Baratto Matteo

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Work Experience

2024/2025 **Research fellowships (Assegno di tipo B)**
Università degli studi di Milano
• Developing a Julia library for the LiteBIRD mission, focused on simulating the angular response of antennas using Physical Optics and the Uniform Theory of Diffraction.
• Performed optical simulations using specialized software like TICRA/GRASP.
• Enhanced the Python library *grasp2alm* for spherical harmonics conversion by introducing tests, documentation, and new features.

2024 **Internship in data science and machine learning**
xtream s.r.l.
• Time series analysis: studied the influence of macroeconomics variables such as GDP, Euribor, inflation rate on loan defaults rate.
• Investigated the potential inclusion of macroeconomic variables in an existing credit rating model using XGBoost.

Education

04/2023 **Master Degree in Physics, Università degli studi di Milano**
Implementation and simulation of the pointing reconstruction model for the LSPE/Strip telescope.
Supervisors: Prof. Tomasi Maurizio, Dott. Maris Michele (OATS INAF)
Final degree mark: *110/110 cum laude*
Link: github.com/teob97/Master-Thesis-Pipeline

12/2020 **Bachelor Degree in Physics, Università degli studi di Milano**
Generative Adversarial Networks for the simulation of cosmic ray glitches in LiteBIRD timelines.
Supervisors: Prof. Tomasi Maurizio, Prof. Stever Samantha (University of Okayama)
Final degree mark: *106/110*
Link: github.com/teob97/litebird_cr_simulator

Skills

- **Coding:** Python, Julia, C++, Nim.
- **Technologies:** Git/GitHub, Office, LaTeX.
- **Languages:** Italian (native), English (C1), French (B1)

Research Publications

Journal Articles

1 S.L. Stever, T. Ghigna, M. Tominaga, G. Puglisi, M. Tsujimoto, M. Baratto, … M. Hazumi. (2021). Simulations of systematic effects arising from cosmic rays in the LiteBIRD space telescope, and effects on the measurements of CMB b-modes. *Journal of Cosmology and Astroparticle Physics*, *2021*(09), 013. doi:10.1088/1475-7516/2021/09/013