Kadir Murat Tastepe

+491626208882 | kadir.tastepe@cern.ch | kadirtastepe | kadirtastepe

Profile

M.Sc. Physics candidate specializing in computational high-energy physics, experienced in developing FPGA-based detector algorithms and real-time data processing systems. Passionate about understanding how the universe works and eager to develop new scientific skills to contribute to groundbreaking research at CERN.

Education

Ruprecht-Karls-Universität Heidelberg 28.04.2022 – 07.2025 (Expected)
M.Sc. in Physics *Heidelberg, Germany*

- Master's Thesis: FPGA Implementation of the General Triplet Track Fit using High-Level Synthesis (in progress)

Hacettepe University 04.10.2021
B.Sc. in Engineering Physics *Ankara, Turkey*

- Bachelor's Thesis: Monte Carlo Simulations in High Energy Physics.

Universität Duisburg-Essen (Erasmus+) 05.10.2017 - 31.03.2018
B.Sc. in Physics *Duisburg, Germany*

Work Experience

SAP SE Walldorf, Germany
Machine Learning Engineer / Working Student (On-site) *08.07.2024 – 08.07.2025*

- Developed end-to-end Retrieval-Augmented Generation (RAG) pipelines using vector search and large language models for intelligent question answering, and built Flask APIs to serve these features in cloud-based applications.
- Created anonymized workflows for model training, and SlackBot interactions.
- Explored the capabilities, limitations, and potential bottlenecks of both Agentic AI and Generative AI models to inform model selection, optimization, and deployment strategies.

Big Data Analyst / Working Student (On-site) *15.06.2023 – 14.06.2024*

- Tracking several release-dependent adoption tasks for Identity and Access Management(IAM).
- Monitored and created tickets for Root Cause Analysis (RCA) of the cloud foundation software components.
- Maintained Wiki pages, JIRA dashboards, and custom filter queries to enhance cross-functional transparency and alignment with key stakeholders.

Paul Scherrer Institute (PSI) Villigen, Schwitzerland
Student Researcher (On-site) *01.10.2023 – 13.10.2023*

- The lifetime and branching ratio of the charged pions were measured at the secondary beam line $\pi M1$. Using a setup of scintillators, a degrader, and a calorimeter, the lifetime was found to be $\tau_\pi = 26.35 \pm 0.78\ (syst.) \pm 0.25\ (stat.)\ ns$.

Physikalishes Institut Heidelberg Heidelberg, Germany
Scientific Assistent (On-site) *01.07.2022 – 30.09.2022*

- Project: Impact of a higher B field and sensor thickness on Mu3e experiment physics performance.
- Project: Magnetic field simulation of the spectrometer with neodymium magnets ($Nd_2Fe_{14}B$) that separate electrons and positrons implemented in Mathematica.

The Scientific and Technological Research Council of Turkey Ankara, Turkey
High Performance and Grid Computing Center
Internship (Remote) *15.03.2021 – 15.09.2021*

- Project: TRUBA2023 (Turkish Science e-Infrastructure)

The Henryk Niewodniczański Institute of Nuclear Physics Kraków, Poland
Polish Academy of Sciences(IFJ-PAN),
Particle Physics Summer Student Programme
Intern/Summer Student (On-site) *08.07.2019 – 22.08.2019*

- Data analysis on charged particle production in Xe-Xe collisions.
- Simulation of laser light propagation for the Baikal-GVD calibration system, implemented in MATLAB and C++.

Schools

Max Planck IPP Summer University for Plasma Physics and Fusion Research Greifswald, Germany
Summer Student (On-site) *12.09.2022 – 16.09.2022*

Wolfram Summer School
Visitor (Remote) *28.06.2021 – 16.07.2021*

Istanbul University Particle Physics Winter School (PFBU-2020) Istanbul, Turkey
Winter Student (On-site) *03.02.2020 – 07.03.2020*

Computing Skills

Operating Systems: Mac OS, Linux, Windows
Programming Languages: C/C++, Python, Bash, LaTeX, MATLAB, Mathematica
Simulation & Analysis: ROOT, MadGraph, MadAnalysis, Pythia, Delphes, Geant4
Tools: Vitis HLS, Vivado, CUDA, Docker, Cloud Foundry, OpenSearch, Flask, OpenAI, LangChain, Microsoft Office
Build Software: Make
Version Control: Git, BitBucket
Databases: PostgreSQL

Poster Presentations

Conference on Computing in High Energy Physics 23.10.2024
FPGA Implementation of the General Triplet Track Fit *Kraków, Poland*

Campus Activities

Hacettepe University Physics Society Ankara, Turkey
Founding Member *13.11.2017 – 04.10.2021*

- Initiated and organized interdisciplinary conferences, workshops, excursions, and public outreach events to promote physics and foster inclusive scientific engagement across diverse age groups and communities.

Language Skills

Turkish: Native Language
English: C1 (CEFR)
German: B1 (CEFR)
French: A1 (CEFR)

Field of Interests

High Energy Physics
Computational Science
Mathematical Methods in Physics
Machine Learning

Hobbies

Hiking, Backpacking, Cooking, Kayaking, Playing Electric Guitar, Birdwatching, Science Communication