

# Giulio Mattolin

[giuliomattolin@gmail.com](mailto:giuliomattolin@gmail.com) | Padova, Italy | [LinkedIn](#) | [GitHub](#) | [Website](#)

## EDUCATION

### University of Trento

Trento, IT

*Master of Science in Data Science*

2020 – Present

- Current Average Grade: 29/30
- Relevant Coursework: Machine Learning, Deep Learning, Statistical Learning, High Performance Computing, Big Data Technologies, Data Mining, Data Visualization, Customer and Business Analytics, AI for Finance

### University of Trento

Trento, IT

*Bachelor of Science in Computer Science*

2017 – 2020

- Final Graduation Grade: 103/110
- Relevant Coursework: Data Structures and Algorithms, C/C++ and Java Programming, Web Applications, Databases, Probability and Statistics, Networks and Security, Calculus, Linear Algebra, Physics

## EXPERIENCE

### Machine Learning Engineer Intern

July 2022 - Present

*ABB*

*Mannheim, DE*

- Collaborated in the development of a **multimodal Transformer** architecture working with time series and text to forecast anomalies and classify failures in industrial processes using PyTorch
- Improved the implementation of the paper [Generating Sparse Counterfactual Explanations For Multivariate Time Series](#) to perform more stable trainings and integrate different datasets and models

### Computer Vision Research Intern

October 2021 - June 2022

*Fondazione Bruno Kessler - FBK*

*Trento, IT*

- Designed and implemented a novel unsupervised domain adaptation method which achieves **state-of-the-art performance** on YOLOv5 object detection model. Paper accepted at **WACV 2023**
- Implemented and reproduced without source code available the paper [Attention-based Domain Adaptation for Single Stage Detectors](#) using PyTorch [🔗](#)

### Data Analyst Intern

April 2020 – August 2020

*Datatellers*

*Bolzano, IT*

- Performed data cleaning and business intelligence analysis on sales data using SQL
- Analysed the behaviour and buying habits of supermarket customers using pandas, geopandas and matplotlib

## PUBLICATIONS

### ConfMix: Unsupervised Domain Adaptation for Object Detection via Confidence-based Mixing

*Giulio Mattolin, Luca Zanella, Elisa Ricci, Yiming Wang*

WACV 2023 [📄](#)

## PROJECTS

### HPC Parallel Apriori Algorithm | C++, MPI, OpenMP, [🔗](#)

December 2021 - February 2022

- Implemented from scratch a parallel Apriori algorithm executable on HPC clusters with **100% scaling efficiency**
- Developed 4 versions: serial, with MPI, with OpenMP and with both MPI and OpenMP
- Tested the results on a HPC cluster and conducted an experimental evaluation of the performances

### E-Charging Stations Predictor | Python, SQL, Google Cloud Platform, Redis, Docker, [🔗](#)

April 2021 - July 2021

- Designed and built a Big Data system which predicts the usage and the status of e-charging stations and plugs in the Italian region of Trentino Alto Adige with an **accuracy of 97%**
- Collected and preprocessed **30 million records** of data from different APIs and stored it in Google Cloud Storage
- Integrated, processed and enriched data in Google BigQuery using SQL
- Built a random forest model to predict the usage and the status of e-charging stations using scikit-learn
- Implemented a web application using Flask in conjunction with Redis and deployed the solution with Docker

## TECHNICAL SKILLS & OTHERS

**Technologies (proficient):** Python, C/C++, PyTorch, SQL, R, HTML/CSS, scikit-learn, PostgreSQL, Git, Docker

**Technologies (prior experience):** Java, JavaScript, TensorFlow, Node.js, MongoDB, Google Cloud Platform

**Languages:** English (fluent), Italian (mother tongue)