Vincenzo Coia

Curriculum Vitae
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vincenzocoia.com
he/his
vcoia@bgcengineering.ca
vincenzocoia
vincenzocoia

Education

2017	**Ph.D. Statistics**	The University of British Columbia - Vancouver, BC
2012	**M.Sc. Statistics**	Brock University - St. Catharines, ON
2011	**B.Sc. Mathematics**	Brock University - St. Catharines, ON
2011	**B.Sc. Biology (3-year)**	Brock University - St. Catharines, ON

Employment History

2022-present **Senior Data Scientist** — BGC Engineering Inc. - Canada

➤ Statistical modelling of complex earth science applications like flooding.

2020-2022 **Assistant Professor of Teaching** — The University of British Columbia, Vancouver
Department of Statistics

➤ Taught and developed courses at all levels in statistics and data science.

2019-2020 **Lecturer** — The University of British Columbia, Vancouver
Master of Data Science Program and Dept. of Statistics

➤ Taught and developed courses in the Master of Data Science program.

2017-2019 **Postdoctoral Teaching and Learning Fellow** — The University of British Columbia, Vancouver
Master of Data Science Program and Dept. of Statistics

➤ Taught and developed courses in the Master of Data Science program.

Publications

1. Bale, S., Coia, V., Russell, B., & Clohan, D. (2024). *Probability distributions of tailings dam breach volumes by failure mode as part of a risk screening-level tool*.
2. Coia, V., Joe, H., & Nolde, N. (2024). Copula-based conditional tail indices. *Journal of Multivariate Analysis*, *201*, 105268.
3. Vidal-Llana, X., Salort Sánchez, C., Coia, V., & Guillen, M. (2023). Non-crossing dual neural network: Joint value at risk and conditional tail expectation regression with non-crossing conditions. *Available at SSRN 4351877*.
4. Coia, V., Joe, H., & Nolde, N. (2021). Tail behavior for bivariate distributions based on pareto mixtures. *Advances in Statistics-Theory and Applications: Honoring the Contributions of Barry C. Arnold in Statistical Science*, 207–228.
5. Coia, V. (2017). *Forecasting of nonlinear extreme quantiles using copula models* [PhD thesis]. University of British Columbia.
6. Coia, V., & Huang, M. L. (2014). A sieve model for extreme values. *Journal of Statistical Computation and Simulation*, *84*(8), 1692–1710.
7. Ayad, M., Coia, V., & Kihel, O. (2014). The number of relatively prime subsets of a finite union of sets of consecutive integers. *J. Integer Seq.*, *17*(3), 14–13.
8. Huang, M. L., Coia, V., & Brill, P. (2013). A cluster truncated pareto distribution and its applications. *International Scholarly Research Notices*, *2013*.
9. Coia, V. (2012). On estimation of extreme value distributions. *Brock Report in Mathematics and Statistics*, *120809-01*.

Software (R Packages)

1. Coia, V., Joshi, A., Tan, S., & Zhu, Z. (2024). *Distionary: Create and evaluate univariate probability distributions*. https://distionary.netlify.app/
2. Coia, V., Joshi, A., Tan, S., & Zhu, Z. (2024). *Distplyr: Manipulation of univariate distributions*. https://distplyr.netlify.app/
3. Coia, V. (2024). *Famish: Refine a family of distributions to match observations*. https://probaverse.github.io/famish/
4. Coia, V., Wang, J., MacKenzie, L., Eaton, B., & Davidson, S. (2024). *Sxchan: Simple channel cross sections*. https://stochagbem.github.io/sxchan/

5. Eaton, B., Davidson, S., MacKenzie, L., & Coia, V. (2024). *Gbem: Gravel bed river bank erosion model*. https://stochagbem.github.io/gbem/
6. Davidson, S., Eaton, B., MacKenzie, L., & Coia, V. (2024). *Stochasim: Channel revegetation and widening*. https://stochagbem.github.io/stochasim/
7. Coia, V., & Joe, H. (2021). *Igcop: Computational tools for the IG and IGL copula families*. https://doi.org/10.32614/CRAN.package.igcop

Presentations

I delivered the following presentations.

