

Adrián Sager La Ganga

Computational Scientist & Engineer



Willing to relocate



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• Artificial Intelligence

• Software Engineering

• Applied Mathematics

EDUCATION

Master of Science, Computational Science & Engineering, EPFL, Final GPA: 5.57/6.00

Sep. 2020 — Feb. 2023

Bachelor of Science, Computer Engineering, Polytechnic University of Turin, Final grade: 110/110

Oct. 2017 — Jul. 2020

EXPERIENCE

IBM Master Thesis

Sep. 2022 — Jan. 2023

IBM Research Zürich

Zürich, Switzerland

- Applied NLP models to predict sustainable chemical reactions
- Proposed and validated novel AI-based metrics employing uncertainty quantification (UQ) techniques
- Created toolkit with visualization and explainable AI utilities to interpret the predictions

System Engineer (Full-time Intern)

Mar. 2022 — Sep. 2022

Beyond Gravity

Zürich, Switzerland

- Improved rover simulation software for ExoMars ESA contract (C++):
 - Will author paper for ESA's *Advanced Space Technologies in Robotics and Automation* (ASTRA) symposium in 2023
 - Achieved $> \times 3.0$ speedup with SIMD matrix operations, better code structure, and concurrency
 - Implemented novel outlier detector and GPR interpolation algorithm of high-resolution Martian terrain images
 - Created pseudo-3D engine for fast visualization
 - Developed realistic visualization in a game engine (C#)

Data Scientist (Full-time Intern)

Mar. 2020 — May. 2020

Dynatrace

Hagenberg campus (Linz), Austria

- Presented Python-to-Java pipeline to translate the 7-person team's research into production
- Created guidelines to speedup Machine Learning algorithms from Python to Java, benchmarking NumPy, EJML, and ND4J
- Designed best-practices for efficient Java code in the EJML tensor library

AWARDS & INTERESTS

2022 🎓 Young Talents Fellowship from the Swiss *National Centres of Competence in Research – Catalysis* to fund thesis on sustainability

2021 🏆 Selected as member of the EPFL Spacecraft team in the system software pole

2019 🏆 *European Innovation Academy*, Startup Summer Camp (~200 participants):

- **Awards**: U.S. *Provisional Patent* from Nixon Peabody; *Top Team*; HAG *Venture Accelerator award*; *10-day Project and People Management Summer School*

- Selected as CTO in a team of 5 ideating and presenting a prototype for safer space travel, including an investor pitch

🎓 Member of Eta Kappa Nu (electrical engineering and computer science honor society)

2018 🏆 Awarded *Like@Home* hackathon *Reply* prize: Innovate in 24h in a team of 5 using Google's Voice Kit

2017 🎓 Scholarship *ToPolito* (**top 17** best performing international engineering students)

🎓 Young Talents Project (**top 5%** best performing engineering students)

PROJECTS & RESEARCH

Analyze Performance Improvements of Asynchronous Cloud Microservices,

Advanced Multiprocessor Architecture course (EPFL)

github.com/cs471-MAA/grpc

Oct. 2021 — Jan. 2022

Computer Vision to stabilize video of a fly's neural activity , Ramdya Lab (EPFL)	Sep. 2021 — Jan. 2022
<ul style="list-style-type: none"> Proposed novel stochastic EMD unsupervised metric based on desired properties, proven convergence and conceptual accuracy Created $\times 770\%$ faster and $\times 186\%$ lower MSE transform than baseline Trained UNet and hypernetwork SOTA on big dataset with dynamic memory allocation Achieved and analyzed $\times 1.4$ asymptotic speedup on non-linear optimal transport baseline using GPU 	
github.com/Sager611/stabilize2p	
Develop Minimal Deep Learning Framework with Backprop , Deep Learning course (EPFL)	Apr. 2021 — Jun. 2021
Distributed Learning: Study of the most Efficient Topologies , Optimization for ML course (EPFL)	Apr. 2021 — Jun. 2021
github.com/eelismie/OptForML-Project	
Deep Learning to predict star properties , Laboratory of Astrophysics (EPFL)	Mar. 2021 — Jul. 2021
<ul style="list-style-type: none"> Trained a Denoising Autoencoder for interpolation of stellar spectra with secondary MLP head for multi-task regression Augmented and cross-validated small 888-sample training set +20% performance over literature by employing a Locally Connected Network with uncertainty estimation Formulated a well-documented and structured framework and entry script for research usage at the Lab Accepted contract to continue documenting framework in July 2021 	
Machine Learning to predict protein pair interactions , Machine Learning course (EPFL)	Nov. 2020 — Dec. 2020
<ul style="list-style-type: none"> Researched performance differences of Siamese CNN, XGboost with bayesian optimization, and an MLP 	
github.com/maximocrv/ml_protein_interactions	
FPGA, CNN inference , Computer Architecture course (Polytechnic University of Turin)	Mar. 2019 — Jul. 2019
<ul style="list-style-type: none"> Programmed 6 CNN layers for inference in an FPGA: 2D Convolution, Max/Mean Pooling, and Sigmoid/ReLU/Tanh activations Engineered block design leveraging DMA for CPU-FPGA transmission 	
gitlab.com/adriansagerlaganga/pynq-cnn-caffe	

SKILLS

Python	<ul style="list-style-type: none"> Tensorflow/Keras PyTorch JupyterLab Scikit-learn SciPy Pandas OpenCV (cv2) Sphinx JAX (basic)
Programming	<ul style="list-style-type: none"> C/C++ CMake Assembly for GDB Java C# JavaScript HTML/CSS React & Redux (basic) Docker SQL MatLab CUDA OpenMP systemd VHDL (basic)
Teamwork	<ul style="list-style-type: none"> Agile Scrum JIRA Git
Multiprocessing Architectures	<ul style="list-style-type: none"> Distributed Memory Datacenters GPU architecture ML Accelerators Cache Coherence Memory Consistency
Algorithms	<ul style="list-style-type: none"> Linear Programming Greedy Streaming algos. Randomized algos. Spectral Graph Theory
Information Security	<ul style="list-style-type: none"> Binary exploits Web App Vulnerabilities TLS Applied Cryptography Database Security Machine Learning and Privacy Blockchain and Decentralization

LANGUAGES

- English (fluent)
- Spanish (native)
- Italian (fluent)
- French (intermediate)
- German (beginner)