Jacopo Uggeri

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Summary

Professional Experience

Graduate Teaching Assistant
Department of Physics, Imperial College London (London), United Kingdom   2022 – 2023

Education

MSci Physics with Theoretical Physics
Imperial College London (London), United Kingdom   2019 – present
- Undergraduate Integrated Masters programme in physics, attended a variety of courses that granted a solid foundation in scientific and critical thinking, with a focus on theoretical physics
- Excellent academic performance, achieved 1st in theoretical modules: Mathematical Methods, Foundations of Quantum Mechanics, Advanced Classical Physics, Group Theory, Nuclear and Particle Physics, Statistical Mechanics
- Current relevant courses: Quantum Field Theory, Unification, General Relativity, Cosmology
- Used Python extensively for data analysis of experiments and simulations

Diploma di Laurea
Liceo Scientifico Giovanni Gandini (Lodi), Italy   2013 – 2019
- A scientifically oriented high school with a wide range of subjects spanning both sciences and humanities
- Participated in extracurricular events and activities with a focus on Physics and Mathematics
- Graduated with a grade of 100/100 at Esame di Stato

Projects

Can photo evaporation explain lack of red giants in the galactic centre?
MSci Project at Imperial College London   2022 – now

- The project aims to determine the photo evaporation rate of red giants around supermassive black holes and determine how this phenomenon affects their evolution, to investigate whether it can explain the observed lack of red giants in the galactic centre compared to equilibrium theoretical predictions.

- Computational and theoretical project: involved writing, testing and organizing code that could be shared with others

- Helped develop critical scientific thinking and research skills

Search for beyond SM physics from LHCb data
Group Project at Imperial College London   2021

- Involved coordinating with other 20 students to analyze data from LHCb experiment

- Participated in group discussions and contributed meaningful ideas

- Main role was to train a machine learning decision tree model to separate background from signal

Improving people counter image recognition neural network
Summer work experience at GrottiniLab with Politecnico di Ancona   2020

- Assigned to a software engineer working on a people counter neural network, with the aim of exploring new avenues of improvement

- Reviewed literature on the current state of the art of image recognition neural networks

- Proposed and coded a new data augmentation strategy to improve the people counter

Critical Temperature of an Ising Model on a Sierpinski Gasket
Year 1 Summer Project at Imperial College London   2020

- Worked remotely with a peer to simulate an Ising model on a Sierpinski gasket network

- Wrote Python code to run, visualize and analyze the simulation, and numerically evaluated the model's critical temperature and the corresponding critical exponent.

- Delivered a video summary of the project and a detailed report

Experiences

DeepLearn Summer School
4th International School on Deep Learning   2021

- Attended 38 hours of postgraduate level lectures given by Machine Learning experts from various fields

- Learned to comprehend and acquire meaningful information from lectures that assumed more advanced background knowledge than I had

Project Extreme Energy Events (EEE)
Long running project organized by INFN involving multiple Italian high schools   2013 – 2019

- Participated in the data taking and analysis process for a MRPC muon detector

- Attended lectures on particle physics and cosmic rays
- Participated in joint conferences between participating schools summarizing recent results

Building an MRPC muon detector chamber at CERN
(see attachment n.2)   2017
- Worked with peers in a laboratory to assemble a muon detector chamber
- Attended various seminars hosted by CERN personnel regarding the current state of particle physics

Skills

Coding

- Python, Java   Extensiv Work
- Javascript, C++ and Ruby   Known
- Data science and machine learning: PyTorch, Keras, OpenCV

Languages

- Italian   Native
- English   Native (Bilingual)
- Spanish   B1 DELE certification
- Japanese   Passed Level 4 Class at Imperial College London
- Mandarin   Conversational

Misc

- Adobe Suite: Illustrator, Photoshop, Premiere Pro
- Git
- LaTeX
- AI prompt engineering
- Independent study