Marcello Barylli

Researching the intersection of complexity science and AI, via multi-agent systems and graph neural networks. Drawing inspiration from biological intelligence for progressing machine intelligence.

Education

2021 - 2024 **MSc, Computational Science, GPA: 8.3/10** University of Amsterdam

Thesis: Multi-Layer Network Models in Colorectal Cancer Subtype Analysis.
Grade: 9/10
Advisor: Dr. Vivek Sheraton Muniraj
Investigating diffusion-based algorithms for graph neural networks. Developing a heterogeneous network for multiple biological molecular groups, prioritising features for patient survival analysis.

Key Subjects:
Complex systems theory and simulation, machine learning, agent-based models.

2017 - 2021 **BSc, Molecular Biology, GPA: A** University of Vienna

Thesis: **VirACuDa - Virus Automated Curation of Datasets. Grade: A.**
Advisor: Prof. Thomas Rattei
Development of a Python script for genomic database filtering.

Key Subjects:
Systems biology and bioinformatics, quantitative biology, biophysics.

Experience

Currently **Computational Biologist** Amsterdam University Medical Center

Developing an integrated pipeline for network-based cancer analysis.
Inference via weighted Gaussian graphical models, analysis via network diffusion.
Tuning an agent-based model of the tumour microenvironment.

2020 - 2021 **Bioinformatician** CUBE: Computational Systems Biology

Installation and troubleshooting of software on the Life Science Compute Cluster (LiSC), metagenomic analysis, SQL database implementation and API testing.

2016 **Paramedic** Austrian Armed Forces

Staffing ambulances, response to emergency calls, care for patients during transport to and from hospitals.

Upcoming Publications

2024 Barylli, M.; Saha, J.; Sheraton, V. M; and Hoekstra, A. G. Multi-Layer and Single Cell Network Models in Cancer.

2024 Barylli, M.; Saha, J.; Sheraton, V. M; and Hoekstra, A. G. Multi-Omic Network Inference and Knockout Analysis (MONIKA).