# Luis A. Ortega

luisortegaandres@gmail.com • ludvins.github.io • ludvins
ludvins

## 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 |