Pietro **Sillano**

Msc. Physics Student

Turin, Italy

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Education

Master's Degree in Physics of Complex Systems — *Turin, Italy*

University of Turin — *Oct. 2020 - Present*

GPA = 4.0

B.S. in Physics Engineering — *Turin, Italy*

Polytechnic of Turin — *Oct. 2017 - Oct. 2020*

Bachelor Thesis: "Modelling Competing Endogenous RNA Networks" with A. Pagnani

Skills

Proficiency
- **Python**: Numpy, Scipy, Pandas, Matplotlib, Scikit-Learn
- Machine Learning and Deep Learning: Scikit-learn, Keras, PyTorch

Basic proficiency
- C, Foundations of OOP (ROOT Framework)

Operative knowledge
- Linux, git, Latex

Languages
- Italian: Native
- English: IELTS Academic Test - 6.5 (2018)

Experience

Visiting Research Student — *Torun, Poland*

Nicolaus Copernicus University — *July 2021*

Collaborated with History Department to design a modern approach of analyzing Latin text exploiting **Natural Language Processing** methods (based on **BERT**).

Member — *Turin, Italy*

Machine Learning Journal Club — *2021 – Present*

- It's a **student organization** which aims to explore the most recent applications of AI, along with the creation of open source content
- I work in designing and developing several **Machine Learning** projects involving Medical AI and Brain Computer Interfaces
- Co-supervising a project on **Neurofeedback** based on OpenBCI devices. In charge of the EEG data acquisition and data analysis.

Teaching Assistant — *Turin, Italy*

University of Turin — *2021 – Present*

- Physics Laboratory II - 50 hours
- Introduction to Scientific Programming - 50 hours
- Generation and Evaluation of introductory math exams - 50 hours

Member — *Turin, Italy*

Team Policumbent (Polytechnic of Turin) — *2019*

It's a student team which aims to design and build from scratch a recumbent-like bike, join an international competition (**WHPSC** race) trying to break the human-powered land speed record. I worked on developing and testing a Python library for the bike **telemetry system**.

Extracurricular

Hackathons and Competitions

BR41N.IO — *Apr 2021*

International Brain Computer Interface Hackathon — *Online*

Tested and validated different ML models with stroke patients EEG data.

Personal Projects

COUGHvid — *Summer 2021*

COVID-19 cough classification based on audio samples

- Learned how to extract meaningful and representative features from audio data through STFT transform
- Deepen my knowledge about transfer learning and pretrained models for image recognition like: **ResNet**, **Inception v3** and **EfficientNet**

Sindy Pendulum

Fall 2021

Extracting simple physics dynamical models from high dimensional data

- Identification of **parsimonious dynamical models** from high dimensional data with Autoencoder neural network
- Improved my knowledge about build a neural network architecture from scratch and PyTorch framework

Talks

Brain Computer Interface: a new future for disabilities

Oct 2021

Organized by Intesa Sanpaolo Innovation Center

Presenting the new possibilities for disabled people thanks to the developments in the Brain Computer Interface field.

Relevant Coursework

- Statistical Mechanics
- Stochastic Processes
- Numerical Algorithm for Physics
- Complex Systems in Biology
- Complex Systems for Neuroscience
- Statistical Biophysics
- Neural Network
- Data Mining and Statistical Learning
- Networks science