Astroparticle Physics PhD Candidate

Karlsruhe, Germany
karamelih.github.io

MELIH KARA

As a Ph.D. student, I analyze experimental data to investigate dark matter and search for signals from galactic supernovae. I also manage a global network of neutrino detectors for supernova observation communication. I use Python daily for quantitative analysis and have a strong interest in exploring statistical and machine learning applications in finance and financial markets.

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EDUCATION

2021 - **Karlsruhe Institute of Technology**
PhD, Experimental Astroparticle Physics
Dark Matter & Neutrinos

2017 - 2020 **University of Bonn**
M.Sc. Astrophysics & Cosmology

2012 - 2017 **Istanbul Technical University**
B.Sc. Physics Engineering
2015 Exchange program in Linköping University

WORK EXPERIENCE

2021 - Present **Ph.D. Researcher**
Karlsruhe Institute of Technology
Building a software trigger to detect neutrino signals from galactic supernovae and developing communication tools and algorithms for the Supernova Early Warning System. Also developing an analysis framework for these signals and performing sensitivity studies

2020 **Student Assistant**
Argelander Institute for Astronomy, Uni Bonn
I tutored a master's course titled "Programming in Physics and Astronomy with C++ or Python"

2018 - 2021 **Student Assistant**
Center of Advanced European Studies
I labeled three dimensional brain imaging data for an ongoing machine learning based neuroscience study.

PUBLICATIONS *(selected)*

Krippendorf et al. 2023 arXiv:2305.00016
J Aalbers *et al* 2023 *J. Phys. G: Nucl. Part. Phys.* **50** 013001
XENON Collaboration arXiv:2303.14729
T. H. Reiprich et al. 2020 - 10.1051/0004-6361/202039590
A. Veronica et al. 2021 - 10.1051/0004-6361/202141415

EXPERTISE

- Data Analysis
- Data Engineering
- Statistical Analysis
- Critical Thinking
- Data Visualisation
- Presentation

LANGUAGE

Turkish
English
German (basic)

CERTIFICATE

CERN School Of Computing 2022
Physics Computing, Software Engineering and Data Technologies

INTERESTS & EXTRA CURRICULAR

- KSETA GradSchool Ph.D. rep
- Quantitative finance
- Options trading
- Investments
- Time series analysis
- Rowing
- Vinyl records collecting