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Professional Summary

Machine Learning Engineer with **5+ years** of experience in **production ML systems**. Expertise in **deep learning**, **computer vision**, **Python**, and **ML pipelines**. Proven track record deploying **ML systems** and building **end-to-end infrastructure** with **Docker**, **CI/CD**, and **microservices**. Developed an **Open-Source** Python library for Complex-Valued Neural Networks with **150k+ PyIP Downloads**. Passionate about other emerging AI technologies including **LLMs**, **RAG**, and **agentic AI systems**.

Experience

SAFRAN — February 2023 - present

Machine Learning Engineer — *Paris, France*

- Designed and implemented **end-to-end ETL pipelines** integrating external APIs with **ML processing workflows** and **PostgreSQL** storage
- Configured **GitLab CI/CD pipelines** for automated testing, **Docker** image building, Harbor registry deployment, and documentation generation
- Built scalable **backend microservices** with **REST APIs** using **FastAPI**, **PostgreSQL** (SQLAlchemy), and ZMQ messaging
- Delivered **object detection** application achieving production-level performance 2 months ahead of schedule, currently running in production
- Led 10-month, 2000+ hour **time series anomaly detection** project with full technical specification, resource allocation, and client communication
- Built custom **ML versioning toolbox** combining Git, S3, and **PostgreSQL** for automated dataset and model versioning (similar to DVC)
- Migrated Python signal processing algorithms to C++ production code for client deployment

Python | CV | PyTorch | PostgreSQL | REST APIs | Docker | CI/CD | Microservices | Pandas | Tensorflow

ONERA & École CentraleSupelec & DGA — June 2019 - December 2022

Ph.D. *Complex-Valued Neural Networks for Image Complex-Valued Semantic Segmentation* — *Paris, France*

- Published **9+ peer-reviewed publications** in IEEE and Springer journals with 175+ citations
- Implemented comprehensive testing framework using **Test Driven Development (TDD)** methodologies
- Ranked **top 15% reviewer score** on IEEE MLSP 2021 publication
- Received **3MT IEEE GRSS Excellence in Technical Communication Student Prize Award** finalist
- Achieved **most upvoted ML paper** on Reddit r/MachineLearning community
- Built results visualization website at CVNN vs RVNN PolSAR applications using PyQT and Plotly

Python | TensorFlow | Image Semantic Segmentation | NumPy | TDD | Plotly

CNRS, Cisco Systems, INVAP, École des Ponts — 2014 - 2018

Internships — *France & Argentina*

- Gained early exposure to technical systems & hardware optimization, network infrastructure, and CAD tools

Open Source Projects

Complex-Valued Neural Networks (CVNN) — 2019 - 2022

*Python Machine Learning Library - **150k+ PyIP Downloads*** — */NEGU93/cvnn* *Documentation*

- Developed ML library for implementing Complex-Valued Neural Networks using Tensoflow as backend
- Achieved **150,000+ PyPI downloads** and **175+ GitHub stars**, demonstrating widespread adoption
- Implemented automated **CI/CD pipeline** with testing, documentation generation and PyPI deployment
- Built using **Test Driven Development**
- Using TensorFlow backend, supporting both eager and graph execution modes
- Automatic documentation generation using Sphinx and reStructuredText

Python | TensorFlow | CI/CD | PyPI | TDD | Documentation | pytest

Additional Technical Projects **2017 - 2019**

- **Speech recognition system** using LSTM networks with MFCC features and CTC loss /NEGU93/LipSync
- Implemented **parallel image processing** across CPU/GPU architectures /NEGU93/Parallel-Image-FIltering
- **DCGAN** (Generative Adversarial Network) for anime character generation /NEGU93/anime-generation-dcgan
- Created **neural networks for ECG classification** and medical signal analysis /NEGU93/ElectroCardiogram-Classification-Neural-Network
- Built **compiler** generating x86-64 assembly from Mini-C language /NEGU93/Compilation

Python | TensorFlow | GAN | LSTM | CUDA | MPI | OpenMP | C++ | Java | PyQt5

Education

École CentraleSupelec **June 2019 - December 2022**
Ph.D. *on Machine Learning - Complex-Valued Neural Networks* *Paris, France*

Instituto Tecnológico de Buenos Aires **March 2012 - July 2018**
Master in Electronics Engineering with specialization in Signal Processing *Buenos Aires, Argentina*

- Second highest GPA score among 26 students (95th percentile)

École Polytechnique (l'X) **September 2016 - March 2017**
International Exchange Program *Paris, France*

- Academic performance: 16.84 / 20

Competitions & Awards

SAFRAN Innovation Award (2025): Only finalist of my business unit. Winner yet to be announced
SAFRAN Data Challenge (2023): **1st place** out of 16 participants (100th percentile)
J.P. Morgan Chase & Co Hackathon (2019): 3rd place out of 20 teams (90th percentile)
IEEEXtreme 24-hour Programming Competition: Edition 15 (2021): 313/5561 (94th percentile); Edition 11 (2017): 391/3350 (88th percentile); Edition 9 (2015): 275/2035 (86th percentile); Edition 8 (2014): 536/1853 (71st percentile). *Note:* ***Participated solo*** *in editions 11 and 15 (normally teams of 3)*
ITBA Electronics Exhibition: 3 times awarded as best project by companies including **Schneider Electric**
IEEEXtreme Practice ITBA (2017): 2nd place out of 15 (93rd percentile)
Argentinian Math Olympiad (OMA): Multiple-time participant. Invictus

Technical Skills

Languages: Spanish (native), English (Cambridge C1 CAE & TOEIC 940/990), French (DELF A2 & TCF B2)

Programming Languages: Python, C/C+, Matlab, Java, VHDL, TypeScript

Data & ML: PyTorch, Pandas, SQL (PostgreSQL & SQLAlchemy), TensorFlow, NumPy, sklearn, HuggingFace, streamlit, notebook, Plotly

Infrastructures: Docker, CI/CD, GitLab, REST API (FastAPI), Microservices, ZeroMQ, Pydantic, Documentation (Swagger, Sphinx & reST)