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

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] J. L. Wadsworth and **R. Campbell**. Statistical inference for multivariate extremes via a geometric approach, 2022. URL https://arxiv.org/abs/2208.14951

[4] **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

[5] **R. Campbell**, C. Finlay, and A. M. Oberman. Deterministic Gaussian averaged neural networks, 2020. URL https://arxiv.org/abs/2006.06061

Presentations

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
Winter 2024	MATH114	Series, Integration, and Differentiation
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 Machine 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
  2023–2024 academic year.
- **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