Luis A. Ortega

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Experience

Postdoctoral Researcher, *University of Aalborg*, Copenhaguen — 2026 – Present

Teaching Assistant and Research Personnel, *Autonomous University of Madrid* — 11/2021 – 11/2025
Ph.D. student with Daniel Hernández Lobato as Supervisor.
Teaching Python programming fundamentals (Bachelors) and Bayesian methods (Masters).

Visitor Researcher, *University of Cambridge* — 09/2023 – 12/2023
Research on Uncertainty Estimation on Large Language Models with José Miguel Hernández Lobato.

Research Assistant, *University of Almería* — 02/2021 – 12/2021
Worked with Andrés R. Masegosa studing the effect of diversity on Deep Neural Network ensembles.

Publications

Scalable Linearized Laplace Approximation via Surrogate Neural Kernel — ESANN 2026
Luis A Ortega, Simón Rodríguez-Santana and Daniel Hernández-Lobato — [PDF] [Code]

Improving the Linearized Laplace Approximation via Quadratic Approximations — ESANN 2026
Pedro Jiménez, **Luis A Ortega**, Pablo Morales-Álvarez and Daniel Hernández-Lobato — [PDF] [Code]

A Large Deviation Theory Analysis on the Implicit Bias of SGD — Neurocomputing 2026
Luis A. Ortega and Andrés R Masegosa — [PDF] [Code]

PAC-Chernoff Bounds: Understanding Generalization in the Interpolation Regime — JAIR & ECAI 2025
Andrés R. Masegosa and **Luis A. Ortega** — [PDF] [Code]

PAC-Bayes-Chernoff Bounds for Unbounded Losses — NeurIPS 2024
Ioar Casado, **Luis A. Ortega**, Aritz Pérez and Andrés R. Masegosa — [PDF]

Variational Linearized Laplace Approximation for Bayesian Deep Learning — ICML 2024
Luis A. Ortega, Simón Rodríguez-Santana and Daniel Hernández-Lobato — [PDF] [Code]

The Cold Posterior Effect Indicates Underfitting — TMLR 2024
Yijie Zhang, Yi-Shan Wu, **Luis A. Ortega** and Andrés R. Masegosa — [PDF] [Code]

Deep Variational Implicit Processes — ICLR 2023
Luis A. Ortega, Simón Rodríguez-Santana and Daniel Hernández-Lobato — [PDF] [Code]

Diversity and Generalization in Neural Network Ensembles — AISTATS 2022
Luis A. Ortega, Rafael Cabañas and Andrés R. Masegosa — [PDF] [Code]

Ongoing Research

Fixed-Mean Gaussian Processes for ad-hoc Bayesian Deep Learning (under review) — [Draft]
Converting models to Bayesian by creating a Gaussian Process with fixed predictive mean to that model.

Regularization as Estimation, A PAC-Bayes-Chernoff Approach
A prescriptive framework, grounded in PAC-Bayes-Chernoff bounds, that reframes regularization as a statistical estimation problem.

Revisiting the Marginal Likelihood through a PAC-Bayesian lens
While marginal likelihood remains a critical component, generalization in Bayesian models depends on additional factors beyond marginal likelihood alone.

Education

Ph.D. Student, *Autonomous University of Madrid* — 11/2021 – 11/2025
Thesis: *Uncertainty Estimation and Generalization Bounds for Modern Deep Learning*

B.S. in Physics, *National Distance Education University* — 2024 – 202X

M.S. in Data Science, *Autonomous University of Madrid* — 2020 – 2022
Master Thesis: *Deep Variational Implicit Processes*

B.S. in Computer Science, *University of Granada* — 2015 – 2020

B.S. in Mathematics, *University of Granada* — 2015 – 2020

Honors & Awards

Granted Santander-UAM Scholarship. Uncertainty Estimation in LLM at Cambridge University. — 2023
Computational and Biological Learning Lab, University of Cambridge

Granted FPI-UAM Scholarship. Competitive Predoctoral Contract for Training Research Personnel — 2021

Department of Computer Science, Autonomous University of Madrid

Research Collaboration Scholarship 2020
Department of Computer Science, Autonomous University of Madrid

Granted Highest Mark on Bachelor's Thesis, 10/10. Statistical Models with Variational Methods 2020
Department of Computer Science and Faculty of Science, University of Granada

Open Source Contributions

Ludvins/Bayesipy | ★19 2025
Full post-hoc suite that includes Variational (VaLLA) and Nyström (ELLA) LLA variants, FMGPs, SNGPs abd MFVI. Along with loaderrs for benchmarking on pre-defined data and models.

AlexImmer/Laplace | ★441 2024
Implemented Functional (GP) Laplace.

libreim/apuntesDGIIM | ★79 2017
Divulgation group destinated to the double degree in computer science and mathematics, Granada.

Skills

Technical	Python, C++, PyTorch, TensorFlow, Keras and JAX (little)
Soft Skills	Quick learner, Multi-tasking, Cooperative and Collaborative