

Adrià Garriga-Alonso

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Education

- 2017 – 2021 **PhD Engineering** *Machine Learning Group, University of Cambridge, UK*
Supervisor: Prof. Carl E. Rasmussen.
Thesis: “Priors in finite and infinite Bayesian convolutional neural networks”.
Found a theoretical connection between deep Bayesian CNN priors and Gaussian processes (GPs), which has been used for NN generalization bounds and neural architecture search.
Building on this, I improved priors and inference for Bayesian CNNs and image GPs.
- 2016 – 2017 **MSc Computer Science** (distinction) *University of Oxford, UK*
Thesis supervisor: Prof. Mihaela van der Schaar.
Thesis: “Probability density imputation of missing data with Gaussian mixture models”.
- 2012 – 2016 **BSc Computer Science** (1st of my class of 67) *Pompeu Fabra University, Spain*
Grade: 9.02/10, class grade average 6.90/10. Thesis supervisor: Prof. Anders Jonsson.
Thesis: “Solving Montezuma’s Revenge with planning and reinforcement learning”.

Experience

- 2022 – 2023 **Technical Staff** *Redwood Research*
- Established property-based testing and fuzzing to ensure correctness of an interpretability algebra system and tensor compiler
 - Co-wrote the [Causal Scrubbing](#) paper, whose experiments rely on said compiler.
 - Interpretability project: characterized a circuit in GPT2-small that processes skips in monotonic number sequences.
- 2021 **Summer research fellow** *Center on Long-Term Risk*
Advancing open-source game theory by restricting programs to a tractable yet expressive subset. The result should be a library to model cooperation between AIs with different goals.
- 2019 **Research Intern** *Microsoft Research Cambridge*
With Dr. Sebastian Tschitschek. Introduced a theoretically motivated algorithm to optimally choose and learn from partial observations of the teacher, in inverse reinforcement learning.
- 2015 **Research Assistant** *Music Technology Group, UPF*
With Prof. Rafael Ramírez. Developed web app to help music students practice. It listens to the student’s playing or singing and visually compares the pitches and durations to an expert’s.
- 2014 – 2015 **CTO, cofounder** *MonkingMe.com*
Music streaming startup. Designed and implemented web application backend and cloud server infrastructure for the streaming service. Coordinated development of smartphone application.
- 2013 – 2014 **R&D Intern** *Big Arm Applications*
Developed a communication protocol between a web app and an industrial robot arm. The arm interacted with users via web and mobile, using a webcam, and played the metallophone.

Leadership

2019 **Coorganiser**, ICLR 2019 workshop: “Safe Machine Learning”
Other organisers include Dr. Silvia Chiappa and Dr. Victoria Krakovna from DeepMind.

2017 – 2019 Started and ran **Engineering AI Safety reading group** *Effective Altruism Cambridge*
Objective: induce ML students to learn more about AI safety. 7–50 attendees per session.

Programming languages & libraries

Expert knowledge: Python (Pytorch, Jax, etc). Very good knowledge: C++, C. Working knowledge: Rust, Lisp, Julia, Javascript.

Selected Publications

Adrià Garriga-Alonso, Carl Edward Rasmussen, and Laurence Aitchison. “Deep convolutional networks as shallow Gaussian processes”, ICLR 2019.

Vincent Fortuin, **Adrià Garriga-Alonso** (equal contribution), Florian Wenzel, Gunnar Rätsch, Richard E. Turner, Mark van der Wilk, and Laurence Aitchison. “Bayesian Neural Network Priors Revisited”, ICLR 2022.

Adrià Garriga-Alonso and Mark van der Wilk. “Correlated Weights in Infinite Limits of Deep Convolutional Neural Networks”, UAI 2021.

Selected Awards & Fellowships

2017 **Malmo Collaborative AI Challenge: 1st & 3rd places, diff. categories.** *Microsoft Research*
Won \$20,000 in Azure credits and paid attendance to the AI Summer School.

2016 **María de Maeztu Award** for Reproducibility in Software. *Pompeu Fabra University*
Best Bachelor’s thesis in information technologies in Spain meeting scientific reproducibility criteria.

2016 – 2017 **Postgraduate fellowship** (6.6% acceptance rate). *“la Caixa” Foundation*
Full tuition and stipend. Awarded Spain-wide, on academic merit and positive impact of project.

Service to the Scientific Community

Reviewer NeurIPS 2019 (top 5%), 2020. ICLR 2020, 2021. ICML 2020, 2021. JMLR.

Mentor New in ML workshop, 2019.

Additional Activities

2014 – 2015 **Competitive programming team member** *Pompeu Fabra University*
Conducted unofficial training sessions. Team set record in Universitat Pompeu Fabra for number of problems solved, placing 24/52 in SWERC 2015.