Paolo Cremonese, Ph.D.

Researcher

Vancouver, BC

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PaoloCremo

About me

I am a researcher with experience up to the Postdoctoral level, specialised in gravitational waves, with a strong background on data analysis. I have a passion for finance, technology, and continuous learning, complemented by a love for travel. I love tackling challenging problems and am now seeking to leverage my analytical skills and passion for innovation in a dynamic opportunity outside of academia, where I can combine my interests in finance and technology.

Skills

Python - pandas, numpy, matplotlib, tensorflow, scikit-learn

SQL

Linux

LaTeX

Git

HTML/CSS

Mathematica

Slurm - HTCondor

Languages

Italian - Mother Tongue

English - Fluent

Spanish - Basics

Interests

Technology

Data Analysis

Finance and Investments

Sports, Books & Piano.

Work Experience

2022-2024 **PostDoc Researcher** — UIB, Palma, Spain

Data Scientist. Member of LIGO collaboration.
(i) I **developed models to analyze Gravitational Waves data**, focusing on finding events that are bent or magnified by massive objects (i.e. lensing). (ii) I worked on a project to organize and **automate the process of detecting these lensed events** more efficiently. (iii) I coded **a pipeline to automate the creation of setup files**, for cluster computing, for bayesian parameter estimation (PaoloCremo/runtomation).

2018 **Internship as Data Scientist** — DBA Group, Italy

I worked in a team focused on developing methods to record and analyse diverse datasets, ranging from meteorological to industrial data, **using machine learning techniques to predict outcomes and improve data-driven decision-making**

Education

2022 **Ph.D. in Physics** — Szczecin, Poland

Gravitational lensing of Gravitational Waves

2017 **M.Sc. in Astronomy** — Padova, Italy & Stockholm, Sweden

Thesis on lensing of gravitational waves done at Stockholm university

2015 **B.Sc. in Astronomy** — Padova, Italy

Thesis on dark matter in spiral galaxies

Projects

• `#appdevelop #sideprojects` I'm participating in a program by VAM, focused on developing AI-driven applications. I implement a full-stack AI solution while exploring Agentic LLMs, RAG, and prompt engineering. I'm also working on a fun project that lets control Spotify playlists (PaoloCremo/spotify) and building a bot to send daily updates of new research papers from ArXiv based on topics of interest (PaoloCremo/paperbot).
• `#website` I designed and coded my own website, where I keep my info, thoughts and different things (PaoloCremo/PaoloCremo.github.io).

Volunteering

2025 **Analytics Program Development Manager** — Data For Good, Vancouver, Canada

I engage nonprofit organizations to identify their data needs, develop tailored strategies for impactful projects, and implement a CRM system to streamline client outreach and relationship management.

Main Publications

#6 **Invariance transformations in wave-optics lensing: implications for gravitational-wave astrophysics and cosmology**
#5 **Follow-up Analyses to the O3 LIGO-Virgo-KAGRA Lensing Searches**
#4 **Characteristic features of Gravitational Wave lensing as probe of lens mass model**
#3 **Breaking the mass-sheet degeneracy with gravitational wave interference in lensed events**

The complete list at inspirehep.net/authors/1859874

Conferences Presentations

• **"Mass-Sheet Degeneracy in Gravitational Wave Lensing"** @ NBI Strong Group seminar, 2023/12; LVK meeting, 2023/09
• **"Wave Optics in Gravitational Wave Lensing"** @ UBC Gravity seminar, 2023/09
• **Divulgative talk on Dark matter** @ YouTube, 2022/10
• **Presented paper #3** @ GWverse, 2021/09; Gravitex 2021, 2021/08; COSMO '21, 2021/08; Amaldi 14, 2021/07 Cosmology from Home, 2021/07; Ibericos 2021/04
• **Member of organizing commitee** @ The 6th Conference of the Polish Society on Relativity, 2019/09

The complete list with slides and link to conferences at paolocremonese.com/CV