (2015) at the University of Alberta in Edmonton, Alberta. In 2015 Marc moved to London, UK, to study at the London School of Economics and Political Science, completing an MSc in International Health Policy (2016). In 2020 Marc started his PhD in Biostatistics at McGill University in Montréal, Québec, under the supervision of Dr. Andrea Benedetti.

Since beginning his research career, Marc has worked as a statistical analyst and researcher on various projects spanning a wide range of topics. After several years working as a research analyst, in 2019 Marc became an infectious disease epidemiologist at Alberta Health.

Marc became a member of the DEPRESSD working group in 2021. Marc's current research work focuses on flexible regression methods in individual patient data meta-analyses (IPDMAs).

Md Erfanul Hoque

Erfanul Hoque is a Ph.D. candidate (expected: Dec 2022) in the Department of Statistics at the University of Manitoba under the joint supervision of Elif Acar and Mahmoud Torabi. His research revolves mostly around the area of longitudinal data analysis. He has also interested in time series, machine learning, measurement errors, missing data analysis and dynamic data science. He is an incoming (Dec 2022) Assistant Professor (Tenure-track) in the Department of Mathematics and Statistics at Thomson River University (TRU), BC.

Education

He received his Bachelor's and Master's degree in Statistics at the University of Dhaka, Bangladesh. He received his second Master's degree in Statistics at the University of Manitoba in 2016 and then continue his Ph.D. in the same department. He is expected to receive his Ph.D. (Dec 2022) in statistics with a specialization in longitudinal data analysis from the Department of Statistics at the University of Manitoba.

Publications

He has several publications in different journals such as:

Biometrics, Statistics in Medicine, Canadian Journal of Statistics, BMC Public Health, Austrian Journal

of Statistics, IEEE conference proceedings etc.

Awards

He received several awards in his academic life such as:

Outstanding Academic Performance by a Ph.D. Student,

University of Manitoba Graduate Fellowship (UMGF), Manitoba Graduate Fellowship (MGF),

Faculty of Graduate Studies Program Completion Scholarship, Mitacs Accelerate Internship,

CANSSI-CRM Scholarship for Research, CANSSI Graduate Student/Postdoc Fellow Scholarships, CRM Student Travel Award, FGS travel award etc.

Professional Services

Member of the Student and Recent Graduate Committee of Statistical Society of Canada (SSC)

Member of the Senate Committee on Awards, University of Manitoba, Manitoba

Member of Faculty of Graduate Studies appeal committee, University of Manitoba

President of Statistics Graduate Student Association (SGSA), Department of Statistics

Membership

Statistical Society of Canada (SSC)

International Statistical Institute (ISI)

Canadian Society for Epidemiology and Biostatistics (CSEB)

Bangladesh Statistical Association (BSA)

Qian Ye

Qian (Monica) Yes is a PhD student in statistics in the Department of Statistics at University of British Columbia, Vancouver. Her research interests lie in innovative statistical models analyzing longitudinal and survival data, and their applications in the field of epidemiology and public health. Currently, she is also a statistician working in the BC Centre for Excellence in HIV/AIDS (BC-CfE).

Sihaoyu Gao

Sihaoyu (Sherry) Gao is a Ph.D. student at UBC. She has been working on HIV data for a few years. Her current research interest is to apply a semiparametric unified viral model to the HIV dataset. Outside of research, Sherry is a cinephile and a gourmet.

Sulalitha Bowala Mudiyanselage

I was always curious about the things happening around me. I used to question everything and everyone I met and wanted to explore the world more and more. This persuaded me into the field of science, specifically Mathematics.

In high school, I was interested in the areas where Mathematics was applied in real life, such as Probability and Statistics. This interest in Applied Mathematics led me to choose Statistics and Operations Research for my undergraduate degree at the University of Peradeniya, Sri Lanka. From the basic concepts I learned in the early years of my undergraduate life, I was intrigued by the idea that I would be able to describe, understand, and derive insights into real-life problems with numbers.

I had been searching for a great place to extend my knowledge and experience in Statistics and Operations Research following my BSc degree. In August 2015, I received an opportunity to enrol in the master's program in statistics at Sam Houston State University, Texas, USA. In the Fall of 2017, I received an opportunity to enrol in a master's program in Operation Research at Southern Methodist University, Texas, USA. During my two years at SMU, I worked on a study focused on Optimization in Phase III Clinical Trials.

