

Gabriel Arpino

PhD Student, University of Cambridge

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Google Scholar — Github

Education

- Ph.D. **University of Cambridge**, 2021 - Now
Ph.D. in Machine Learning, advised by Prof. Ramji Venkataramanan.
G-Research 2024 PhD Runner-Up Prize
Cambridge Trust Scholarship
- M.Sc. **ETH Zürich**, 2019 - 2021
M.Sc. (Honours) in Electrical Engineering, advised by Prof. Afonso Bandeira.
- B.A.Sc. **University of Toronto**, 2014-2019
B.A.Sc. (Honours) in Engineering Science, advised by Prof. Daniel Roy.
Outstanding Scholar Award 2017

Employment

- 2017 - 2018 **Junior Researcher**, Invenia Labs, Cambridge UK.
Devised Bayesian Deep Learning and Gaussian Process optimization routines to model the US electricity grid, implemented in **Tensorflow** and as an open-source package in **Julia**:
<https://github.com/invenia/GPForecasting.jl>.
Improved energy demand modelling accuracy by 55% over previous models.
Developed AWS cloud and GPU infrastructure to run models on over 10 gigabytes of data.
- 2017 **Student Researcher**, Robotics Institute, Carnegie Mellon University.

Selected Publications

- ICML'24 Gabriel Arpino, Xiaoqi Liu, Ramji Venkataramanan. "Inferring Change Points in High-Dimensional Linear Regression via Approximate Message Passing". Implemented in **JAX**.
- APPROX'24 Gabriel Arpino, Daniil Dmitriev, Nicolo Grometto. "Greedy Heuristics and Linear Relaxations for the Random Hitting Set Problem".
- COLT'23 Gabriel Arpino, Ramji Venkataramanan. "Statistical-Computational Tradeoffs in Mixed Sparse Linear Regression". **Invited Talk** at ETH Zürich DACO Seminar '23.
- J. Phys. A Freya Behrens, Gabriel Arpino, Yaroslav Kivva, Lenka Zdeborová. "(Dis)assortative partitions on random regular graphs"
- ISIT'21 Gabriel Arpino, Nicolo Grometto, Afonso Bandeira. "Group Testing in the High Dilution Regime".
- AISTATS'21 Gintare Karolina Dziugaite, Kyle Hsu, Waseem Gharbieh, Gabriel Arpino, Daniel Roy. "On the role of data in PAC-Bayes bounds".
- NeurIPS'18 Gintare Karolina Dziugaite, Gabriel Arpino, Daniel Roy. "Towards generalization guarantees for SGD: Data-dependent PAC-Bayes priors". Bayesian DL workshop.
- ICRA'18 Gabriel Arpino, Kyle Morris, Sasanka Nagavalli, Katia Sycara. "Using Information Invariants to Compare Swarm Algorithms and General Multi-Robot Algorithms".

Academic Service

- 2023 - Now **Reviewer** for NeurIPS'24, ICML'24, ALT'24, COLT'23, IEEE Tr. IT.
- 2022 - Now **Teaching Assistant**, *U. of Cambridge*, Information Theory and Inference (3F7/8).

Languages

Python (Numpy, JAX, Tensorflow, Pytorch), R, C++, SQL, Julia, MATLAB, Git, \LaTeX .
English, French, Portuguese, Spanish, Italian.