Simone Poetto

M.Sc. in Physics of Complex Systems with a strong interest in Artificial Intelligence and Network Neuroscience

Education

June 2021 **Master in Physics of Complex Systems**, *University of Turin*, Turin, Italy
Grade: *110 cum laude / 110*

2016 **Bachelor in Physics**, *University of Turin*, Turin, Italy
Title of bachelor thesis: *Neural fields*

Master thesis

title **Topological data analysis of grid-like units in recurrent neural networks trained to path integrate**

supervisors Giovanni Petri - ISI Foundation, Piero Fariselli - University of Turin

description I have trained different types of recurrent neural networks in the task of path integration. After the training I have studied the spatial patterns of activation of the hidden units, which reproduce the pattern of activation of grid cells in the mammalian brain. I used topological data analysis to classify the different kinds of pattern that emerge.

Experience

Vocational

July 2021 **Summer Intern**, *Toruń Summer Students Program*, Toruń, Poland
Summer research project on natural language processing and analysis of brain data.

April 2021 **Hackaton contestant**, *BR41N.IO virtual brain hackaton*, g.tec medical engineering
1th place winner. using topological data analysis to classify ECoG signals.

April 2021 **Student**, *BCI & neurotechnology spring school 2021* , g.tec neurotechnology GmbH
Online spring school on brain computer interfaces and analysis of brain's recordings

2018–present **Co-Founder**, *MLJC machine learning journal club*
MLJC (`https://www.mljc.it`) is a non-profit student organization which aims to explore and spread knowledge in the field of machine learning. Our activities range from teaching the basics of python to undergraduate students, participating in hackatons and online competitions, developing original research projects.

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Miscellaneous

2016–present **Private teacher**
Private teacher for high school students

2018–2020 **Teacher of informatics**, *Merende Digitali*, Turin
Designing and teaching courses of informatics, coding and robotics for middle and high school students

Languages

Italian Mother tongue

English Advanced

Computer skills

Python Advanced, *Numpy, Scipy, Pandas, Matplotlib, Scikit-Learn, Tensorflow, PyTorch, Giotto*

C++, Matlab, GAML, Mathematica, SQL Beginner, *Used for some curricula projects*

LaTeX Intermediate

Git Operative knowledge

Linux OS Intermediate

bash Beginner

Publications

[1] Simone Azeglio, Arianna Di Bernardo, Gabriele Penna, Fabrizio Pittatore, Simone Poetto, Johannes Gruenwald, Christoph Kapeller, Kyousuke Kamada, and Christoph Guger. Topological data analysis (tda) techniques enhance hand pose classification from ecog neural recordings. *arXiv preprint arXiv:2110.04653*, 2021.

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