

**Fri November 17**

# CANSSI Showcase 2023

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## CANSSI Showcase 2023

### Lightning Talks Speakers

## Alysha Cooper



Alysha is a PhD candidate in Applied Statistics from the University of Guelph with a focus on computational inference and methods that can be applied to compositional data. Throughout Alysha's academic journey, she has gained expertise in artificial intelligence, survival analysis, computational inference, and applications of statistical methods to real world problems.

## Ander Diaz-Navarro

Dr. Ander Díaz-Navarro is a Biochemist and Molecular Biologist with expertise in understanding the impact of non-coding mutations in cancer, particularly in hematological neoplasms.

He earned his BSc in 2016 and continued his studies at the University of Oviedo, obtaining an MSc (2017) and a PhD (2022) in Biomedicine and Molecular Oncology. During this time, he specialized in whole genome, exome, and RNA sequencing data analysis, as well as a wide range of molecular and cellular biology techniques.

These skills led to his co-authorship of a paper published in *Nature*, which unveiled the effect of a recurrent mutation in the nuclear small RNA U1 across various cancer types.

Thus far as a Postdoctoral Fellow, he has focused on bridging the gap between research and clinical practice, aiming to facilitate personalized diagnoses for cancer patients on a routine basis. Currently, as a recipient of the Ontario Genomics – CANSSI Ontario fellowship, Dr. Díaz-Navarro is conducting research at the Ontario Institute for Cancer Research.



Under the supervision of Drs. Lincoln Stein and Bo Wang, his work centers on the generation of synthetic cancer genomes.

### **Arthur Chatton**



Dr Arthur Chatton is a postdoctoral researcher at the Université de Montréal. His research stands at the crossroads of prediction and causal inference. Since many causal estimators have been developed without guidance about when to use (or not) them, his PhD at Université de Nantes, France, aimed to compare their performances in various contexts through simulations and how to mix them with machine learning.

But causal inference is not only a statistical/estimation problem. Identifiability of causal effects is also a crucial challenge in modern research. Thereby, his current

research aims to develop a tool to check positivity in various contexts (e.g., mediation or longitudinal settings) non-parametrically. Machine learning is also a powerful tool for prediction. He's currently developing a longitudinal and dynamic predictive framework for optimizing dialysis sessions thanks to an IVADO postdoctoral fellowship.

### **Carlotta Pacifici**

Carlotta Pacifici is a third year PhD student in Statistical Sciences at University of Bologna. As of September 2023, she is working at HEC Montréal under the supervision of prof. Debbie J. Dupuis for an eight-month visiting research period.

Carlotta's research focuses on dynamic models in the context of extreme value theory. She chose to study this topic because it combines all her research interests, ranging from time series, regression models and analysis of extreme events. The work developed so far consists in tackling the time-varying risk associated with a certain phenomenon.



It has a broad range of applicability: from finance, where it is essential to estimate the probability of occurrence of extremely rare but large losses, to climate, where it is important to study the presence of trends in the risk linked to a potentially dangerous climatic event such as floods or fires. Prior to her current doctoral studies, Carlotta successfully obtained a bachelor's degree in economics in 2017 and a master's degree in Statistical Sciences at Sapienza University of Rome. Already before obtaining her master's degree in January 2020, she started working at SAS Institute as an analytical consultant for two years. Although she treasures this experience because it gave her the opportunity to improve both her technical and relational skills, she is now content with her current position and would love to pursue a career in academia.

### Cong Jiang



Cong Jiang is a postdoctoral researcher at the Université de Montréal under the supervision of Mireille Schnitzer and Denis Talbot.

With a PhD from the University of Waterloo in 2022, under the supervision of Mary Thompson and Michale Wallace, he specializes in developing methods for dynamic treatment regimes with interference. Currently, his research focuses on machine learning and nonparametric efficiency within causal inference.

## Di Meng

PhD candidate in Financial Modelling in Department of Mathematics, Wilfrid Laurier University.



