

PAULA CORDERO ENCINAR

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Keywords: generative models, active learning, evals, post-training, uncertainty quantification

EDUCATION

Imperial College London and University of Oxford

London

PhD in Machine Learning

Oct. 2023

- Fully funded within the EPSRC Center for Doctoral Training in Statistics and Machine Learning
- Supervisors: Andrew Duncan and O. Deniz Akyildiz

Imperial College London

London

MSc in Statistics

Sep. 2022 – Oct. 2023

- Top 1%, Winton prize for the best student in the MSc.
- La “Caixa” Fellowship (Competitive scholarship awarded to only 100 scholars across all disciplines from all over Spain and Portugal to fully fund their studies).

Universidad Politécnica de Madrid

Madrid

MSc in Artificial Intelligence

Sep. 2021 – July 2022

- José Cuenca Award (Top student of the year 9.74/10).

Universidad Complutense de Madrid

Madrid

Bachelor in Mathematics and Physics (Double Degree)

Sep. 2016 – July 2021

- Average grade: 9.16/10 (6 subjects with the “With honours” distinction).
- Top 5% of the cohort. “Comunidad de Madrid” Excellence Prize.

SELECTED PUBLICATIONS

- **Cordero Encinar, P.**, Aglietti, V and Chiappa, S. “Active Model Evaluation”. (To be released)
- **Cordero Encinar, P.**, Tyukin, G. and Duncan, A. (2026) “Soft Specialists: α -Rényi Ensembles for Uncertainty-Aware LLM Post-Training”. *arXiv preprint: 2605.27747*.
TLDR: Introduces a scalable framework that replaces standard single-point LLM post-training with an ensemble of LoRA adapters, enabling explicit uncertainty quantification and model specialisation.
- **Cordero Encinar, P.** and Duncan, A. (2025) “Certified Self-Consistency: Statistical Guarantees and Test-Time Training for Reliable Reasoning in LLMs”. *arXiv preprint: 2510.17472*.
TLDR: Develops a unified framework of when self-consistency yields certifiable reliability in reasoning models and introduces automated reward signals to reduce the computational cost of this certification.

EXPERIENCE

Student Researcher

Jan. 2026 – July 2026

Google Deepmind

London, UK

- Supervisors: Virginia Aglietti and Silvia Chiappa.
- Project: Efficient model evaluation. Developed a probabilistic framework to improve the efficiency of large-scale model evaluation, achieving up to 70% computational savings on some benchmark while maintaining evaluation quality.

AI Research Intern

Jun. 2023 – Sep. 2023

Evotrack

London, UK

- Project: Developed a machine learning forecasting model for energy demand in electric vehicle charging infrastructure using real-time data, improving energy distribution efficiency and reducing energy waste by 50%.

PROGRAMMING SKILLS

Python, JAX, PyTorch.

PRIZES

- PhD QRT Prize (Winner) 2025, Imperial College London.
 - Best student paper award, Conference on Uncertainty in Artificial Intelligence 2025.
 - Finalist for the Mathematics category at STEM for BRITAIN 2025, House of Parliament.
 - Best research poster at the department's PhD symposium 2024, 2025, Imperial College London.
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INVITED TALKS

- 2026 Institute for Mathematical and Statistical Science (IMSS) Annual Lecture (May 2026).
 - Flatiron Machine Learning seminar (May 2026).
 - "Advances in MCMC Sampling Methods" minisymposium, SIAM UQ, Minnesota, US (March 2026).
 - Breaking topics in AI'25 at Imperial College London, UK (November 2025).
 - Statistics Seminar at the University of Glasgow, UK (May 2025).
 - 2nd RSS Workshop on Gradient Flows for Sampling, Inference, and Learning at the Alan Turing Institute, London UK (March 2025).
 - Statistics Seminar at the University of Warwick, UK (February 2025).
 - Statistics Internal Seminar at Imperial College London, UK (November 2024).
 - Natural Science Showcase Imperial College London, UK (the Mathematics department selected two PhD students) (September 2024).
 - Mary Lister McCammon Summer Undergrad Research Fellows, Imperial College London, UK (August 2024, July 2025).
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OUTREACH

- Girls in Maths Open Day, Imperial College London (March and July 2025).
 - Oxford Maths Festival (May 2024).
 - Imperial College London Maths School (May 2024).
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ALL PUBLICATIONS

- **Cordero Encinar, P.**, Tyukin, G. and Duncan, A. (2026) "Soft Specialists: α -Rényi Ensembles for Uncertainty-Aware LLM Post-Training". *arXiv preprint: 2605.27747*.
- **Cordero Encinar, P.** and Duncan, A. (2025) "Certified Self-Consistency: Statistical Guarantees and Test-Time Training for Reliable Reasoning in LLMs". *arXiv preprint: 2510.17472*.
- Cattiaux, P., **Cordero Encinar, P.** and Guillin, A. (authors in alphabetical order) (2025) "Diffusion annealed Langevin dynamics: a theoretical study". *arXiv preprint: 2511.10406*.
- **Cordero Encinar, P.**, Duncan, A., Reich, S. and Akyildiz, D. (2025) "Sampling by averaging: A multi-scale approach to score estimation". *The Thirty-ninth Annual Conference on Neural Information Processing Systems (NeurIPS)*.
- **Cordero Encinar, P.**, Crucinio, F. and Akyildiz, D. (2025) "Proximal Interacting Particle Langevin Algorithms". *Conference on Uncertainty in Artificial Intelligence (UAI)*. **Accepted for Oral presentation, Best Student Paper Award.**

- **Cordero Encinar, P.**, Akyildiz, D., and Duncan, A. (2025) “Non-asymptotic Analysis of Diffusion Annealed Langevin Monte Carlo for Generative Modelling”. *arXiv preprint: 2502.09306*.
- **Cordero Encinar, P.**, Schröder, T., Yatsyshin, P and Duncan, A. (2025) “Deep Optimal Sensor Placement for Black Box Stochastic Simulations”. *The 28th International Conference on Artificial Intelligence and Statistics (AISTATS)*.
- **Cordero Encinar, P.**, Agustí, A. and Sabín, C. (2021) “Digital quantum simulation of beam splitters and squeezing with IBM quantum computers”. *Phys. Rev. A*, 104, 052609.