

Luis A. Ortega

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Experience

- Teaching Assistant and Research Personnel, Autonomous University of Madrid** 12/2021 – Present
Ph.D. student with Daniel Hernández Lobato as Supervisor.
Teaching Python programming fundamentals and finite automata/Turing machines subjects.
- 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 studying the effect of diversity on Deep Neural Network ensembles.

Publications

- 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

- PAC-Chernoff Bounds: Understanding Generalization in the Interpolation Regime (under review)** [Draft]
Explaining deep learning techniques (weight-decay, overparameterization, data-augmentation) using Large Deviation Theory.
- 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.

Education

- Ph.D. Student, Autonomous University of Madrid** 11/2021 – 11/2025
Thesis: *Variational Inference for Bayesian Deep Learning*
- 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

- AlexImmer/Laplace — ★441** 2024
Implemented Functional (GP) Laplace, working on implementing Variational (VaLLA) and Nyström (ELLA) variants.
- libreim/apuntesDGIIM — ★79** 2017
Divulgate group destined 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