## Harsh Kumar



Harsh Kumar is a third-year PhD student in the Department of Computer Science at the University of Toronto, where he is working with Dr. Joseph Jay Williams. His research sits at the intersection of cognition, mental health, and education, aiming to leverage technology, particularly Large Language Models (LLMs), to positively impact lives. Through diving into fields like Human-Computer Interaction and Psychology, Harsh is exploring not only how we interact with technology but also how it can enhance well-being and education.

For instance, one of his recent studies highlighted how LLMs can actively foster mindfulness in individuals. Another investigation showed the potential of LLM-based tools in educating students even when they are merely seeking answers, and illustrated how designing LLM-based tools can improve their efficacy in promoting genuine learning.

Harsh acknowledges that each individual's needs are unique and constantly changing. With this understanding, he employs Reinforcement Learning algorithms, such as contextual bandits, to craft systems that go beyond mere adaptation to offer personalization. By catering to individual needs, Harsh aspires to uphold inclusivity, ensuring that even users who deviate from the average or the 'norm' are provided with a tailored experience.

His ultimate objective is to develop systems that improve over time by learning from each user's interactions.

### **Lara Maleyeff**

Dr. Lara Maleyeff is a Postdoctoral Fellow at the McGill University Department of Epidemiology, Biostatistics, and Occupational Health, jointly supervised by Drs. Shirin Golchi and Erica Moodie. Her research interests include the design and analysis of clinical trials with heterogeneous treatment effects. Dr. Maleyeff received her PhD from Harvard University.



### **Luke Hagar**



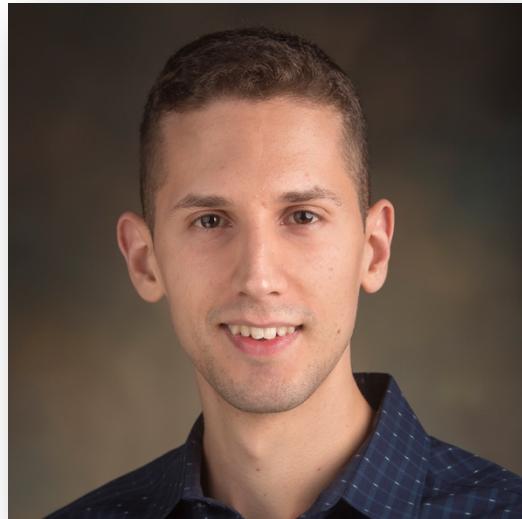
Luke Hagar is a third-year PhD Candidate in Statistics at the University of Waterloo (UW), under the supervision of Dr. Nathaniel Stevens. Luke completed his Masters of Mathematics in Statistics (2021) and Bachelor of Mathematics in Mathematical Optimization & Statistics (2020) at UW.

Luke works as a TA Workshop Facilitator at UW's Centre for Teaching Excellence. He is a member of the Statistical Society of Canada (SSC). Luke currently chairs the SSC's Student and Research Graduate Committee (SARGC), and he co-chaired the SSC's 2023 Canadian Statistics Student Conference (CSSC).

Luke's current research interests include experimental design, efficient sampling techniques, hypothesis testing, Bayesian methods, and computational inference. His thesis explores scalable methods for study design facilitated via targeted sampling from the unit hypercube. These methods can reduce the runtime of simulation-based design methods by several orders of magnitude without relying on large-scale computing resources. Luke is actively looking for postdoctoral positions starting in 2024, and he hopes to extend these methods to more complex designs in future work.

### **Nikola Surjanovic**

Nikola is a Vanier Scholar pursuing a PhD in Statistics at the University of British Columbia under the supervision of Dr. Alexandre Bouchard-Côté and Dr. Trevor Campbell. His research interests include scalable Bayesian inference and machine learning.



### **Richard Yan**



Richard is currently a second-year Ph.D. candidate in statistics at Simon Fraser University, supervised by Dr. Haolun Shi. His research field is clinical trial design and biostatistics. Richard accomplished his master's degree in statistics at the University of Victoria with experience in bioinformatics and an NSERC research stipend.

