Tomas Agustin Gonzalez Orlando — Senior Software Engineer

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Profile

Driven by the ambition to make a transcendental impact on humanity, I've been drawn to biology, mathematics, and engineering from an early age. I thrive in fast-paced, interdisciplinary, and highly collaborative environments where my systems-level approach to problem-solving brings the most value. I have a deep passion for applying Machine Learning research to real world biological data.

Independent Research

Multi-omics with Graph Neural Networks

Dorso Lateral Prefrontal Cortex Cell-Type Classification in Tissue Sections *2025*

- Identified the required biological training data (transcriptomics + histology) and pre-processing algorithms (Numpy) to train a custom PyTorch model architecture for a Graph Neural Network Brain Layer classifier.
- Developed a Data Version Control end-to-end Machine Learning pipeline to guarantee reproducibility by other scientists and facilitate future project scaling.
- Used MLflow to analyse and tune my experimental results, improving model performance to 82% accuracy and 0.82 f1-score; findings are documented in a work-in-progress public report.

Arrhythmia Detection with 1D Convolutional Neural Network

Automated Arrhythmia Detection - CNN *2025*

- The Project uses linear algebra and calculus algorithms implemented in scientific Python (Numpy + SciPy) to pre-processes raw ECG signals and automatically classify each beat into standard arrhythmia categories.
- Data analysis, exploration and hands-on experimentation: custom PyTorch Dataset, custom PyTorch Transform pipeline for 1D signals and a custom PyTorch model.

Reinforcement Learning Bubbles Game using Deep Q-Network

Self-playing game - DQN *2021*

- The Project is a self-playing version of the Bubble Shooter game trained with a Convolutional Deep Q Neural Network on pixel colors to decide the next action.
- Conceptually based on Google DeepMind's Deep Reinforcement Learning for the Atari 2600 console.

Other projects and research

Videogames, Audio Processing and more *2018-Present*

- For other projects, visit my personal webpage and my personal github account

Experience

Senior Software Engineer

arm Ltd. *Apr 2025 – Present*

- Deeply technical role in UK's biggest semiconductor company. Currently designing, implementing and analysing new architectural features of arm future processors in software.
- Iteratively collaborating with arm's partners and domain experts in greenfield projects, while implementing and scaling arm's engineering software frameworks to meet its research goals.

Software Engineer

arm Ltd. *Oct 2022 - Apr 2025*

- Achieved Maintainer status for Parsec (an open-source Rust security project for containerized applications) - a role typically reserved for senior engineers.
- Community Leader for Parsec: contributor guidance, handling stakeholders and community calls, project governance. Provided Rust developmental support for new-joiners.
- Worked in IoT, Automotive, and Power Firmware projects and received "Exceptional" ratings in my Annual and Mid-Term Reviews for my capacity to quickly learn, adapt and rapidly collaborate across teams.

Graduate Software Engineer

arm Ltd. *Mar 2021 – Oct 2022*

- Gained hands-on experience in CI/CD (MLOps) and testing frameworks (Docker, Jenkins, GitLab CI, GitHub Actions, GoogleTest, PyTest, and Yocto Testing), Linux/Linux internals and driver development.
- Nominated for promotion after 9 months for delivering on aggressive IoT project deadlines, collaborating closely with engineers from Operating Systems and Firmware Integration teams.

Cybersecurity Intern

Siemens *Nov 2019 – Jan 2021*

- Carried out analysis and risk assessments on the company systems.
- Performed reviews of security measures to ensure they remained fit for purpose.
- Reviewed threat intelligence.

Teaching Assistant – Advanced Mathematics for Signal Processing

Instituto Tecnologico de Buenos Aires *Feb 2019 – Dec 2019*

- Assisted in teaching advanced topics in calculus and linear algebra in Hilbert space: Fourier analysis, and linear systems (continuous and discrete) with applications in signal processing - emphasizing spectral methods and frequency-domain analysis. Solving partial differential equations with Fourier Transforms.

</> Education

MSc in Electronic Engineering **Buenos Aires, Argentina**

Instituto Tecnologico de Buenos Aires, Signal Processing Specialization *2015 – 2020*

Core ML-centric modules: neural networks (DQN, CNN, RNN, MLP), random and stochastic signal processing (Wiener/Kalman filtering), adaptive filtering (LMS / RLS), image processing, speech analysis and recognition. Solid grounding in statistics, linear algebra, mathematics and optimisation.

Deep Learning Nanodegree **Udacity**

Udacity, Foundational Deep Learning, 4 months nanodegree *2025 – 2025*

PyTorch based Machine Learning/ML: CNN, GAN, RNN, LSTM, Regularization and Validation techniques

Bioengineering Foundations (Pre-MSc Coursework) **Buenos Aires, Argentina**

Instituto Tecnologico de Buenos Aires, Signal Processing Specialization *2015 – 2015*

Completed foundational courses in Molecular and Cellular Biology and Chemistry. Lab work (Bradford protein assays, DNA handling, spectrophotometry). Capstone project: basic algorithms to flag disease-linked motifs in DNA.

Chinese Language Scholarship **Jilin, China**

Jilin University, 6-month scholarship to study Mandarin *2014 – 2014*

Granted as a result of the international Chinese Bridge competition. Achieved C1 level in Mandarin (HSK 5 exam).

+ Key Skills

Libraries: PyTorch, PyTorch Geometric, Python Scientific - Numpy, Scipy, Pandas.

Deep Learning: GNN/Graph Neural Networks, CNN, GAN, Reinforcement Learning

Mathematics: Linear Algebra, Calculus, Statistics, Spectral analysis, Stochastic Signal Processing.

MLOps: DVC, MLFlow, Docker, Jenkins, Gitlab CI, Github Actions, GoogleTest, Static Analysis

Coding Languages: Python, Rust, C/C++

Biological data tools: scanpy, anndata