GUIOMAR PESCADOR BARRIOS

Statistics and Machine Learning (StatML) PhD student

✉ Email | Google Scholar | LinkedIn | Website | GitHub

Education

PhD in Statistical Machine Learning, Imperial College London and University of Oxford, UK Exp. 2026

- Supervised by Sarah Filippi and Mark van der Wilk on the StatML programme. Funded by EPSRC.
- Research Focus: Method development in Continual Learning and Adaptive Neural Architectures. I develop methods for Approximate Bayesian Inference, Dynamic Capacity Control and Continual Learning, enabling models to adapt efficiently to evolving data and task requirements.

Master in Mathematics with Honours (First-class), University of Edinburgh, UK Sept. 2017 - June 2022

- Master Dissertation: Statistical Evaluation of Medical Tests. Under the supervision of Vanda Inacio De Carvalho.
- Undergraduate Group Thesis: Adaptive Single Hidden Layers Perceptron. In collaboration with Jay Holley and Leah Sea. Under the supervision of Benedict Leimkuhler.

Academic Placements

RIKEN Center for Advanced Intelligence Project *Tokyo, Japan.* April to July 2025

Visiting scholar at the Approximate Bayesian Inference Team lead by Emtiyaz Khan.

Research

[1] Adjusting Model Size in Continual Gaussian Processes: How Big is Big Enough? Pescador-Barrios G, Filippi S and van der Wilk, M. Accepted at *NeurIPS 2024 Workshop on Bayesian Decision-making and Uncertainty* and full paper under review.

Evidence of Esteem

Invited Talks

NeurIPS 2024 Bayesian Decision-making and Uncertainty Workshop: Lightning talk on accepted work on adaptive model size for continual Gaussian Processes. December 2024

Oxford-Man Institute: "Adjusting Model Size in Continual Gaussian Processes: How Big is Big Enough?", invited speaker at F-StatML Seminar Series. December 2024

Research Seminars

Dagstuhl Seminar: Invited participant in a closed workshop on "Rethinking the Role of Bayesianism in the Age of Modern AI". [Link] Dagstuhl, November 2024

Amazon Workshop: featuring keynotes and discussions on statistical machine learning. [Link] Berlin, April 2024

Oral Presentations

StatML seminar series, Imperial College London: Continual Learning with Sparse GPs. April 2024

StatML seminar series, University of Oxford: Dimensionality Reduction with Side Information. March 2023

Experience

Creator Fund, *Venture Fellow* *London, UK.* Oct. 2023-2024

Deep tech early-stage venture capital investing in PhD and academic founders across Europe.

Amazon, *Software Developer Intern* *Madrid, Spain.* 2020-2021

- **Summer 2021**: I developed a new feature for an internal web application used by developers and product managers within Amazon Business. The project was delivered ahead of time, and I was able to start another extension of the app. Offered a full-time position.

- **Summer 2020**: I designed and created a new buying policy for Amazon Business. The project was delivered ahead of the deadline and the buying policy is available worldwide. Offered a full-time position.

Addlink Scientific Software, *Intern* *Remote & Spain.* May to November 2019
Created educational materials for Maple 2019 software, including webinars and articles for basic and advanced users. Delivered a one-day course on Maple 2019 at the Technical University of Madrid for higher education.

Morgan Stanley *Glasgow.* April 2019
Technology Insight Programme.

Spanish National Institute of Mathematical Sciences, *Research Intern* *Madrid, Spain.* June 2018
Evaluation of the performance of Machine Learning classification algorithms in malware detection. Attendant at JAE School of Mathematics: "Public Key Cryptography: an introduction" and "An introduction to Mathematical Neuroscience".

Teaching

Graduate Teaching Assistant, Department of Mathematics, Imperial College London 2023 - 2024

- Postgraduate modules: Machine Learning, Computational Statistics.
- Undergraduate modules: Probability and Statistics.

Tutorial Lead, Imperial Business School

- Summer School on Machine Learning, Applied Statistics, and Quantitative Finance. 2024
- Summer School on Business Analytics, Machine Learning and Applied Statistics. 2023

Awards

Nova 111 Student Award 2024 March 2024
Selected as one of top 10 highest-potential students under 25 in the Mathematics, Data Analytics, and Physics category in Spain.

EPSRC Studentship October 2022 to October 2026
Engineering and Physical Sciences Research Council (EPSRC) Studentship for PhD studies.

Technical Skills

Programming: Python, R, Java, C, SQL, Datapath.

Software & Tools: VS Code, RStudio, Maple, Matlab, IntelliJ IDEA, High Performance Computing.

Libraries: TensorFlow, PyTorch, Keras, GPflow, GPytorch, SciPy, NumPy, Pandas, scikit-learn, Matplotlib, Seaborn.

Languages: Spanish (Native), French (Bilingual), English (Proficient).

PhD Training

Modules: Bayesian Modelling and Computation, Statistical Machine Learning, Modern Statistical Theory, Online learning, Bandits, and Reinforcement learning, Causality, ML Finance.
Technical Training: Foundations of GPU Computing, Good Software Engineering Practice, Responsible Innovation, Introduction to HPC, Parallel Programs on HPC Cluster.

Others

Leadership

- Student representative StatML CDT. 2022-2025
- Amazon Campus Ambassador for the University of Edinburgh. 2020-2021
- Secretary of External Relations of the Spanish Society at the UoE. Consulate liaison. 2018-2020

Outreach

- Oxford Mathematics Festival. 2023
- STEM Ambassador Scotland. 2020-2021