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 studing the effect of diversity on Deep Neural Network ensembles.

Publications

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.

PAC-Bayes-Chernoff Bounds for Unbounded Losses (under review) [Draft]
PAC-Bayes version of the Chernoff bound which solves the open problem of optimizing the free parameter on many PAC-Bayes bounds.

Fixed-Mean Gaussian Processes for ad-hoc Bayesian Deep Learning
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
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