Samuele Bortolotti

MASTER'S STUDENT IN COMPUTER SCIENCE

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Summary

Student enrolled in the second year of a Master's Degree in Computer Science at the University of Trento specializing in Machine Learning, Deep Learning and Data Science. Passionate about Machine Learning, programming, algorithms, Big Data and Linux. Interested in learning new technologies and tools to enhance my knowledge about the Computer Science world.

Education

University of Trento   *Trento, IT*
MASTER DEGREE IN COMPUTER SCIENCE   *Sept. 2021 - Sept. 2023*
- **Current GPA**: 4.0/4.0
- **Admission**: 4th candidate selected out of 74 - *92.84/100 points*

University of Trento   *Trento, IT*
BACHELOR DEGREE IN COMPUTER SCIENCE   *Sept. 2018 - Jul. 2021*
- **Grade**: 110/110 cum laude
- **Final dissertation**: *"Analysis of user warnings in Wikipedia", supervised by professor Alberto Montresor*

Skills

Programming	Python (proficient), Java (proficient), Ruby (intermediate), JavaScript (intermediate), TypeScript (intermediate), R (intermediate), C++ (academic), C (academic), C# (academic), Matlab (academic)
Miscellaneous	Linux, Git, GitHub, LaTex, SQL
Languages	English (B2), Italian (native), German (A2)

Work Experience

Eurecat - Centre Tecnològic de Catalunya   *Barcelona, ES*
JUNIOR DATA SCIENTIST   *May. 2021 - Jun. 2021*
- Extract Wikipedia data from the Wikipedia dumps - *937GB bz2 and 157GB 7z compressed*
- Design an effective way to extract and analyze the languages spoken by the Wikipedia users - *109'452 database entries*
- Develop a strategy to retrieve Wikipedia users' *User Warnings* and *Wikibreaks*, studying how they affect the users' activity level - respectively *25'843 and 2'777'181 database entries*
- Build an automated pipeline to download the dumps, extract the data and compute the statistics using Docker

Alysso Srl   *Trento, IT*
JUNIOR SOFTWARE DEVELOPER   *Jul. 2017 - Aug. 2017*
- Create corporate libraries with the aim of handling database connections regardless of the database management system (SQLite, PostgreSQL, MySQL and Oracle) in Java
- Develop a Java-based internal software function which can calculate the distance between two buildings using GIS data
- Develop a web application in HTML5, CSS3, and JavaScript to show the obtained results

Social IT   *Trento, IT*
JUNIOR SOFTWARE DEVELOPER   *Jun. 2016 - Jul. 2016*
- Contribute to the development of an internal Customer Relationship Management System using Java, JavaScript, HTML5, CSS3 and MySQL

Projects

Pareto ε-greedy Reinforcement Learning [code][report]   *Python*
MEMBER   *Apr. 2022 - Jul. 2022*
- Train two ε-greedy reinforcement learning agents in the field of Pokémon battles
- Compare the performances between classic deep Q-learning and an ε-greedy strategy which chooses Pareto optimal moves employing NSGA-II for the first part of the training
- Verify the significance of the results through statistical tests

multilevel-cache [code][report]   *Java*

TEAM LEADER   *May. 2022 - Jul. 2022*

- Develop a distributed architecture consisting of multiple caches, guaranteeing client-centric consistency in an environment, in which caches may fail by crashing
- Implement tests employing the JUnit test framework and log files
- Communication between the caches happens by message passing thanks to the actor based framework Akka

uda [code]   *Python*

TEAM LEADER   *Apr. 2022 - Jul. 2022*

- Replicate and adapt a collection of methods concerning unsupervised domain adaptation techniques such as Deep Domain Confusion, Domain Adversarial Neural Network and Domain Separation Networks
- Adapt the MEDM architecture, one of the state-of-the-art network for unsupervised domain adaptation

neural-prnu-extractor [code]   *Python*

TEAM LEADER   *Nov. 2021 - Feb. 2022*

- Develop a neural pipeline to extract the noise from a set of camera images and perform camera identification through the estimated PRNU
- Adapt a PRNU estimation algorithm [DOI] in order to deal with noise extracted by a neural network [CODE]
- The neural network is based on FFDNet [DOI] which works with different noise levels and uses state-of-the-art convolutional neural network structures (PyTorch, sklearn)

school-registry-web-app - web application for schools [code]   *TypeScript, JavaScript*

MEMBER   *Nov. 2020 - Dec. 2020*

- Develop a RESTful web server using Node.js and several API to handle a school registry
- Develop a web application with the JQuery and Bootstrap frameworks to help teachers and students to interact with the web server and MongoDB database through asynchronous API calls
- Work in teams by employing the SCRUM Agile methodology

file-analyzer - generate statistics about files [code]   *C*

MEMBER   *Apr. 2020 - Jun. 2020*

- The aim of the project is to analyze the occurrences of characters in multiple files by developing a modular, parallel and hierarchical application using the C language and low-level inter-processing primitives - *average of 51 files/second*
- User interaction is supported through a terminal user interface in order to select which files to consider, the number of processes to spawn, the statistics to show, and to traverse the local file system

Honors & Awards

2022   **Merit Grant**, Premio allo studio Marco Modena (Cassa Rurale Alto Garda - Rovereto, Trento, IT)   *Trento, IT*