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Ryan Campbell

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Research Interests

Multivariate extreme value theory and its applications, dependence modeling, stochastic processes, estimation of quantiles.

Education

2021–2025 PhD Statistics, Lancaster University

Thesis: Statistical Exploits of New Insights for Multivariate Extremes

Supervisor: Jennifer L. Wadsworth

2019–2020 MSc Mathematics & Statistics, McGill University

Thesis: Deterministic Gaussian Averaged Neural Networks

Supervisor: Adam Oberman

2015–2018 BSc Mathematics, McGill University

Publications

[1] J. L. Wadsworth and **R. Campbell**. Statistical inference for multivariate extremes via a geometric approach. *Journal of the Royal Statistical Society Series B: Statistical Method-ology*, page qkae030, 03 2024. ISSN 1369-7412. doi: 10.1093/jrsssb/qkae030. URL https://doi.org/10.1093/jrsssb/qkae030

Preprints

- [1] L.M. André, R. Campbell, E. D'Arcy, A. Farrell, D. Healy, L. Kakampakou, C. Murphy, C.J.R. Murphy-Barltrop, M. Speers. Extreme value methods for estimating rare events in Utopia, 2023. URL https://arxiv.org/abs/2312.09825
- [2] I. Papastathopoulos, L. de Monte, R. Campbell, H. Rue. Statistical inference for radially-stable generalized Pareto distributions and return level-sets in geometric extremes, 2023. URL https://arxiv.org/abs/2310.06130
- [3] R. Campbell, C. Finlay, and A. M. Oberman. Adversarial Boot Camp: label free certified robustness in one epoch, 2020. URL https://arxiv.org/abs/2010.02508
- [4] R. Campbell, C. Finlay, and A. M. Oberman. Deterministic Gaussian averaged neural networks, 2020. URL https://arxiv.org/abs/2006.06061

Presentations

Oct. 2023 HEC Statistics Seminar

Title: Statistical inference for multivariate extremes via a geometric approach

Location: HEC Montréal, Montréal, QC, Canada

Sept. 2023 STOR-i Extremes Workshop (STEW)

Title: Modelling extremal dependence of a 3-dimensional oceanographic

dataset via a semi-parametric geometric approach Location: Lancaster University, Lancaster, UK

June 2023 13th International Conference on Extreme Value Analysis

Title: A geometric approach for modelling negative asymptotic dependence

Location: Bocconi University, Milan, Italy

Teaching Assistantships

Lancaster University

Winter 2024	MATH333	Statistical Models (GLMs)
Winter 2024	MATH113	Convergence and Continuity
Winter 2023	MATH140	Statistics
Winter 2022	MATH456/556	Extreme Value Theory
Winter 2022	MATH235	Statistics II
Fall 2021	MATH330	Likelihood Inference

McGill University

Fall 2020	MATH208	Intro. to Statistical Computing
Fall 2019	MATH597	Topics in Applied Mathematics: Mathematics of Ma-
		chine Learning
Fall 2019	MATH223	Linear Algebra

Research & Professional Activities

• Data Science Intern

Desjardins General Insurance Group. Lévis, Québec. June–December 2020 (part-time), January–June 2021 (full-time)

• Undergraduate Summer Research

Department of Mathematics & Statistics, McGill University.

Project: Semiparametric modeling of max-stable processing using Kendall's tau rank

correlation coefficient.

Supervisor: Johanna Nešlehová

May–September 2018

Honours, Awards, and Funding

2023 – 2027	FRQNT Doctoral Research Scholarship	CA\$25,334
2023 - 2026	NSERC Postgraduate Scholarship-Doctoral	CA\$63,000
2023	Nick Smith Prize	£ 500
2021 – 2025	EPSRC Mathematical Sciences studentship	£62,436 (minimum)
2020	Mitacs internship at Desjardins	CA\$13,000
2019 – 2020	Master's degree funding	CA\$20,500
2019 – 2020	McGill University Graduate Excellence Award	CA\$3,400
2018	Science Undergraduate Research Award	CA\$6,500

Languages & Skills

- Fluent in English and French.
- Proficient in R, Python (incl. PyTorch), Matlab, LaTeX, Java, HTML, Linux

Extracurricular Activities

- Treasurer, Lancaster University Folk Society Lancaster University 2023–2025 academic years.
- VP Finance, Graduate Student Association for Mathematics and Statistics (GSAMS) McGill University 2019–2020 academic year.
- Volunteer at the 2018 Statistical Society of Canada annual meeting Roles: Setting up audio-visual equipment for presentations and directing conference attendees to presentations. Location: McGill University

3–6 June 2018