

# Luis A. Ortega

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## Experience

**Teaching Assistant and Research Personnel**, *Autonomous University of Madrid* (Ph.D. Student granted with FPI-UAM Scholarship with Daniel Hernández Lobato.) 12/2021 – Present

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

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

## Publications

1. **Variational Linearized Laplace Approximation for Bayesian Deep Learning** [\[PDF\]](#) [\[Code\]](#)  
Luis A. Ortega, Simón Rodríguez-Santana and Daniel Hernández-Lobato  
International Conference on Machine Learning (ICML), 2024
2. **Deep Variational Implicit Processes** [\[PDF\]](#) [\[Code\]](#)  
Luis A. Ortega, Simón Rodríguez-Santana and Daniel Hernández-Lobato  
International Conference on Learning Representations (ICLR), 2023
3. **Diversity and Generalization in Neural Network Ensembles** [\[PDF\]](#) [\[Code\]](#)  
Luis A. Ortega, Rafael Cabañas and Andrés R. Masegosa  
Artificial Intelligence and Statistics (AISTATS), 2022

## 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

If there is no underfitting, there is no Cold Posterior Effect (under review) [\[Draft\]](#)  
Misspecification leads to Cold Posterior Effect (CPE) only when the resulting Bayesian posterior underfits.

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.

## 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

**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