CURRICULUM VITAE – Dr. Boris Beranger

PERSONAL DETAILS	*Address:*	School of Mathematics and Statistics UNSW Sydney Sydney NSW 2052, Australia
	E-mail:	b.beranger@unsw.edu.au
	Web:	`https://www.borisberanger.com`
	Phone:	+61 2 9385 7083
	Citizenship:	French / Australian

RESEARCH INTERESTS

My Google scholar profile can be accessed via `http://bit.do/e4pRB`. I have a general interest in Extreme Value Theory, both from a theoretical and methodological perspective. In particular, I am interested in modelling the dependence structure of multivariate and spatial extremes with an emphasis on environmental applications. I also conduct research on big data related problems and have recently developed a framework for statistical analysis based data summaries.

CURRENT POSITIONS

Lecturer UNSW Sydney	2020-
Associate Investigator ARC Centre of Excellence for Mathematical and Statistical Frontiers	2017-

---

PAST POSITIONS

Research Associate UNSW Sydney *Supervisor:* Prof. Scott Sisson	2016-2019

EDUCATION

Ph.D. in Statistics (under cotutelle)
    Institutions: Université Pierre and Marie Curie (UPMC), Paris 6
                UNSW Sydney
    Supervisors: Prof. Michel Broniatowski (UPMC)
                Prof. Scott Sisson (UNSW Sydney)
                Dr. Simone Padoan (Bocconi University of Milan, Italy)
    Title: "Modelling the dependence structure of multivariate and spatial
         extremes".
	2012-2016

Masters of Mathematics (Statistics) *Institution:* Université Pierre and Marie Curie (UPMC), Paris 6	2009-2011

REFEREED
PUBLICATIONS

[1.] **Beranger, B.**, Stephenson, A. G. and Sisson, S. A. (2021) "High dimensional inference using the extremal skew-t processes". *Extremes* (Q1), 24(3), 653–685.

[2.] **Beranger, B.**, Padoan, S. A. and Sisson, S. A. (2021) "Estimation and uncertainty quantification for extreme quantile regions". *Extremes* (Q1), 24(2), 349–375.

[3.] Whitaker, T., **Beranger, B.** and Sisson, S. A. (2021) "Logistic regression models for aggregated data". *Journal of Computational and Graphical Statistics* (Q1), In press.

[4.] Whitaker, T., **Beranger, B.** and Sisson, S. A. (2020) "Composite likelihood methods for histogram-valued random variables". *Statistics and Computing* (Q1), 30, 1459–1477.

[5.] Zhang, X., **Beranger, B.** and Sisson, S. A. (2019). "Constructing likelihood functions for interval-valued random variables". *Scandinavian Journal of Statistics* (Q1), 47(1), 1–35.

[6.] **Beranger, B.**, Padoan, S. A., Xu, Y. and Sisson, S. A. (2019). "Extremal properties of the multivariate extended skew-normal distribution, Part B". *Statistics and Probability Letters* (Q3), 147, 105–114.

[7.] **Beranger, B.**, Padoan, S. A., Xu, Y. and Sisson, S. A. (2019). "Extremal properties of the univariate extended skew-normal distribution, Part A". *Statistics and Probability Letters* (Q3), 147, 73–82.

[8.] **Beranger, B.**, Duong, T., Perkins-Kirkpatrick, S. and Sisson, S. A. (2019). "Tail density estimation for exploratory data analysis using kernel methods". *Journal of Nonparametric Statistics* (Q2), 31(1), pp. 144–174.

[9.] **Beranger, B.**, Padoan, S. A. and Sisson, S. A. (2017). "Models for extremal dependence derived from skew-symmetric families". *Scandinavian Journal of Statistics* (Q1), 44, pp. 21–45.

[10.] **Beranger, B.** and Padoan, S. A. (2015). "Extreme Dependence Models", in *Extreme Value Modeling and Risk Analysis: Methods and Applications*, pp. 325–352, Chapman Hall/CRC.

SUBMITTED
PAPERS

[11.] **Beranger, B.**, Lin, H. and Sisson, S. A. "New models for symbolic data analysis".

[12.] Rahman, P., **Beranger, B.**, Roughan, M. and Sisson, S. A. "Likelihood-based inference for modelling packet transit from thinned flow summaries.".

PAPERS IN PREPARATION	[14.] **Beranger, B.**, Antoniano-Villalobos, I. and Padoan, S. A. "Prediction of large observations via extreme-value theory and Bayesian nonparametric inference".	
	[14.] Brito, P., **Beranger, B.** and Sisson, S. A. "Interval-valued variables and quantile functions".	
	[15.] **Beranger, B.**, McGree, J. M. and Sisson, S. A. "Design of interval and histogram random variables".	
	[16.] Whitaker, T., **Beranger, B.** and Sisson, S. A. "Estimating equations for data summaries".	
	[17 .] **Beranger, B.**, Stewart, M. and Sisson, S. A. "Extremal type theorems for mean aggregated data".	