Currently, I am pursuing my PhD at the University of Manitoba in the Department of Statistics. My current research focuses on Dynamic Data Science Applications in Finance and Supply Chain Management.

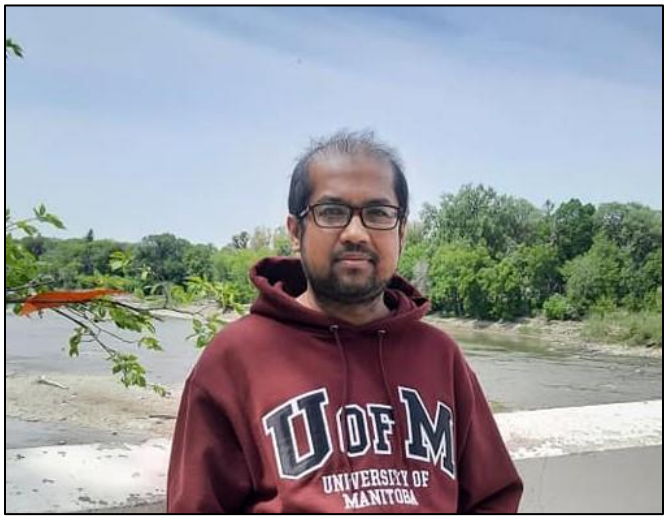
You Liang

You Liang is an assistant professor at the Department of Mathematics, Toronto Metropolitan University, in Toronto, Canada. She specializes in Hyperspectral image data analysis, Fuzzy modelling and computation, Time series, Risk management and Algorithmic finance. She has published widely in multidisciplinary journals and conferences, including the European Journal Of Cancer, IEEE International Conference on Fuzzy Systems (FUZZ), IEEE Computers, Software, and Applications Conference (COMPSAC) and IEEE Symposium Series on Computational Intelligence (SSCI). You Liang has extensive involvement with complex data science projects with governments, hospitals and organizations.

Haihan Xie

I am a Ph.D. student in statistics at the University of Alberta. My research interests include online learning, differential privacy, optimization, and statistical inference.

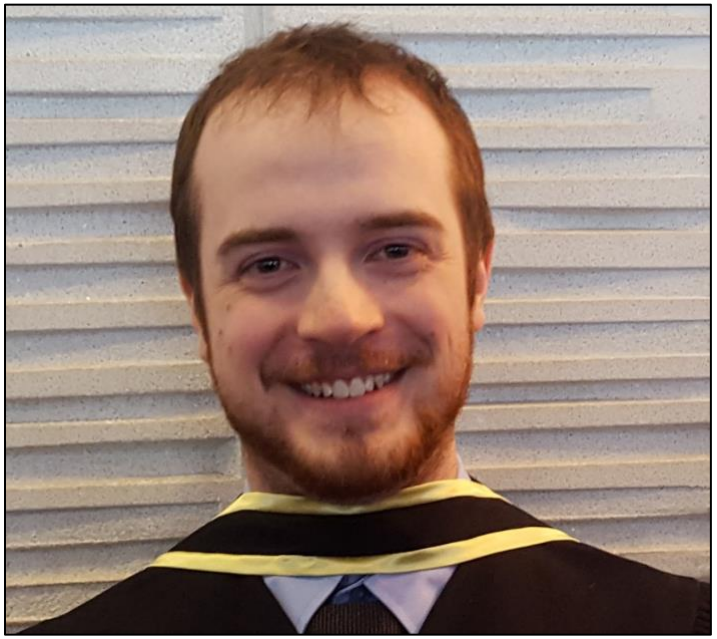
Poster Session



Azizur Rahman

I am a fourth-year PhD candidate in the Department of Community Health Sciences at University of Manitoba. I graduated from Jahangirnagar University, Bangladesh with a M.Phil degree in Statistics and moved to Winnipeg to pursue PhD degree at UofM. I am serving as the student representative for Data Science Platform within CHI organization under UofM and volunteering as an undergraduate research project examiner at the University of Manitoba. Outside of school, I enjoy playing and spending time with my family. While my first publication was on functional data analysis on influenza data, I have since shifted my interest towards Bayesian methods for statistical models. Having background in Statistics, I have designed my PhD research around development of an algorithm under the Bayesian framework that could provide fast and approximate estimates of parameters for statistical models for correlated data. I am also interested in Machine learning methods and time series models.