## **Skyepaphora Griffith**

Skyepaphora Griffith is a 4th year PhD student at Queen's University. She completed her undergrad at Trent University, where (after years of denial) she was coaxed away from pure mathematics and into statistics. Her graduate research has primarily concentrated on Time Series Analysis and Spectrum Estimation, with a particular focus on the Multitaper Method.

Skye is passionate about education, and in 2021, she co-instructed the graduate-level course in mathematical statistics at Queen's. In 2022, she was awarded an NSERC Canadian Graduate Scholarship-Doctoral (CGS-D).

Her other scholarships have included the Robert Sutherland Fellowship (2018, 2020), Ontario Graduate Scholarships (2019, 2021), and the Dean's award for Women in Mathematics (Queen's, 2020). Skye has received several awards for her conference presentations, including: Award for Best Paper (ICSTA 2020, and again in 2022) and the Overleaf award for Most Entertaining Talk (Trent Mathematical Sciences Research Symposium, 2018). She's grateful to have the two best supervisors in the world: Dr. Wesley Burr (Trent) and Dr. Glen Takahara (Queen's).



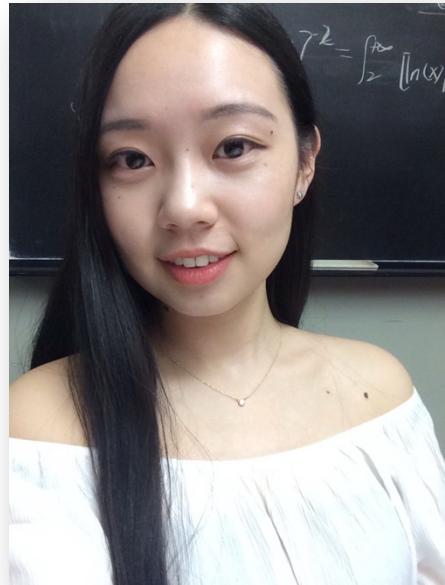
## **Surani Mathara Arachchige Dona**



Surani Matharaarachchi is an accomplished data scientist with a strong background in statistics and machine learning. Surani's academic journey includes an MSc in Statistics and ongoing doctoral research at the University of Manitoba, Department of Statistics. Her research focuses on addressing the class imbalance issue in classification problems and developing novel methods in the presence of outliers. Currently serving as a Leader in Training within the Data Science Program at the Government of Manitoba, she is pivotal in leveraging data to drive informed decisions and policy formulation.

### Xiaoting Li

I am a PhD candidate in the Department of Statistics at the University of British Columbia, under the supervision of Dr. Harry Joe. My current work focuses on developing new statistical tools and modeling techniques for multivariate extremes and exploring their potential to address the challenges arising from risk management.



### Yichen Zhang



I am a Ph.D. Candidate in Statistics at UBC advised by Yongjin Park and Sara Mostafavi. My research focuses on three aspects of latent variable modelling, i.e., Interpretability, Disentanglement and Fairness, with applications to biological data analysis. Most of my work has ingredients of Bayesian network, causal inference and neural network.

Prior to my Ph.D. study, I finished my Master in Biostatistics at University of Washington, working on matrix completion and cell deconvolution problems with Noah Simon. I was a Biostatistician Intern at NanoString Technologies, Inc, and Associate Researcher Intern at Huawei AI Lab. I have been working as a statistical consultant in both industry and academia.

## **Yuan Bian**

Yuan is a Ph.D. Candidate in Statistics at the University of Western Ontario. Currently, he also serves as co-chair for the Statistical Society of Canada's 2024 Canadian Statistics Student Conference, and works as a consultant for the Western Data Science Solutions.

Prior to Western, he obtained a thesis-based M.Sc. degree in Biostatistics, and a H.B.Sc. degree in Mathematical Applications in Economics and Finance & Statistics from the University of Toronto. He was supported by a Canadian Institutes of Health Research Project Grant and the Lunenfeld-Tanenbaum Research Institute, Sinai Health System.

His research focuses on developing statistical methodologies and machine learning methods for noisy data (e.g., missing data, censored data, and measurement errors).

