

ANDREA CAVALLO

M.Sc. in Computer Engineering and Artificial Intelligence from Politecnico di Torino

SUMMARY

I am passionate about Machine Learning and Deep Learning and I am seeking to enlarge my knowledge and skills. I am excited about performing research, diving deep into the topics, and coming up with innovative solutions to challenging problems. I hold a M.Sc. Degree in Computer Engineering and I have research experience in Graph Machine Learning, which I dealt with during my Master Thesis.

CONTACT

✉ andricav98@gmail.com
☎ +39 3394533688
📍 Via Servais 112, 10146 Torino, Italy
🏠 andrea-cavallo-98.github.io
🌐 @andrea-cavallo-98
in Andrea Cavallo

SKILLS

Programming

- *Advanced:* Python, C++, SQL
- *Basic:* Java, JavaScript, C

Software & Tools

- *Advanced:* Pytorch, Numpy, Pandas, MATLAB
- *Basic:* TensorFlow, Hadoop, Spark, React, Git, 区块链

Main ML and CS topics

- *Machine Learning and Deep Learning:* Graph Machine Learning, Explainable AI, Computer Vision, Natural Language Processing
- *Computer Science:* Databases (DBMS and Data Warehouses), Operating Systems (Unix/Linux environment and concurrent programming), Computer Networks, Cybersecurity, Embedded Systems

LANGUAGES

Italian (native speaker)
English (IELTS 8.0)

OTHER INTERESTS

- I like running, hiking, and skiing in the mountains
- I enjoy watching sports, especially football and tennis, and playing chess

EDUCATION

- 📅 09/2020 - 10/2022 **Master's - Computer Engineering**
📍 Politecnico di Torino, Torino
- Specific track: Artificial Intelligence and Data Analytics
 - Final grade: 110/110 cum laude (final average: 29.6/30)
 - Master Thesis: *Graph Neural Networks on heterophilous graphs: performance analysis and new architectures*, supervised by Prof. Luca Vassio, Dr. Claas Grohnfeldt, Michele Russo and Dr. Giulio Lovisotto
- 📅 02/2021 - 09/2022 **Excellence Program**
📍 Alta Scuola Politecnica, Torino - Milano
- Program involving the best 150 students from Politecnico di Torino and Politecnico di Milano
 - Participated in conferences and group activities on innovation, management of change, design and complex decision making
 - Realized a Clinical Decision Support System (NEAR) based on Explainable AI in collaboration with Dedalus, a leading company in software for healthcare
- 📅 09/2017 - 09/2020 **Bachelor's - Electronic Engineering**
📍 Politecnico di Torino, Torino
- Final grade: 110/110 cum laude (purged final average: 29.88/30)
 - Member of Percorso Giovani Talenti, a program for the best 200 students in the university
- 📅 08/2019 - 12/2019 **Exchange Program**
📍 University of Georgia, Athens, GA, USA
- Won a scholarship to finance the program

WORK EXPERIENCE

- 📅 01/04/2022 - 30/09/2022 **Research Intern**
📍 Huawei Munich Research Center, Munich
- Performed research on Node Anomaly Detection and Graph Neural Networks on heterophilous graphs for the Master Thesis
- 📅 01/10/2021 - 30/06/2022 **Computer Vision team member**
📍 Team PoliTOcean, Torino
- Implemented computer vision tasks (line detection, object detection) for an ROV to take part in the international Mate ROV Competition
- 📅 01/04/2020 - 30/06/2021 **Machine Learning team member**
📍 Team Icarus PoliTo, Torino
- Applied Machine Learning algorithms to model the behavior and the parameters of an aircraft
 - Created Machine Learning models to predict rocket's trajectory
- 📅 15/01/2020 - 29/02/2020 **Data Analyst**
📍 WeStudents s.r.l., Torino
- Applied ML techniques to improve the design and analyze customers' behavior for a mobile app

SELECTED RESEARCH PROJECTS

- Graph Neural Networks on heterophilous graphs** 📄
- Defined 2NCS, a new metric to characterize a graph property that affects GNN performance
 - Designed and tested GATH and GCNH, two GNN models that achieve competitive results with SOTA on heterophilous graphs
 - Paper currently under review
- Graph Machine Learning for Node Anomaly Detection**
- Designed and tested GNN-based architecture with generative component to perform node anomaly detection on graphs
- Explainable AI for cardiac event risk prediction** 📄 🔄
- Implemented NEAR, an explainable ML-based model to predict the risk of cardiac events
 - Predictions are explained by means of SHAP
- Real-time Domain Adaptation in Semantic Segmentation** 📄
- Implemented and trained a semantic segmentation architecture (BiSeNet)
 - Implemented domain adaptation (also real-time) to train the network on synthetic data
 - Generated pseudo-labels for the target domain with Maximum Probability Threshold
- Low-resource Machine Translation** 📄
- Performed fine-tuning of a transformers-based Machine Translation model on small datasets for low-resource languages