TOMMASO CRIPPA

High Performance Computing Engineering Student

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EDUCATION

Double Master's Degree in High Performance Computing — **Politecnico di Milano - University of Luxembourg**

29.25 / 30 — 2024 - present

- Selected for the exclusive EUMaster4HPC double-degree programme, in which I participated in extracurricular HPC challenges, an international summer school and workshops with industry leaders

Bachelor degree in Computer Engineering — **Politecnico di Milano**

110 cum laude / 110 — 2021 - 2024

- Won "Migliori Matricole" scholarship for being one of Politecnico di Milano's best freshmen students of the 21/22 season.

Relevant courses completed: Artificial Neural Networks and Deep Learning, Natural Language Processing, Selected Topics in Artificial Intelligence, Quantum Algorithms, Applied Statistics, Time Series Analysis, Parallel Computing

EXPERIENCES

Master's Thesis Student @ MEGWARE Computer Vertrieb und Service GmbH — **Chemnitz**, Germany

HPC | Machine Learning | Time-Series | SLURM | Linux — February 2026 - present

Crippius/hpc-bottleneck-detector

- Developing an ML pipeline that applies an end-to-end ml pipeline to 100+ HPC time-series metrics at ∼5,000 data points per minute, detecting 7 bottleneck classes validated on real-world HPC workloads.
- Implementing a dual-strategy detection engine combining threshold-based heuristics with Random Forest models trained on weak labels, using tsfresh for automated feature extraction and FDR-based selection across 7 bottleneck types.

EUMaster4HPC Summer School on HPC for Specialised Applications — **Ankara**, Turkey

HPC | AI | NLP | CFD — July 2025

- Attended the EUMaster4HPC Summer School at METU, covering HPC-accelerated ML methods, NLP, AI-driven simulation, and data analysis, with research lectures from HPC specialists and hands-on industry training from MathWorks on parallel ML workflows.

HPC Ambassador @ EUROHPC Summit — **Krakow**, Poland

HPC | AI | Fluid Dynamics — March 2025

- Represented the EUMaster4HPC programme at the EuroHPC Summit, delivering live demonstrations of Large Language Model deployment and fluid dynamics simulations on the Leonardo and Discoverer supercomputers to an audience of researchers and policy-makers.

Operations & Logistic @ Google Developer Group On Campus - Polimi — **Milan**, Italy

AI | Cloud | Mobile — August 2024 - August 2025

- Organised and executed technical events on AI, Cloud Computing, and Mobile Development, including talks and workshops for 50+ attendees and a hackathon with 150+ participants, building community around modern data and cloud technologies.

PROJECTS

Early Alzheimer Detection with Deep Learning

Python | pytorch | keras | nilearn | C++ | libtorch | clinica | SLURM — justvicthor/Early_Alzheimer_Detection_DL

- Trained a 3D CNN on ADNI structural MRI data for 3-class Alzheimer's staging (CN/MCI/AD), achieving Macro-AUC 0.9197 on the test set and outperforming the original paper baseline of 0.80; used Grad-CAM for interpretability of the decision-making process.

High-Performance Graph Coloring with Branch-and-Bound Framework

Python | MPI | SLURM — Rudolfovoorg/EuroHPC_Student_Challenge_2025_Team_3

- Won the EuroHPC Student Challenge 2025 by implementing a parallel Branch-and-Bound framework on VEGA, achieving near-linear speedup with increasing MPI task count and evaluating solution quality across 30 benchmark graphs.

Active Learning for Social Media Data Classification

Python | tensorflow | matplotlib | numpy | pandas | Colab — Crippius/al_project

- Investigated different active learning strategies on 325,000 crisis-related tweets, demonstrating that selecting 1,000 informative labels available reaches F1 ∼0.8 within a few iterations, approaching great accuracy at a fraction of the full-labelling cost.

Benchmarking Detectors in Streaming Machine Learning

</> **Python** capymoa pandas numpy matplotlib **Colab** Streaming-Data-Analytics/Benchmarking-Detectors-in-SML

- Evaluated concept drift detectors across 4 streaming datasets (∼3M data points) with abrupt, gradual, incremental, and recurrent drifts, analysing the trade-off between detection sensitivity and classification accuracy across detector families.

SKILLS AND LANGUAGES

Tech Stack: Python (Advanced), C, C++, PyTorch (Advanced), TensorFlow
Infrastructure: Git (Advanced), SLURM (Advanced), DVC, CUDA
Languages: Italian (Native), English (Proficient – IELTS 7.5), German (Beginner – A2)