Matteo Bunino

Data Science master student

Via Maria Maddalena Bugnone Maestra 8
10040, Almese (Torino), Italy
(+39) 339 3999 786
Email: matteo.bunino@eurecom.fr
Web portfolio: matbun.github.io
Nationality: Italian (Permanent resident of EU)

KEY STRENGTHS

Advanced statistical inference; Numerical optimization; Solid background in Machine Learning and Deep Learning modeling; Clustering, classification, and regression analysis; Supervised, unsupervised, self-supervised, and semi-supervised learning; Computer vision; Natural language processing (NLP); Feature learning and representation learning (e.g. text embedding); Generative models; Machine learning on graphs; Reinforcement learning; Hyperparameters search and model tuning; Gathering, extraction, and analysis of large data sets of structured and unstructured data, from heterogeneous sources (ETL); Data preprocessing and analysis pipelines; Data visualization and interpretation; Big Data processing (Hadoop and Spark); Good knowledge of PyTorch, Numpy and Sklearn libraries; Python, C, Bash, Java, Javascript, MATLAB; Knowledge of Git and Agile framework.
Strong analytical and problem-solving skills, developed while taking part in research projects, to address challenging problems (university and company).
Team player: worked and studied in international environments (Italy, France, Sweden, Germany). Took part in team projects on a regular basis, both at university and in the company.

EDUCATION

Master of Science degree in Data Science and Engineering (MSc.), *Graduates Apr 2022*
Double degree at:

- Polytechnic University of Turin, Italy
- EURECOM, Sophia-Antipolis, France

Bachelor of Science in Computer Engineering (BSc.), *2016 - 2019*

Polytechnic University of Turin, Italy

WORK EXPERIENCE

Research Intern, (Sep 2021 - Present) - *Huawei, Munich, Germany*
Analyzed the shortcomings of modern malware analysis techniques; Proposed an improvement to dynamic malware analysis, leveraging Artificial Intelligence's capability to deal with complex tasks; Iteratively discussed with the team, to refine the idea that lead to the final outcome; Extracted binary code from executable binaries; Transformed the extracted code into embedding vectors,

using NLP techniques; Visualized and interpreted intermediate results to guide the research to an effective solution; Implemented a working PoC based on Reinforcement Learning.

Big Data Analyst Intern, (Mar 2019 - Jun 2019) - *Technology Reply, Turin, Italy*
Extracted unstructured textual information from bank transfers, collected from heterogeneous sources using Spark; Analyzed text with data exploration/visualization approaches; Preprocessed and transformed text into a numerical format, using NLP document embedding techniques; Implemented clustering methods for semi-supervised class discovery; Developed rule-based and machine learning (ML) based classifiers for bank transactions; Assessed models according to KPIs defined in agreement with the team; Organized transactions in an OWL ontology for semantic queries aimed at user profiling.

PROJECTS

Bosch Future Mobility Challenge 2022, *International student competition, Cluj-Napoca, Romania, (Nov 2021 – ongoing)*
The challenge consists of building a fully operative self-driving miniature vehicle that moves on a 1:10 scale smart city track, avoiding obstacles, pedestrians, and following traffic rules.
Organized a project plan with the team; Scheduled tasks and deliveries with Gantt chart; Coordinated tasks allocation among members, following Agile framework; Designed computer vision (CV) perception component in collaboration with another team member; Wrote monthly project status reports collaborating with the team; Deployed CV models on RaspberryPi board.

Energy-based models (EBM), *EURECOM Semester project, (Mar 2021 – Jun 2021)*
Performed a theoretical study of EBM and comparison with other deep generative models such as Variational Autoencoders (VAEs); Compared different Markov chain (MCMC) sampling methods from learned data distribution (Langevin dynamics, SGHMC); Successfully implemented a working model, fully compliant with mathematical theory.

Graph Convolutional Networks for anomaly detection in financial graphs, *Partnership EURECOM-ORACLE Semester project, (Oct 2020 - Mar 2021)*
Analyzed the main pitfalls of anomaly detection applied to financial graphs; Performed a theoretical analysis of the current state of the art of Graph Convolutional Networks; Implemented and compared methods for scalable processing on huge transaction graphs.

LANGUAGES

Italian: Native **English**: Fluent **French**: Conversational

AWARDS AND INTERESTS

Synthetic Biology summer course, Uppsala, Sweden
Learned the basics of artificial protein synthesis (2019).

High school students representative
Organize student activities and take part in the school council, (2015 - 2016).

Martial artist
Kung fu practitioner (2017 - present).