Gian Carlo Diluvi M.

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Contact

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Education

The University of British Columbia 2021–Present
Doctor of Philosophy (PhD) in Statistics
Supervisors: Dr. Trevor Campbell and Dr. Benjamin Bloem-Reddy.
Advanced to candidacy in August 2024.

The University of British Columbia 2019–2021
Master of Science (MSc) in Statistics
Thesis: *Locally-Adaptive Boosting Variational Inference.*
Supervisors: Dr. Trevor Campbell and Dr. Benjamin Bloem-Reddy.
GPA: 94.2% out of 100%.

Instituto Tecnológico Autónomo de México 2013–2017
Bachelor of Science (BSc) in Applied Mathematics, *summa cum laude*
Thesis: *Bayesian Design of Experiments for Generalized Linear Models.*
Supervisor: Dr. Ernesto Barrios-Zamudio.
GPA: 96.9% out of 100%.

Publications and Software

Peer-reviewed publications

*First Author

- G. C. Diluvi*, B. Bloem-Reddy, and T. Campbell. (2024). **Mixed variational flows for discrete variables**. In *International Conference on Artificial Intelligence and Statistics.*
- G. C. Diluvi*, B. Dunham, N. Heckman, M. Lee, and R. Lourenzutti. (2022). **Structured, interactive resources for teaching Bayesian inference**. In *International Conference on Teaching Statistics.*

Workshops and conferences

- G. C. Diluvi*, S. Isberg*, B. Dunham, N. Heckman, and M. Lee. (2024). **Using online student focus groups in the development of new educational resources**. In *The Royal Statistical Society International Conference.*

Software

- MAD Mix: Learn discrete distributions with Measure-preserving And Discrete MixFlows. `https://github.com/giankdiluvi/madmix`.
- LBVI: Bayesian inference via locally-adapted boosting variational inference. `https://github.com/ubc-bayes/mixinf`.

Non-refereed publications

- G. C. Diluvi (2019). **How does it make you feel?** *Significance, 16*(3), 26–29.
- G. C. Diluvi*, M, Mendoza, and G. Orantes (2018). **Statistics in the 2018 Mexican general election quick counts**. *Laberintos e Infinitos, 48*, 29–37.
- M. Mendoza, G. C. Diluvi, and G. Orantes (2018). **Description of the Bayesian estimation model, stratification design, and sample size for Chiapas.**. *Scientific, logistic, and operational criteria for the Quick Counts and sampling design protocol*, 43–45 and 53–67.

Conferences

Talks

- 2024 UBC Statistics Seminar: *Using online student think-alouds to develop Shiny apps for teaching statistics.*
- 2024 RSS International Conference: *Using student focus groups in the development of new educational resources.*
- 2023 SFU/UBC Joint Statistics Seminar: *Mixed variational flows for discrete variables.*
- 2022 ICOTS 11: *Structured, interactive resources for teaching Bayesian inference.*
- 2021 UBC Statistics Seminar: *Locally-adaptive boosting variational inference.*
- 2020 UBC Social Exposome Cluster Resarch Day: *Reliable statistical inference with complex, heterogeneous data.* (Prize for best master's presentation.)
- 2019 SFU/UBC Joint Statistics Seminar: *Quick counts in the 2018 Mexican general election.*

Organized

- 2021 SFU/UBC Joint Statistics Seminar (co-organizer).
- 2019–2021 weekly graduate student-run seminars at UBC Statistics (co-organizer).

Chaired

- 2021 WNAR of IBS Distinguished Speaker Q&A with Dr. Michael I. Jordan (co-chair).

Research Positions

The University of British Columbia 2021–Present

Research Assistant, Department of Statistics
Supervisors: Dr. Trevor Campbell and Dr. Benjamin Bloem-Reddy

Doctoral research focused on developing algorithms for Bayesian inference over discrete variables.

The University of British Columbia 2020–2024

Research Assistant, Department of Statistics
Supervisor: Dr. Nancy Heckman

Research focused on improving introductory instruction of Bayesian inference and on assessing interactive simulations in development via think-aloud sessions with students.