1. Coia, V. (2024). *A machine learning PoF model for hydrotechnical hazards*. Presentation at the 16th Annual Cambio User's Group.
2. Coia, V., & Hairabedian, M. (2023). *A tale of two tributaries: Dependence modelling for hydrologically consistent floodplain maps*. Canadian Water Resources Association - National Conference, Halifax, 2023.
3. Coia, V., & Hille, M. (2023). *Finding the breaking point: What constitutes 'extreme'?* Main stage presentation at BGC Engineering Annual General Meeting.
4. Hairabedian, M., Coia, V., & Grover, P. (2022). *Estimation of the design flood generated by mixed processes for the coldwater river watershed*. Canadian Water Resources Association - National Conference, Canmore, Alberta, 2022.
5. Hairabedian, M., & Coia, V. (2022). *The coldwater river: A watershed moment*. Main stage presentation at BGC Engineering Annual General Meeting.
6. Coia, V., Nolde, N., & Joe, H. (2016). *Forecasting extremes for flooding*. Invited Talk, The 44th Annual Meeting of the Statistical Society of Canada, Brock University, St. Catharines, ON, May 29–June 1, 2016. National.
7. Coia, V., & Jeanniard du Dot, T. (2015). *Using the grammar of graphics and interactivity to explore biologging data in r*. Invited Demonstration, Building a Bioanalytical Theory for Analysis of Marine Mammal Movements: A Peter Wall International Research Roundtable, The University of British Columbia, Vancouver, BC, May 6, 2015. International.
8. Coia, V. (2015). *Flood warning: An application of high-quantile regression*. Contributed Talk, SFU/UBC Joint Graduate Student Seminar (Winter), SFU Harbour Centre, Vancouver, BC, February 28, 2015.
9. Coia, V. (2012). *A new sieve model for extreme values*. Contributed Talk, SFU/UBC Joint Graduate Student Seminar (Fall), SFU Harbour Centre, Vancouver, BC, September 29, 2012.
10. Coia, V., & Huang, M. (2012). *On estimation of heavy tailed distributions*. Contributed Talk, The 40th Annual Meeting of the Statistical Society of Canada, University of Guelph, Guelph, ON, June 3–6, 2012.

I facilitated with the following presentations.

1. Hairabedian, M., Scordo, E., & Coia, V. (2023). *Meta-analysis: Climate change impacts on flooding in british columbia*.

Consulting Reports

1. BGC Engineering Inc. (2024). *Highway 1 chilliwack to hope debris-flow and debris-slide triggering thresholds* (No. 0272107).
2. BGC Engineering Inc. (2024). *Western canadian sedimentary basin - data driven landslide awareness and warning 2024 summary report* (No. P40386).
3. BGC Engineering Inc. (2024). *Erickson creek water balance and michel creek load balance studies* (No. 797037).
4. BGC Engineering Inc. (2023). *Detailed floodplain mapping study: Summary report* (No. 511009).
5. BGC Engineering Inc. (2023). *Extreme weather events and natural disasters – definitions and timing* (No. 1978001).
6. BGC Engineering Inc. (2022). *Frequency-magnitude relationship for the coldwater river (draft report)* (No. 0511009.05.04).

Grants

2024-09 to 2025-01 **The 2024 ISC Grant Program** R Consortium

➤ Refactoring the distionary R package for submission to CRAN.

2012-09 to 2015-08 **Postgraduate Award (Doctoral, 3-year)** Natural Sciences and Engineering Research Council of Canada

➤ Doctoral research in dependence modelling and extreme value prediction, with Dr. Harry Joe and Dr. Natalia Nolde.

2012-09 to 2016-08 **Four-Year Fellowship** The University of British Columbia

➤ Doctoral research in dependence modelling and extreme value prediction, with Dr. Harry Joe and Dr. Natalia Nolde.

2011-09 to 2012-08 **Alexander Graham Bell Canada Graduate Scholarship (Masters)** Natural Science and Engineering Research Council of Canada

- Masters research in the application of heavy-tailed distributions in statistics, with Dr. Mei Ling Huang.

2010-05 to 2010-08 **Undergraduate Student Research Award** Natural Sciences and Engineering Research Council of Canada

- Summer research program in the application of heavy-tailed distributions in statistics, with Dr. Mei Ling Huang.

