GIACOMO CAMPOSAMPIERO

MSc. Computer Science

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EDUCATION

2021 – ongoing	**Master in Computer Science**	**ETH Zürich, Switzerland**

Major in Machine Intelligence - with a particular focus on Natural Language Processing - and Minor in Data Management. Core courses that I took so far include Deep Learning, Algorithms Lab, Natural Language Processing, Big Data, Computational Semantics for NLP, Probabilistic Artificial Intelligence, Computational Intelligence Lab, and Advanced Formal Language Theory. **GPA: 5**

2018 – 2021	**Bachelor in Computer Engineering**	**Università degli Studi di Padova, Italy**

Engineering studies with a particular focus on Computer Science, Electronics, Math and Physics. Graduated with a final grade of 110/110 *cum laude*. Winner of two grants for academic merit from University of Padova and INPS (academic years 20/21, 21/22).

EXPERIENCE

Mar 2023 – present	**Research Intern - Master's thesis**	**IBM Research, Switzerland**

The goal of the thesis project is to investigate to what extend various kernels can be approximated using in-memory computing, and to use the gained insights on real-world problems, such as long-sequence analysis using the Performer architecture.

Feb 2023 – present	**Teaching Assistant**	**ETH Zürich, Switzerland**

Teaching assistant for the MSc-level course Advanced Formal Language Theory.

Aug 2020 – Dec 2020	**Research Assistant**	**Università degli Studi di Padova, Italy**

Worked with a research team in the development and deployment of deep neural models - in particular recurrent neural networks - for real-time biological events detection.

May 2017 – June 2017	**Software Developer Intern - Erasmus+ Program**	**Activity Port, Ireland**

International Erasmus+ internship at Activity Port, a small business which managed a booking portal for leisure activities. The selection of candidates was based on academic merit. During the stage I was assigned to the maintenance of the business website.

EXTRA-CURRICULAR

2016 – 2018 2020 – 2021	**Student Representative**	**Università degli Studi di Padova, Italy**

Elected school student representative for two mandates in high school and for one mandate during my bachelor. During these experiences I had the possibility to strengthen a wide range of soft skills, such as leadership, communication, mediation, and teamwork.

Sept 2018 – Dec 2018	**Volunteer**	**Orizzonti Cooperativa sociale, Italy**

Volunteered for the social cooperative Orizzonti, involved in refugees social inclusion and intercultural mediation. More specifically, I helped the cooperative in teaching the practical use of basic technologies (like emails, web browsers, etc.) applied to the labor market.

2016-present	**Scholarship Awards**	**INPS, Italy**

Awarded with scholarships for academic merit by the Italian Institute for Social Security since 2016. Thanks to these scholarships I had the opportunity to improve my English proficiency with language study trips in London (UK), Edinburgh (UK) and New York (USA).

PROJECTS

SemEval-2020 Task 11: Experiments on a Novel Approach for the Detection of Propaganda Techniques in News Articles. Group project for NLP course at ETHZ, where we investigated a new method for propaganda detection and classification in news articles using pre-trained language models like BERT and RoBERTa.

Advance Machine Learning project. Group project for the Advanced Machine Learning course at ETHZ, ranked within the top 20% of submissions. The project included a regression, a classification and an image segmentation task.

The effectiveness of factorization and similarity blending. Group project on collaborative filtering for the Computational Intelligence Lab course at ETHZ, ranked 1st in the competitive leader-board thanks to an innovative solution based on blending of similarity-based and factorization-based collaborative filtering techniques.

Overcoming Theoretical Limitations of Soft Attention. Group project on the limitations of Transformers for the Advanced Formal Language Theory course at ETHZ, for which we developed explicit encoding for a regular language and a context free, non-regular language using soft attention.

Regularization for Predictive Coding Networks. Group project for the Deep Learning course at ETHZ, where we developed a new Predictive Coding (biologically-plausible alternative to back-propagation) framework to train simple regression and classification networks and we investigated the impact of dropout and different PC activation initialization techniques on their training dynamics.

PUBLICATIONS

Giacomo Camposampiero, Quynh Anh Nguyen, and Francesco Di Stefano. 2022. *The curious case of Logistic Regression for Italian Dialect Identification*. In Proceedings of the Ninth Workshop on NLP for Similar Languages, Varieties and Dialects, International Committee on Computational Linguistics (ICCL).

SKILLS AND KNOWLEDGE

Classics – Python, Java, C++, MATLAB, Bash, Docker, Git, Google Cloud Platform, LaTeX
Data Management – SQL, MapReduce, Apache Spark, Hadoop, MongoDB, Neo4j, Pandas
Machine Learning, Deep Learning and NLP – scikit-learn, PyTorch, TensorFlow, Numpy, transformers, AllenNLP
Models – Classic Machine Learning models, Transformer-based LMs (BERT, GPT, Bloom), Multi-modal Transformers (BLIP, CLIP), Vision (U-Net, Res-Net), VAEs, GANs, Diffusion Models.

LANGUAGES

Italian - native
English - fluent
French - beginner
Spanish - beginner

HOBBIES

I love swimming, hiking and playing football. I am highly interested in environmental issues and I play two instruments, the guitar and the violin.

INTERESTS

NLP, Machine Learning, Deep Learning, Bayes Optimization, Reinforcement Learning, AGI