GRANTS AND AWARDS	**Research Sprint Scheme** *ARC Centre of Excellence for Mathematical and Statistical Frontiers* Project "New models for the analysis of spatial extremes via max-stable and r-Pareto processes" ($29,502).	2021
	Research Support Scheme *ARC Centre of Excellence for Mathematical and Statistical Frontiers* Project "Modelling Environmental and Climate Extremes" ($14,524).	2021
	Outreach participation award *ARC Centre of Excellence for Mathematical and Statistical Frontiers.* Award for 'Work experience in Data Science' program ran between 2017 and 2020.	2019
	Research Support Scheme *ARC Centre of Excellence for Mathematical and Statistical Frontiers* Financial support to establish a collaboration with CSIRO, Data61, Australia ($7,600).	2018
	J. B. Douglas award *NSW Branch of the Statistical Society of Australia (SSA)* Award for Postgraduate excellence.	2014

Ph.D. SUPERVISION	**Ahmad Hakiim Jamaluddin**, UNSW Sydney *Topic:* Advances in symbolic data analysis. *Joint supervisor:* Prof. Scott Sisson.	2021-
	Prosha Rahman, UNSW Sydney *Topic:* Generalised solutions in symbolic data analysis. *Joint supervisor:* Prof. Scott Sisson.	2019-
	Thomas Whitaker, UNSW Sydney *Topic:* Innovative methods for the analysis of complex and non-standard data. *Joint supervisor:* Prof. Scott Sisson.	2016-2020

MASTER AND HONOURS SUPERVISION	**Jianing (Chris) Gu** (Honours, *joint supervision*), UNSW Sydney *Topic:* TBD.	2022
	Jaydon Miranda (Honours, *joint supervision*), UNSW Sydney *Topic:* TBD.	2022
	Haoyang Wang (Honours, *joint supervision*), UNSW Sydney *Topic:* TBD.	2022
	Jiasheng Huang (Honours, *joint supervision*), UNSW Sydney *Topic:* TBD.	2022
	Chuqin Zhou (Masters), UNSW Sydney *Topic:* TBD.	2022
	Jingyi Yang (Masters, *joint supervision*), UNSW Sydney *Topic:* Extreme temperature analysis of the red sea surface.	2021
	Weidi Wang (Masters), UNSW Sydney *Topic:* Construction of proportion confidence intervals for small, finite populations.	2021
	Xin (Joy) Lin (Masters, *joint supervision*), UNSW Sydney *Topic:* Modelling of signature and identifying forgery signature by r-Pareto process.	2021
	Yujia He (Masters), UNSW Sydney *Topic:* Analysis of air quality in the Sydney region using extreme value theory.	2021
	Max Fisher (Honours, *joint supervision*), UNSW Sydney *Topic:* Statistical analysis using distribution-valued data.	2019
	Lewis Wright (Honours, *joint supervision*), UNSW Sydney *Topic:* Extremal type theorems for symbolic data.	2019
	Bowen Wang (Masters, *joint supervision*), UNSW Sydney *Thesis:* "Symbolic data analysis for generalized extreme value model".	2019
	Yangfan Xu (Masters, *joint supervision*), UNSW Sydney *Thesis:* "On the extremes of extended skew-normal random variables".	2017

TEACHING ACTIVITES

LECTURES:

A Modern Introduction to Extreme Value Theory Australia Mathematical Sciences Institute, Summer School.	2022
Fundamentals of Data Science (DATA9001) UNSW Sydney, Postgraduate course.	2021
Foundations of Data Science (ZZSC9001) UNSW Sydney, Online Postgraduate course.	2020-2021
Applied Regression Analysis (MATH5806) UNSW Sydney, Postgraduate course.	2021
Regression Analysis for Data Scientists (ZZSC5806) UNSW Sydney, Online Postgraduate course.	2021
Introduction to Statistics and Statistical Computing (MATH5856) UNSW Sydney, Postgraduate course.	2019-2020
Statistical Analysis of Dependent Data (MATH3841) UNSW Sydney, Third year course.	2018
Introduction to Statistics Ecole Supérieure d'Ingénieur Leonard de Vinci (Courbevoie, France), First year course.	2014
Introduction to Statistics & Probability Ecole Supérieure des Sciences Commerciales d'Angers, (Boulogne, France), First year course.	2014

TUTORIALS:

Advanced topics in Statistical Machine Learning (COMP9418) UNSW Sydney, Postgraduate course.	2017
Calculus (MATH1131) UNSW Sydney, First year course.	2012, 2015, 2017
Statistics for Life and Social Sciences (MATH1041) UNSW Sydney, First year course.	2015, 2017

INVITED TALKS	13th International Conference of the ERCIM WG on Computational and Methodological Statistics, *Online*. "Estimation and uncertainty quantification for extreme quantile regions".	2020
	New Perspectives in Data Science, In Honor of Edwin Diday's 80th birthday, Institut Henri Poincaré (France). "Estimating equations for data summaries".	2020
	11th International Conference of the ERCIM WG on Computational and Methodological Statistics, University of Pisa, (Italy). "Inference for extremal-t and skew-t max-stable models in high dimensions".	2018
	Data science: new data, new paradigms: From data to classes and classes as statistical units, University of Paris Dauphine (France). "Extreme value analysis using symbolic data".	2018
	9th International Conference of the ERCIM WG on Computational and Methodological Statistics, University of Seville (Spain). "On some features of the skewed families of max-stable processes".	2016
	8th International Conference of the ERCIM WG on Computational and Methodological Statistics, Senate House, University of London (UK). "Extremes of Skew-Symmetric distributions".	2015

