

Sergio Estañ Ruiz

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🌐 SergioEstanRuiz

Education

Imperial College London

Sept 2024 – present

PhD in Statistics and Machine Learning for Public Policy

- Awarded the competitive President's Scholarship to pursue the PhD.
- Researching network time series models and deep learning architectures like LLMs.
- Focus on both theoretical foundations (e.g. singular learning theory, geometric deep learning) and applied research for public policy questions such as macroeconomic forecasting.
- Strong technical expertise in high-performance computing (HPC clusters, GPU training, large-scale parallelised experiments, and reproducible pipelines in Python and R)

University of Cambridge

Sept 2022 – July 2023

MASt in Mathematics (Part III)

- *Distinction*, 81%, with an 85% on my thesis on topological data analysis. I benchmarked different topological invariants with classical ML models against different datasets, using algebraic topology to interpret learning dynamics.
- Courses: Lie Algebras, Algebraic Topology, Differential Geometry, Advanced Probability, Stochastic Calculus, Statistical Learning. Attended further courses on Information Theory and Statistical Methods.

University of Warwick

Sept 2019 - July 2022

BSc in Mathematics

- *First*, with an average of +92%, second highest in the cohort.
- Courses: Algebraic Topology, Manifolds, Probability Theory, Rings and Modules, Applied Stochastic Processes, Measure Theory, Commutative Algebra, PDEs, etc.

Universidad Nacional de Educación a Distancia (UNED)

Sept 2022 - present

BSc in Economics

- Part-time online BSc in Economics to complement my mathematical knowledge.
- Courses: Macroeconomics, Microeconomics, History of Economics, Public Budgeting, Econometrics...

Awards

President's PhD Scholarship

2024

- Awarded competitively this scholarship to pursue a PhD under Professor Nason Guy's supervision.

International Mathematics Competition (IMC)

2022

- Second award in the IMC as a selected team member for the University of Warwick.

Short Term Mobility Bursary

2022

- Bursary to fund some research on representation theory at the University of Toulouse.

Pearson Outstanding Learner Award

2019

- Awarded for receiving the highest mark in Europe for GCE Maths and highest mark in Spain for GCE Chemistry.

COBIS Excellence Award

2019

- Awarded by COBIS (Council of British International Schools) for "academic excellence during sixth form and for outstanding GCE results".

Sir Roger Fry Scholarship

2017-2019

- A 10,000€ scholarship to pursue sixth form at King's College of Alicante.

Experience

Joint Thesis Supervisor to MSc Student

Imperial College London

Imperial London, UK

May 2025 - August 2025

- Joint supervised with Professor Guy Nason and Dr Lloyd Fung an MSc thesis on discovering equations.

Research Assistant

IESE

Barcelona, Spain

Sept 2023 – May 2024

- Research assistant to Professor Diego Aparicio. Looked at logistic fixed-effects models to examine the existence of a pink tax in online pricing.
- Acquired experience with *Stata* programming language and traditional variants of the regression model.

Mathematics Tripos Supervisor

University of Cambridge

Cambridge, UK

Oct 2023 – July 2024

- Supervised three second-year modules for nearly 10 colleges at Cambridge: variational principles, linear algebra and numerical analysis.

STEP Examiner (Cambridge Mathematics Tripos Entrance Exam)

Cambridge Assessments

Cambridge, UK

July 2023 – July 2024

- Developed the mark scheme for the STEP exam for two years. This is the entrance exam for the mathematics tripos at the University of Cambridge.

Maths Teacher in Ghana

Nsaba Islamic School with Warwick in Africa

Agona East, Ghana

June 2022 – July 2022

- Volunteered for two months as a full-time maths teacher in the Warwick in Africa programme.

Fiscal Consultant

ER Asesores

Alicante, Spain

June 2021 – Sept 2021

- Intern at a fiscal and legal consulting firm in Spain, learning about accounting and fiscal consulting.

Research Assistant

University of Alicante (UA)

Alicante, Spain

June 2019 – Sept 2019

- Research assistant under the supervision of Professor Sergio Cuenca Asensi in the Department of Technology and Computing.

Talks

Network Stochastic Processes and Time Series (NeST) Workshops

- Two talks on deep learning models to infer latent network structures in multi-variate time series.

Oxford/Bath

September/October, 2025

Sunbelt Conference

- Poster presentation on graph-based macroeconomic models for the International Network for Social Network Analysis.

Sorbonne

June, 2025

Random Network Workshop

- Talk on open problems regarding limiting statistical behaviour of dynamic network-based time series models.

Sheffield

May, 2025

International Mathematics and Statistics Student Research Symposium

- Talk on graph-based time series models with applications to macroeconomic forecasting.

Online

April, 2025

Technical Skills

Programming skills:

- Programming languages: Python (NumPy, SciPy, PyTorch), R (GNAR, igraph, parallel), Stata
- High-Performance (automated experiments, parallel computing, GPU training, etc)

Languages: Spanish, English, Catalan (Proficient); French (Advanced); German (Basic)