Marco Uderzo

MSc Student in Biological Data Science

+39 3317461875 marco.uderzo@studenti.unipd.it Padova, IT
in/marcouderzo github.com/marcouderzo

Profile

MSc Student in Data Science @ Università degli Studi di Padova, Biological Curriculum. BSc in Computer Science. Aspiring Biological Data Scientist and Computational Biologist with a fervent interest in state-of-the-art Deep Learning and Computer Vision, particularly in their applications to Molecular Biology and Biomedical Sciences.

Areas of Expertise

Machine Learning - Deep Learning - Computational Biology - Bioinformatics - Molecular Biology - Software Engineering

Professional Experience

Student Trainee *(Dept. of Biomedical Sciences, University of Padua)* **Padua, Italy** *07/2024 - 08/2024*

- After visiting Prof. Pennuto's Lab (Dept. of Biomedical Sciences) and shadowing two PhD students in September 2023, I decided to pursue an extracurricular wet-lab traineeship to learn and practice basic molecular biology and biochemistry techniques.
- Matured a deeper understanding of the origins of omics data in a wet lab, complementing my dry lab computational knowledge.
- Familiarized with wet lab protocols, experiment design, hypothesis formulation and testing.

Software Engineering Intern *(Airlapp S.R.L.S.)* **Piove di Sacco (PD), Italy** *07/2022 - 09/2022*

- Analysis, Design and C# Implementation of Meta Avatars SDK in a R&D context, Metaverse-Oriented Virtual Reality prototyping on Oculus Quest platform.
- Learned Unity Netcode, Photon Engine, Photon Realtime, OculusVR Platform technologies and infrastructures. Gained transversal skills and knowledge about development and use of 3D-Based Softwares.

Education

Master's Degree, Data Science (Biological Curriculum) *University of Padua* **Padua (PD), Italy**

- Tailored my study plan to focus on Machine Learning, Deep Learning, Molecular Biology and Computational Biology.
- Relevant Courses: Machine Learning, Deep Learning, Introduction to Molecular Biology, Biological Data, Omics in Human Disease, Structural Bioinformatics, Fundamental and Applied Genomics, Computational Genomics, Statistical Learning, Mathematical Optimization.

Erasmus, Biologie Moléculaire et Cellulaire *Université Claude Bernard Lyon 1* **Lyon, France**

MSc Erasmus semester focused on the study of Fundamental, Applied and Computational Genomics.

Bachelor's Degree, Computer Science *University of Padua* **Padua (PD), Italy**

- Thesis: "Meta Avatars SDK: study, analysis and development for Virtual Reality"
- Contributed to an Academic Research Project of the Cybersecurity Research Group "SPRITZ UniPD Research Group", under the supervision of Prof. Mauro Conti. Automation of the Retrieval, Parsing and Validation Processes of a large Dataset for training of an LSTM Artificial Neural Network.

High School Diploma, Liceo Classico *Liceo Ginnasio G.B. Brocchi* **Bassano del Grappa (VI), Italy**

Main Projects

Modelling and Functional Characterization of a Protein Domain Family *GitHub Repository*

Construction of Sequence Model, assessment of Taxonomic Lineage, Gene Ontology annotations assessment for Functional Enrichment, and identifications of conserved Short Linear Motifs within the Pyridoxamine Kinase/Phosphomethylpyrimidine Kinase Domain Family.

Classification of Contacts in Protein Structures with Deep Learning *GitHub Repository*

Classification of Residue-Residue Interactions in Protein Structures using Feed Forward Deep Neural Networks. Developed in Python using BioPython and Keras.

Zeroth-Order Frank-Wolfe Optimization for Black-Box Adversarial Attacks *GitHub Repository*

Implementation of Faster Zeroth-Order Conditional Gradient Sliding (Gao et al.) and Stochastic Gradient-Free Frank-Wolfe (Sahu et al.) applied to Adversarial Attacks against MNIST Recognition Deep Neural Network.

Tools

- **Python Libraries and Frameworks:**: Tensorflow, Keras, PyTorch, Scikit-learn, BioPython, NumPy, Matplotlib, Seaborn
- **Programming Languages:** Python, R, Bash, SQL, C, C++
- **Other:** LaTeX, Git

Certifications

- B2 FCE English Certification (Graded 186, C1 Level) (Apr. 2017) - Cambridge University Press & Assessment English
- B1 French Certification (Jun. 2023) - University of Padua

Languages

- **Italian** [Native]
- **English** [C1]
- **French** [A2/B1] - Learning