

DANIEL GARCÍA RASINES

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EDUCATION

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|---|-------------|
| Imperial College London PhD in Statistics Thesis: "On the conditional approach to selective inference" Supervisor: G. Alastair Young | 2017 - 2021 |
| Imperial College London MSc in Statistics Distinction (80/100) Thesis: "Analytic approximations in high-dimensional Bayesian inference" | 2016 - 2017 |
| University of Santiago de Compostela BSc in Mathematics First class (9.51/10) Year 3 at the University of Southampton | 2012 - 2016 |

PROFESSIONAL EXPERIENCE

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|---|------------------------------|
| Imperial College London Chapman Fellow in Mathematics | 2022 - present London, UK |
| Institute of Mathematical Sciences (ICMAT-CSIC) Postdoctoral researcher | 2021 - 2022 Madrid, Spain |

RESEARCH INTERESTS

Selective inference: Statistical inference for data-dependent parameters of interest. I am interested in broadening the scope of application of current approaches via analytic characterisation of complex selection rules and derivation of robust computational techniques. I am also intrigued by the philosophical implications of different approaches (conditional vs. unconditional paradigms, selection in Bayesian models, fixed vs. random designs).

Adversarial risk analysis: This is a branch of Bayesian statistics concerning principled decision making under uncertainty and competition. I am interested in devising robust decision policies in complex environments involving a large number of agents. I have contributed to the development of decision-making policies in cybersecurity, reliability, and retail pricing.

ONGOING WORK

(with H. S. Battey and Y. Tang) Selective inference for confidence sets of models.

(with G. A. Young) Local asymptotics of selection models.

(with R. Naveiro Flores, D. Ríos Insua and S. Rodríguez Santana) Adversarial risk analysis for dynamic pricing.

PAST WORK

D. García Rasines, R. Naveiro Flores, D. Ríos Insua, S. Rodríguez Santana. “Personalized pricing through adversarial risk analysis” (2023). Submitted for publication (preprint available upon request).

D. García Rasines, G. A. Young. “Splitting strategies for post-selection inference”, *Biometrika*, 110(3), 597–614 (2023). [DOI]

D. García Rasines, G. A. Young. “Bayesian selective inference”. Chapter 2 in “Advancements in Bayesian methods and implementation”. *Handbook of Statistics*, 47, 43–65 (2022). Elsevier. [DOI] [preprint]

D. García Rasines, G. A. Young. “Empirical Bayes and selective inference”, *J. Indian Inst. Sci.*, 102, 1205–1217 (2022). [DOI]

D. Ríos Insua, A. Couce Vieira, J. A. Rubio, W. Pieters, K. Labunets, **D. García Rasines**. “An adversarial risk analysis framework for cybersecurity”, *Risk Anal.*, 41(1), 16-36 (2021). [DOI]

D. Ríos Insua, F. Ruggeri and R. Soyer, **D. García Rasines**. “Adversarial issues in reliability”, *Eur. J. Oper. Res.*, 266(3), 1113-1119 (2018). [DOI]

RESEARCH PROJECTS

“Real-time monitoring of mutations in the SARS-CoV-2 S protein” (2022). Funded by the EU as part of the Recovery and Resilience Facility. Principal investigator: José María Martell Berrocal.

“Predictive analytics based on big data for the digital transformation of distributed large-scale inventory management” (2021). Funded by the Community of Madrid. Principal investigator: David Ríos Insua.

TEACHING

Probability and Statistics for JMC Autumn 2022, 2023
Imperial College London
Undergraduate
Year 2 core module in the Joint Mathematics and Computing degree

Selective Inference Summer 2023
Modern Statistics and Statistical Machine Learning CDT
Doctoral (10 hours)

Selective Inference Spring 2023
London Taught Course Centre
Doctoral (10 hours)

Teaching Assistant
Imperial College London
Duties: demonstration, one-to-one help, marking

- Contemporary Statistical Theory (PG, Spring 2021)
- Fundamentals of Statistical Inference (PG, Autumn 2020)
- Statistical Modelling (UG, Spring 2020)
- Introduction to Numerical Analysis (UG, Spring 2018, 2019)
- Probability and Statistics 2 (UG, Autumn 2018, 2019)
- Probability and Statistics 1 (UG, Autumn 2017, 2019)

STUDENT SUPERVISION

Postgraduate (MSc)

Jean-Baptiste Barthélemy: “Conformal prediction with high-dimensional data”. 2023

Huaqing Zhang: “A comparison of selective inference methods for regression”. 2023

Undergraduate

Yiwei Zhou: “Empirical validation of selective inference methods”. Expected 2024

Changian Li, Subhag Pandit, Yuhang Yang, Sebastian Fang: “Robust variable selection”. 2023

Roberto Concha Duque: “Adversarial risk analysis applied to the loan market”. 2022

FUNDING

Chapman Fellowship 2022 - 2024
Imperial College London

Statistics section PhD scholarship 2017 - 2021
Imperial College London

Master’s scholarship (full funding and monthly stipend for one year) 2016 - 2017
Fundación Barrié

Severo Ochoa grant for undergraduate research 2016
Institute of Mathematical Sciences (ICMAT–CSIC)

Undergraduate research grant (*beca de colaboración*) 2015
Ministry of Education, Culture and Sport of Spain

Erasmus grant 2015
Department of Culture and Education, Xunta de Galicia

Erasmus grant 2014
Ministry of Education, Culture and Sport of Spain

RESEARCH TALKS

RSS International Conference, Harrogate, UK, 4-7 September 2023

European Meeting of Statisticians, Warsaw, Poland, 3-7 July 2023

StatML CDT, Imperial College London, 17 May 2023

Department of Statistics seminar, Imperial College London, 10 March 2023

32nd European Conference on Operational Research, Aalto University, Espoo, Finland, 3-6 July 2022

XXXIX Congreso Nacional de Estadística e Investigación Operativa, Granada, Spain, 7-10 June 2022

International Seminar on Selective Inference (as discussant), 26 May 2022

15th International Conference of the ERCIM WG on Computational and Methodological Statistics, King’s College London, UK, 18-20 December 2021

International Seminar on Selective Inference, 2 December 2021

New Bridges between Mathematics and Data Science, Valladolid, Spain, 8-11 November 2021

DataLab seminar, Institute of Mathematical Sciences, Madrid, Spain, 1 July 2021

Alastair Young's 60th Birthday Conference, Washington University in St. Louis, USA, 16 August 2019

PEER REVIEW

Referee for:

- Biometrika
- The Annals of Statistics
- Journal of the Royal Statistical Society, series B
- Journal of the American Statistical Association
- Electronic Journal of Statistics
- Journal of Machine Learning Research

LANGUAGES

- Spanish: native
- English: full professional proficiency