SEMINARS	One World weminar, Young Statisticians Europe – *Online* "Using symbolic data to understand underlying data behaviour".	2021
	Statistical and Applied Mathematical Science Institute (USA) – *Online* "Fitting models to underlying data using aggregates".	2021
	King Abdullah University of Science and Technology (Saudi Arabia) – *Online* "High-dimensional inference for max-stable processes".	2021
	University of Lisbon (Portugal) – *Online* "High-dimensional inference for max-stable processes".	2020
	University of Technology Sydney (Australia) – *Online* "Composite likelihood and logistic regression models for aggregated data".	2020
	Macquarie University (Australia) "Advances in the analysis of aggregated data".	2019
	Australian National University (Australia). "New models for symbolic data analysis".	2019
	Melbourne University (Australia). "First steps in the analysis of Symbolic Data".	2017

CONTRIBUTED TALKS	Australia New-Zealand Statistical Conference, Gold Coast (Australia) "Estimation and uncertainty quantification for extreme quantile regions".	2021
	10th Conference on Extreme Value Analysis, TU Delft (Netherlands). "A composite likelihood based approach for max-stable processes using histogram-valued variables".	2017
	Australian Statistical Conference, Canberra (Australia). "On some features of the skewed families of max-stable processes".	2016
	9th Conference on Extreme Value Analysis, University of Michigan (USA). "Exploratory data analysis of extreme values using non-parametric kernel methods".	2015
	Australian Statistical Conference in conjunction with the Institute of Mathematical Statistics Annual Meeting, Sydney (Australia). "Likelihood based estimation method for Extreme dependence models".	2014

REFEREEING	Journal of Computational and Graphical Statistics (Q1)
	Journal of Multivariate Analysis (Q1)
	Extremes (Q1)
	Annals of Applied Statistics (Q1)
	Journal of Royal Statistical Society, Series C (Q1)
	Spatial Statistics (Q1)
	Statistics and Computing (Q1)
	Advances in Data Analysis and Classification (Q1)
	Stochastic Environmental Research and Risk Assessment (Q1)
	Weather and Climate Extremes (Q1)
	Stat (Q2)
	Journal of Agricultural, Biological, and Environmental Statistics (Q2)
	Statistics (Q2)
	Dependence Modeling (Q2)

SOFTWARE	**[1.]** R package **ExtremalDep** (Extremal Dependence)

Available on CRAN (https://cran.r-project.org/package=ExtremalDep) .

Description: Provides a set of procedures for modelling parametrically and non-parametrically the dependence structure of multivariate extreme values.
The statistical inference is performed with non-parametric estimators, likelihood-based estimators and Bayesian techniques.

Collaborators: Dr. Giulia Marcon and Dr Simone Padoan.

Downloads: $> 12,000$ (Dec 2021).

[2.] R package **CompRandFld** (Composite-Likelihood Based Analysis of Random Fields)

Available on CRAN (https://cran.r-project.org/package=CompRandFld) .

Description: Provides a set of procedures for for the analysis of Random Fields using likelihood and non-standard likelihood methods.

Collaborators: Dr. Moreno Bevilacqua and Dr Simone Padoan.

Downloads: $> 46,000$ (Dec 2021).

CURRENT RES--PONSIBILITIES	**Statistical Society of Australia, NSW Branch**	
	Treasurer	2018-
	Member of the council	2017-
	UNSW Statistics Seminar Series	
	Organiser	2018-

OUTREACH	**Year 10 Work Experience Program**	2017-2019
	ACEMS initiative with local High Schools	
	7 day program involving a dozen of high school students.	

OTHER	**14th International Conference of the ERCIM WG on Computational and Methodological Statistics**	2021
	Session organizer,	
	King's College,London (UK).	
	Modelling extreme rainfall and floods: sharing perspectives of extreme value theory and climate science	2021
	Organising committee member,	
	Online.	
	Early Career Researchers Retreat	2017
	Organising committee member,	
	Gold Coast (Australia)	
	Part of ARC Centre of Excellence for Mathematical and Statistical Frontiers annual retreat.	
	Statistics Reading Group	2016-2018
	Organizer	
	School of Mathematics and Statistics, UNSW Sydney	

Organising committee member   2014
1st Annual Postgraduate Conference
School of Mathematics and Statistics, UNSW Sydney

REFEREES

Scott Sisson   Simone Padoan
Professor   Doctor
School of Mathematics and Statistics   Department of Decision Sciences
UNSW Sydney   Bocconi University of Milan
Scott.Sisson@unsw.edu.au   Simone.Padoan@unibocconi.it