Ryan Campbell

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Research Interests

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

Education

2021 - 2025	5 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

- 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 radiallystable generalized Pareto distributions and return level-sets in geometric extremes. ar-Xiv: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

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 infe-		
	Location: UQAM, Montreal, 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		
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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

Research and Professional Activities

• Data Science Intern

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

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	$\pounds 62,436$ (minimum)
2025	London Mathematical Society Early Career	$\pounds 500$
	Researcher Travel Grant	
2025	Institute of Mathematics Small Grant	$\pounds 600$
2025	Graduate College & Doctoral Academy	$\pounds 200$
	Travel Grant (Lancaster University)	
2023	Nick Smith Prize (Lancaster University)	$\pounds 500$
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