

# Adrià Garriga-Alonso

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## Education

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- 2017 – 2021 **PhD candidate in Engineering** Machine Learning Group, University of Cambridge, UK  
(exp. May) Supervisor: Prof. Carl E. Rasmussen  
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 GPs for images. **Collaborated** with researchers at Bristol University, Imperial College London and ETH Zürich.
- 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** (1<sup>st</sup> 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 (MR) with Planning and Reinforcement Learning (RL)”. The goal was to understand how to address the problem of sparse rewards. Using reward shaping, I trained RL agents to play MR. Using search, pruning with domain-specific heuristics, I designed an agent that obtains 14900 score, compared with 3500 of general-purpose agents at the time.
- 2016 **Erasmus exchange semester** Karlstad University, Karlstad, Sweden  
Improved by 47% the performance of a forensic hard drive scanner, with Prof. Johan Garcia.

## Experience

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- 2019 **Research Intern** Microsoft Research Cambridge  
With Dr. Sebastian Tschiatschek. 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 application and an industrial robot arm. The robot arm interacted with users via a web portal and mobile app, using a webcam, and played the metallophone.

## Leadership

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- 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.

## Skills

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**ML libraries** Tensorflow, Pytorch, **Jax**; GPFlow, GPytorch; Pandas, sklearn; Jug & Sacred.

**Programming Languages** Expert knowledge: **Python**. Very good knowledge: C++, C, Javascript. Working knowledge: Matlab, Java, Bash, Julia. Wrote fast C/C++ code callable from Python.

**Languages** Fluent English, Spanish, and Catalan; basic Swedish, German. Studied Lojban, a constructed language inspired by predicate logic, to see whether it would help NLP in AI.

## Selected Publications

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**Adrià Garriga-Alonso**, Carl Edward Rasmussen, and Laurence Aitchison. “Deep convolutional networks as shallow Gaussian processes”. *International Conference on Learning Representations*, 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” *ICBINB workshop, in NeurIPS 2020*.

**Adrià Garriga-Alonso** and Mark van der Wilk. “Correlated Weights in Infinite Limits of Deep Convolutional Neural Networks” *3rd Symposium on Advances in Approximate Bayesian Inference*, 2021.

## Selected Awards & Fellowships

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2017 **Malmo Collaborative AI Challenge: 1<sup>st</sup> & 3<sup>rd</sup> 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.

2014 **Hackathon: Best in Show award** WIPJam, Mobile World Congress  
Team placed 1<sup>st</sup> of ~25. Developed a mobile game about catching other players in real life.

## Service to the Scientific Community

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

**Mentor** New in ML workshop, 2019.

## Additional Activities

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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.

2016 – 2017 **Computer Science Ambassador** University of Oxford  
Volunteering to teach & promote computer science and mathematics to sixth form students.