europass

Pietro Ferraiuolo

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ABOUT ME

I recently graduated in astronomy and astrophysics from 'La Sapienza - University of Rome,' driven by a fervent desire to become an astrophysics and cosmology researcher. I am dedicated to a continuous self-improvement, with strong proficiency in technology and computer programming, particularly focused on data analysis. Beyond my academic pursuits, I'm an enthusiastic traveler who enjoys exploring new cultures. In my leisure time, I like to play video games, to read manga, and I love engaging in board games with my friends, as cherished hobbies.

PROJECTS

[Mar 2023 – Dec 2023]

Dynamics of Globular Clusters: The Effective Potential Through the Gaia Data Release 3 My master's thesis research project explored the dynamics of collisional systems, in particular Globular Clusters, by analyzing their internal velocity distribution, filling an observational gap in determining the effective gravitational potential. I processed astrometric data retrieved from the Gaia Data Release 3 to calculate position and velocity components, obtaining a 6-dimensional sample of stars representing the cluster in phase-space. Upon deriving the quadratic velocity distributions, these were used to extract the effective gravitational potential within shells of the cluster and the cluster as a whole, successfully observing and confirming its shape.

Link: https://drive.google.com/file/d/1Q-wPV1G5NUaBDUnpqOHGP_kyBJPQSKNM/view?usp=sharing

[17 Jul 2023 – 20 Jul 2023]

Juno Data Analysis Workshop for Science Capacity Building Close number workshop held by NASA and ASI, with the collaboration of Sapienza - University of Rome, in which participants had the opportunity to work, together with Juno - NASA's expert scientists and engineers, with Jupiter's data from the latest spacecraft's close-orbits of the giant planet. In particular, my team's project focused on Jupiter's rings through the Stellar Reference Unit (SRU) instrument, particularly in measuring the intensity of the reflected light in function of viewing angle.

Link: https://drive.google.com/file/d/11C4OD8Tc8P49I-PfRzjFzewvrpbHIGwL/view?usp=sharing

[May 2022 – Nov 2022]

Simulation of a point-like and an extended source of SZ signal and filtering optimization for MUSTANG2 Research experience provided by the master's degree, in which I had the opportunity to collaborate with Professor Elia Battistelli and his team in their project investigating the *Cosmic Web* through the Sunyaev-Zel'dovich effect measured in the hot gas in-between merging galaxy clusters. The project focused on simulating synthetic point-like and extended SZ sources and observing them with a CCD array similar to that of the GBT's MUSTANG-2 instrument. It aimed to explore effective methods for accurately distinguishing the observed sources from background noise, the latter generated utilizing observational noise data obtained from the MUSTANG-2 instrument at the Green Bank Telescope.

Link: https://drive.google.com/file/d/112vvZrSr0hAbSUmUNoCSjVqULpm8aPWA/view?usp=sharing

WORK EXPERIENCE

Research Fellow

Osservatorio Astrofisico di Arcetri - INAF [15 Apr 2024 – Current]

Address: Largo Enrico Fermi, 5, 50125 Firenze (Italy) | **Website:** https://www.arcetri.inaf.it/ | **Business or sector:** Professional, scientific and technical activities

Optical Qualification of the Test Tower for the ELT's M4 Adaptive Mirror and the DP Prototype.

- Software developing and debugging for the control of the Optical Test Tower designed for M4: motors for mechanical and optical alignment.
- Software developing and debugging for the DP (Demonstration Prototype) and M4 Deformable Mirrors (DMs).
- Data production and analysis for optical characterization and calibration of the M4 DM.

Sales assistant

Sport'85 srl [1 Oct 2022 – 31 Mar 2024]

City: Latina | **Country:** Italy

I provided customer service, assisted with inventory management, maintained product displays, and possessed a deep knowledge of the products. I effectively communicated with customers and colleagues, resolving issues, and contributing to a positive team environment.

Private tutor

[Sep 2020 – Sep 2022]

City: Pomezia | **Country:** Italy

Private tutoring lessons in Mathematics and Physics for secondary school students.

Learning Tutor

Ohana Società Cooperativa Sociale Onlus [Sep 2018 – Jun 2020]

City: Pomezia (RM) | **Country:** Italy

- Provided tutoring in scientific subjects, including mathematics and physics, to pre-teenagers and adolescents with SEN (Special Educational Needs), SLD (Specific Learning Disability), or other difficulties falling within the category of 'Learning Disorders'.
- Collaborated with a team, ensuring effective communication and management of educational support.
- Maintained regular contact with students' families, school staff, and specialized therapeutic professionals for planning and coordination.
- Contributed to team-building activities to foster a positive work environment among colleagues.

EDUCATION AND TRAINING

AI-PHY Doctoral School

Università degli Studi di Milano - Bicocca [29 Sep 2024 – 5 Oct 2024]

City: Monopoli (BA) | **Country:** Italy | **Website:** https://agenda.infn.it/event/40881/ | **Field(s) of study:** Artificial Intelligence and modern PHYsics: a two-way connection | **Final grade:** Certificate of Attendance

Link: https://drive.google.com/file/d/1nuGjUoGKD7ObFBU2cicM-DnC0NeYI-m6/view?usp=sharing

Master's Degree in Astrophysics and Astronomy

Sapienza - University of Rome [Jan 2021 – 23 Jan 2024]

Address: Piazzale Aldo Moro, 5, 00185 Roma (Italy) | **Website:** https://www.uniroma1.it/it/pagina-strutturale/home | **Field(s) of study:** Astronomy & Astrophysics ; Cosmology | **Final grade:** 110 | **Level in EQF:** EQF level 7 | **Thesis:** Dynamics of Globular Clusters: The Effective Potential through the Gaia Data Release 3

Link: https://drive.google.com/file/d/114HtduHBJpqnzEidfCaNN9jiykxtlnmW/view?usp=sharing

Bachelor's Degree in Physics

Sapienza - University of Rome [Oct 2015 – Dec 2020]

Address: Piazzale Aldo Moro, 5, 00185 Rome (Italy) | **Website:** https://www.uniroma1.it/it/pagina-strutturale/home | **Field(s) of study:** Physics ; Introduction to Astrophysics and Cosmology | **Level in EQF:** EQF level 6 | **Thesis:** Astrophysical evidences for Dark Matter.

Link: https://drive.google.com/file/d/11Bx7kLvjRBKMFlQgY40pa-SUGav8H-WK/view?usp=sharing

DIGITAL SKILLS

Advanced Programming Skills

Python

Other Programming Skills

C / C++ / R / Git / Fortran90

Computer Literacy

Linux / LaTeX

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING C2 **READING** C2 **WRITING** C1

SPOKEN PRODUCTION C1 **SPOKEN INTERACTION** C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

Thank you for reading through!

20 Oct 2024

Pietro Ferraiuolo