Gian Carlo Diluvi M.

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

2024 <u>G. C. Diluvi</u>*, B. Bloem-Reddy, and T. Campbell. **Mixed variational flows for discrete variables**. In *International Conference on Artificial Intelligence and Statistics*.

2022 <u>G. C. Diluvi</u>*, B. Dunham, N. Heckman, M. Lee, and R. Lourenzutti. **Structured, interactive resources for teaching Bayesian inference**. In *International Conference on Teaching Statistics*.

Workshops and conferences

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

Software

2023 MAD Mix: Learn discrete distributions with Measure-preserving And Discrete MixFlows. `https://github.com/giankdiluvi/madmix`.

2021 First Bayes R: Teach and learn Bayesian statistics with interactive Shiny apps! `https://github.com/giankdiluvi/first-bayes-r`.

2019 LBVI: Bayesian inference via locally-adapted boosting variational inference. `https://github.com/ubc-bayes/mixinf`.

Non-refereed publications

2019 <u>G. C. Diluvi</u>. **How does it make you feel?** *Significance, 16*(3), 26–29.

2018 <u>G. C. Diluvi</u>*, M, Mendoza, and G. Orantes. **Statistics in the 2018 Mexican general election quick counts**. *Laberintos e Infinitos, 48*, 29–37.

2018 M. Mendoza, <u>G. C. Diluvi</u>, and G. Orantes. **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.

Talks, posters, and lectures

Talks and lectures

2025   UBC STAT 306: *Poisson Regression.* (Guest lecture.)

2025   WNAR Annual Meeting: *Student Experiences Navigating Graduate School.* (Panelist.)

2024   UBC Statistics Seminar: *Using online student think-alouds to develop Shiny apps for teaching statistics.* (Co-presenter.)

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.*

2018   ITAM Mathematics Colloquium: *Statistics behind the 2018 Mexican general election quick counts.*

Organized

2021   SFU/UBC Joint Statistics Seminar (co-organizer).

2019–21   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).

Posters

2024   AISTATS: *Mixed variational flows for discrete variables.*

2024   RSS International Conference: *Using student focus groups in the development of new educational resources.*

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

2026 Spring	STAT 450: Case Studies in Statistics.	(Statistical consulting.)
2026 Spring	DSCI 100: Introduction to Data Science.	(First-year data science.)
2025 Fall	STAT 306: Finding Relationships in Data.	(Linear regression models.)
2025 Spring	STAT 450: Case Studies in Statistics.	(Statistical consulting.)
2022 Spring	STAT 450: Case Studies in Statistics.	(Statistical consulting.)
2020 Spring	STAT 302: Introduction to Probability.	(Undergraduate probability.)
2020 Spring	STAT 200: Elementary Statistics for Applications.	(Introductory statistics.)
2019 Fall	STAT 203: Statistical Methods.	(Introductory statistics.)

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   2016
Teaching Assistant, Department of Statistics

2017 F&S	Undergraduate Faculty (answer questions from all courses).	
2016 Fall	EST-14102: Multivariate Probability.	
2016 Spring	EST-14102: Multivariate Probability.	

Service

Reviewer

- Transactions on Machine Learning Research (TMLR).
- International Conference on Teaching Statistics (ICOTS).

Service to UBC

2022–24	UBC Statistics Graduate Student Association, graduate student representative.
2023	UBC Faculty of Science external review, graduate student participant.
2021	UBC Statistics external review, graduate student participant.

Service to ITAM

2015–17	ITAM Math, Stats, and Actuarial Science student journal, Laberintos & Infinitos, editor (2015–2016) and editor in chief (2017).

Distinctions and Awards

2021–25	UBC President's Academic Excellence Initiative PhD Award ($5,500 CAD).
2021–24	UBC Four Year Doctoral Fellowship ($95,800 CAD).
2024	UBC Graduate Student Travel and Research Dissemination Fund ($500 CAD).
2021–23	UBC Department of Statistics Entrance Scholarship ($15,000 CAD).
2019–23	UBC International Tuition Award ($16,000 CAD).
2021	UBC Department of Statistics Teaching Assistant Award ($500 CAD).
2020	UBC SEC Research Day: prize for best master's presentation ($500 CAD).
2019	XXIV ITAM Alumni Research Awards: Honorable Mention, applied math category.

PROFESSIONAL
EXPERIENCE

THE UNIVERSITY OF BRITISH COLUMBIA   2020–Present

Statistical Consultant, Department of Statistics

Projects that I have worked on:

2025   The effect of estrogen and progesterone on the way we breathe during exercise in hypoxia
        and normoxia (*mentor as TA of STAT 450*).
        (Research based on subsequent consulting published in client's MSc thesis: S. Arn. (2025).
        *Hormones, hypoxia and exercise hyperpnoea: considerations of the menstrual cycle and hormone
        replacement therapy.* University of British Columbia.)

2022   The use of the R sounds in the variety of Portuguese spoken by Santomean immigrants
        in Portugal (*mentor as TA of STAT 450*).

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.

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.