Ryan Campbell

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Research Interests

Multivariate extreme value theory and its applications, dependence modelling, machine learning.

Professional Activities

2025–2027 Postdoctoral researcher, Université Côte d'Azur
Nice, France

2020–2021 Data science intern, Desjardins General Insurance Group
Lévis, Québec

Education

2021–2025 PhD Statistics, Lancaster University
Thesis: A geometric interpretation of multivariate extreme value analysis
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
Project: Semiparametric modelling of max-stable processes using Kendall's tau
Supervisor: Johanna Nešlehová

Publications

[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. *Extremes*, 1–23, 2024.

[2] J. L. Wadsworth and **R. Campbell**. Statistical inference for multivariate extremes via a geometric approach. *Journal of the Royal Statistical Society Series B: Statistical Methodology*, (86)5: 1243–1265, 2024.

Preprints

[1] **R. Campbell** and J. L. Wadsworth. Piecewise-linear modeling of multivariate geometric extremes. *arXiv:2412.05195*, 2024.

[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. *arXiv:2310.06130*, 2023.

[3] **R. Campbell**, C. Finlay, and A. M. Oberman. Adversarial Boot Camp: label free certified robustness in one epoch. *arXiv:2010.02508*, 2020.

[4] **R. Campbell**, C. Finlay, and A. M. Oberman. Deterministic Gaussian averaged neural networks. *arXiv:2006.06061*, 2020.

Presentations

June 2025 — 14th International Conference on Extreme Value Analysis
Title: Geometric spatio-temporal extremes
with Kristina Grolmusova, Lydia Kakampakou, and Jeongjin Lee.
Location: University of North Carolina, Chapel Hill, NC, USA

June 2025 — 14th International Conference on Extreme Value Analysis
Title: Piecewise-linear modeling of multivariate geometric extremes
Location: University of North Carolina, Chapel Hill, NC, USA

Nov. 2024 — Various statistics seminars in France and Switzerland
Title: A geometric approach to multivariate extremal inference
Locations: Inria Grenoble, Université de Genève, École Polytechnique Fédérale de Lausanne, Université Claude Bernard Lyon 1, INRAE Avignon.

Sept. 2024 — UQÀM Statistics Seminar
Title: New developments for a geometric approach to multivariate extremal inference
Location: UQÀM, Montréal, QC, Canada

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 Assistant Positions

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 Machine Learning
Fall 2019	MATH223	Linear Algebra

Awards and Funding

2023–2025	NSERC Postgraduate Scholarship-Doctoral	CA$63,000
2023–2025	FRQNT Doctoral Research Scholarship	CA$25,334
2021–2025	EPSRC Mathematical Sciences studentship	£62,436 (minimum)
2025	London Mathematical Society Early Career Researcher Travel Grant	£500
2025	Institute of Mathematics Small Grant	£600
2025	Graduate College & Doctoral Academy Travel Grant (Lancaster University)	£200
2023	Nick Smith Prize (Lancaster University)	£500
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 and 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