The University of British Columbia 2020–2021

Research Assistant, Department of Statistics
Supervisors: Dr. Trevor Campbell and Dr. Benjamin Bloem-Reddy

Master's research project that combined ideas from MCMC and boosting variational inference to develop a novel algorithm for Bayesian inference.

Teaching Positions

The University of British Columbia 2019–Present

Teaching Assistant, Department of Statistics

- Spring 2025: STAT 450 Case Studies in Statistics.
- Spring 2022: STAT 450 Case Studies in Statistics.
- Spring 2020: STAT 302 Introduction to Probability.
- Spring 2020: STAT 203 Statistical Methods.
- Fall 2019: STAT 200 Elementary Statistics for Applications.

The University of British Columbia 2021–2024

Teaching Assistant Trainer, Department of Statistics

- Organize and facilitate the yearly TA orientation workshop for incoming TAs.
- Revamp the 2022 and 2023 orientation workshops, including redesigning most of the modules and restructuring it from two days to one day.
- Automate the deployment, data gathering and analysis, and result emailing of the TA evaluation surveys carried out each term.
- Supervise and give 1-on-1 feedback to new TAs.

Instituto Tecnológico Autónomo de México 2017

Undergraduate Faculty Member, Department of Mathematics

Answer questions from Applied Mathematics undergraduate students.

Instituto Tecnológico Autónomo de México 2016

Teaching Assistant, Department of Statistics

- Spring 2016, Fall 2016: EST-14102 Probability II.

Service

Reviewer

- International Conference on Teaching Statistics (ICOTS).

Service to UBC

- 2023 UBC Faculty of Science external review, graduate student participant.
- 2021 UBC Statistics external review, graduate student participant.

Distinctions and Awards

- 2021–2024 UBC Four Year Doctoral Fellowship.
- 2021–2024 UBC President's Academic Excellence Initiative PhD Award.
- 2021–2024 UBC International Tuition Award.
- 2021–2023 UBC Department of Statistics Entrance Scholarship.
- 2021 UBC Department of Statistics Teaching Assistant Award.
- 2020 UBC SEC Research Day: prize for best master's presentation.
- 2019 XXIV ITAM Alumni Research Awards: Honorable Mention, applied math category.

Professional Experience

Pfizer Inc 2016–2019

Business Analytics

Intern (2016), Analyst (2017), Coordinator (2018), Sr. Coordinator (2019)

I developed data-driven analyses and presented them to marketing directors with no formal statistical training. My last two projects were leading the development of a company-wide dashboard used in monthly in-depth business reviews and training a random forest model to identify potentially-loyal physicians.

Mexico's National Electoral Institute (INE) 2018

Research Assistant

The INE formed a nine-member and twelve-assistant committee to carry out quick counts for the 2018 Mexican general election. I worked as a research assistant for committee-member Dr. Manuel Mendoza. We improved his original Bayesian model, defined the sampling design used in Chiapas, and I developed the code for generating the official report for the Presidential election.

Other Relevant Experience

The University of British Columbia 2022–2024

Graduate Student Representative, Department of Statistics

The University of British Columbia 2020–2022

Statistical Consultant, Department of Statistics

Some of the projects that I have worked on:

- 2022 The use of the R sounds in the variety of Portuguese spoken by Santomean immigrants in Portugal (*mentor*).
- 2021 The right to Vancouverism: social reproduction placemaking in the revanchist city.
- 2021 An investigation on the role of urban neighborhood green spaces in mitigating stress inflicted due to the COVID-19 isolation.
- 2021 Sample size calculations and statistical analysis of key e-commerce metrics.
- 2020 Functional consequences of TMEM30A mutations in the survival of lymphoma.
- 2020 The sporting history and athlete development pathway of Canadian university athletes.
- 2020 Humane pigeon pest control management: Ovocontrol P at TransLink Skytrain stations.
- 2020 Navigational strategies in rats that lack newborn neurons.
- 2020 An analysis on commercial real estate property assessment and property tax in BC.
- 2020 Exploring the effect of environmental drivers on salmon condition during outmigration.

Instituto Tecnológico Autónomo de México 2015–2017

Editorial Team Member, Laberintos & Infinitos
Editor (2015–2016), Editor in Chief (2017)
Mathematics, statistics, and actuarial science student journal.