James McVittie



I am an Assistant Professor in the Department of Mathematics and Statistics at the University of Regina.

My work is based in the area of survival analysis and associated methodologies for partially observed data. Specifically, I work on the development of methodologies applicable to data collected by combining independent cohorts with applications ranging from health studies to modelling the duration of sports players' careers.

Sulalitha Bowala Mudiyanselage

I was always curious about the things happening around me. I used to question everything and everyone I met and wanted to explore the world more and more. This persuaded me into the field of science, specifically Mathematics.

In high school, I was interested in the areas where Mathematics was applied in real life, such as Probability and Statistics. This interest in Applied Mathematics led me to choose Statistics and Operations Research for my undergraduate degree at the University of Peradeniya, Sri Lanka. From the basic concepts I learned in the early years of my undergraduate life, I was intrigued by the idea that I would be able to describe, understand, and derive insights into real-life problems with numbers.

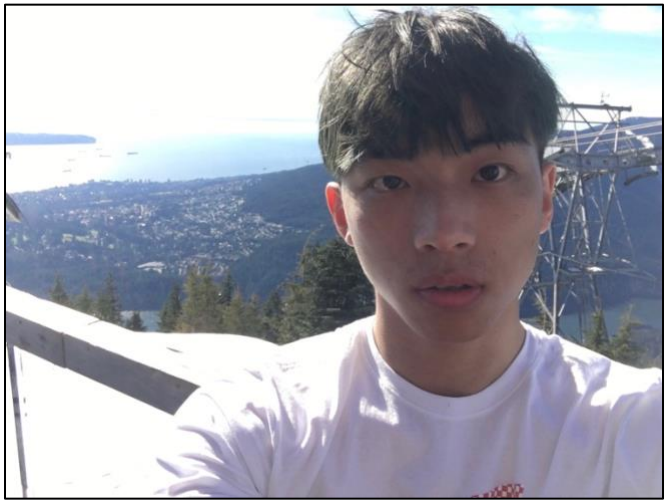
I had been searching for a great place to extend my knowledge and experience in Statistics and Operations Research following my BSc degree. In August 2015, I received an opportunity to enrol in the master's program in statistics at Sam Houston State University, Texas, USA. In the Fall of 2017, I received an opportunity to enrol in a master's program in Operation Research at Southern Methodist University, Texas, USA. During my two years at SMU, I worked on a study focused on Optimization in Phase III Clinical Trials.

Currently, I am pursuing my PhD at the University of Manitoba in the Department of Statistics. My current research focuses on Dynamic Data Science Applications in Finance and Supply Chain Management.

Masudul Islam

I am, **Masudul Islam,** Graduate Student, Department of Statistics, University of Manitoba. My research interests include applying time series modeling in different perspective as well as biostatistics related works. I am studying under the direction of Dr. Aerambamoorthy Thavaneswaran and Dr. Srimantoorao S. Appadoo. My current work focus on demand uncertainty modeling in supply chain context. My previous experience includes participation in the 134 Annual Indiana Academy Meeting, Indiana, USA.

Xuankang Zhu



I am a first-year PhD student in Simon Fraser University, supervised by Professor Donald Estep. My research interests lie primarily in machine learning and probability density estimation.

Jiaqi Li

Topic: *High-dimensional outlier detection and variable selection via adaptive weighted mean regression*

Abstract:

This paper proposes an adaptive penalized weighted mean regression for outlier detection of high-dimensional data. Comparing with existing methods based on mean shift model, the proposed estimators are robust against outliers in both the response variables and/or covariates. Based on the adaptive Huber loss function, the proposed procedure works well in high-dimensional linear models with heavy-tailed and heteroscedastic distributed error distributions.

Within the proposed framework, the regression parameter estimation and outlier detection are achieved simultaneously and collaboratively. The outlier detection consistency and the oracle inequalities of robust estimates in high dimensional settings are established under regularity conditions. The theoretical robustness properties such as breakdown point, and a smoothed limiting influence function are established. Extensive simulation studies and a breast cancer survival data are used to evaluate the numerical performance of the proposed method, which shows comparable or superior variable selection and outlier detection performances.