2009-05 to 2009-08 **Undergraduate Student Research Award** Natural Sciences and Engineering Research Council of Canada

- Summer research program in the application of heavy-tailed distributions in statistics, with Dr. Mei Ling Huang.

Awards and Honours

2013-06	**Governor General of Canada's Gold Medal**	Brock University
2012-03-28	**RM Davis Surgite Award**	Brock University
2011-09	**Dean of Graduate Studies Excellence Scholarship**	Brock University
2011-06-07	**Dean's Gold Medal**	Brock University
2011-06-07	**Distinguished Undergraduate Student Award in Mathematics**	Brock University
2011-03	**President's Surgite Award**	Brock University

Academic Leadership

- **Co-chair**, Undergraduate Development and Enhancement Committee, Department of Statistics, The University of British Columbia - Vancouver. 2021/2022.

Teaching

Courses taught at The University of British Columbia - Vancouver, BC. I received some of the highest student evaluations in the Faculty of Science in 2021 Winter Term 1 and subsequently formally congratulated by the Dean of Science. My overall median student evaluation score is 4.6 out of 5.

STAT 201 (LEC)	**Statistical Inference for Data Science**	2021W1
STAT 545A (LEC)	**Data Wrangling, Exploration, and Analysis with R - Part I**	2021W1
STAT 545B (LEC)	**Data Wrangling, Exploration, and Analysis with R - Part II**	2021W1
STAT 551 (LEC)	**Statistical Consulting Practicum**	2021W1
SCIE 300 (LEC)	**Communicating Science**	2021W1
DSCI 591 (-)	**Data Science Internship**	2020W2
STAT 201 (LEC)	**Statistical Inference for Data Science**	2020W1
SCIE 300 (LEC)	**Communicating Science**	2020W1
STAT 545A (LEC)	**Data Wrangling, Exploration, and Analysis with R - Part I**	2020W1
STAT 545B (LEC)	**Data Wrangling, Exploration, and Analysis with R - Part II**	2020W1
DSCI 591 (-)	**Data Science Internship**	2019W2
STAT 545A (LEC)	**Data Wrangling, Exploration, and Analysis with R - Part I**	2019W1
DSCI 551 (LEC)	**Data Science Workflows**	2019W1
DSCI 591 (-)	**Data Science Internship**	2018W2
BAIT 509 (LEC)	**Business Applications of Machine Learning**	2018W2
DSCI 554 (LAB)	**Experimentation and Causal Inference**	2018W2
DSCI 532 (LAB)	**Data Visualization II**	2018W2
DSCI 562 (LEC, LAB)	**Regression II**	2018W2
DSCI 561 (LAB)	**Regression I**	2018W1
DSCI 531 (LEC, LAB)	**Data Visualization I**	2018W1
DSCI 511 (LEC, LAB)	**Programming for Data Science**	2018W1

STAT 545A (LEC)	**Data Wrangling, Exploration, and Analysis with R - Part I**	2018W1
STAT 547M (LEC)	**Statistical Computing for Data Science**	2018W1
DSCI 591 (-)	**Data Science Internship**	2017W2
BAIT 509 (LEC)	**Business Applications of Machine Learning**	2017W2
DSCI 532 (LAB)	**Data Visualization II**	2017W2
DSCI 562 (LAB)	**Regression II**	2017W2
DSCI 574 (LAB)	**Spatial and Temporal Models**	2017W2
DSCI 553 (LAB)	**Data Science Workflows**	2017W2
STAT 545A (LEC)	**Data Wrangling, Exploration, and Analysis with R - Part I**	2017W1
STAT 547M (LEC)	**Statistical Computing for Data Science**	2017W1
DSCI 571 (LAB)	**Supervised Learning I**	2017W1
DSCI 531 (LEC)	**Data Visualization I**	2017W1
DSCI 551 (LAB)	**Data Science Workflows**	2017W1
DSCI 511 (LEC)	**Programming for Data Science**	2017W1
DSCI 591 (-)	**Data Science Internship**	2016W2
DSCI 532 (LAB)	**Data Visualization II**	2016W2
DSCI 562 (LAB)	**Regression II**	2016W2
DSCI 563 (LAB)	**Advanced Machine Learning**	2016W2
DSCI 573 (LAB)	**Unsupervised Learning**	2016W2
DSCI 574 (LAB)	**Spatial and Temporal Models**	2016W2