

Massachusetts Institute of Technology,
Computer Science and Artificial Intelligence Laboratory

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Education

Massachusetts Institute of Technology 2019-2023

Ph.D. Electrical Engineering and Computer Science
Advisor: John Guttag and Adrian Dalca
Thesis: Learning Many Models at Once via Amortized and In-Context Learning

Massachusetts Institute of Technology 2017-2019

M.Sc. Electrical Engineering and Computer Science (GPA: 5.00/5.00)
Thesis: Learning from Few Subjects with Large Amounts of Voice Monitoring Data
Courses: Machine Learning, Computer Vision, Distributed Systems, Computer Systems Security

Universidad Pontificia Comillas 2012-2016

B.Sc. Telematics Engineering, (GPA: 9.95/10.00, *Summa Cum Laude*)
Thesis: A Simple Power Analysis Attack on the TwoFish Key Schedule

University of Michigan, Ann Arbor 2015-2016

Exchange program in Computer Science (GPA: 3.94/4.00)
Key Courses: Cryptography, Parallel Computing, Entrepreneurship, Information Retrieval

Research and Work Experience

Microsoft Research, Cambridge, Research Intern 2022

- Studied deep learning model mixing dynamics informed by optimal transport dataset distance heuristics
- Performed extensive experiments on how model weight interpolation can outperform finetuning for vision classification tasks

Facebook AI Research, Montreal, Research Intern 2020

- Led a project analyzing distributed training of DNNs, with an emphasis on improving generalization performance & reducing communication.
- Carried out experiments to identify the synchronization trade-off when training networks in a data parallel regime over many nodes.

CERN Openlab, Geneva, Software Engineering Intern 2017

- Developed C++ software to store and access genomic data using ROOT big data framework.
- Benchmarked the tools using Python and performed statistical analysis over the parameter space, improving read speed by over 15 times.

University of Michigan, Ann Arbor, Research Assistant 2016

- Developed a machine learning classifier for heart sound classification algorithm based on temporal alignment techniques, MFCC frequency analysis and support vector machines.

Institute for Research in Technology, Madrid, Research Assistant 2014-2015

- Development of applications with Google Glass for people with motor disabilities.

Publications

(*) equal contribution

UNDER REVIEW

CONFERENCES AND PEER REVIEWED WORKSHOPS

THESES

Awards

Qualcomm Innovation Fellowship	2018
la Caixa Foundation Fellowship	2017
Fulbright Scholarship (<i>declined in favor of la Caixa</i>)	2017
Undergraduate Excellence Award U.P.Comillas ICAI	2016
Excellence Scholarship for County of Madrid	2012-2016
International Mathematics Competition, Bronze Medal	2013

Academic Service

TEACHING

Teaching Assistant , 6.5840 Distributed systems (previously 6.824), MIT	2021
Co-organizer, instructor , The Missing Semester of Your CS Education, MIT	2020
Co-organizer, instructor , 6.HT: Hacker Tools, MIT	2019
Teaching Assistant , 6.S191: Introduction to Deep Learning, MIT	2018

REVIEWER

NeurIPS	2022
ICLR	2022
NeurIPS	2021
ICML	2021
NeurIPS	2020
MLHC —Machine Learning for Healthcare	2020

Skills

Languages: Spanish (native), English (fluent)
Machine Learning: PyTorch, Transformers, timm, sklearn
Python: NumPy, SciPy, Pandas, OpenCV
Software: Python, Go, C, Java, SQL
DevOps: Docker, Ansible **Databases:** Redis, SQLite, LMDB