

Kadir Murat Tastepe

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PROFILE

M.Sc. Physics graduate with specialized 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 in high-energy physics.

EDUCATION

Ruprecht-Karls-Universität Heidelberg <i>M.Sc. in Physics</i>	08.09.2025 Heidelberg, Germany
• Master's Thesis: High-Level Synthesis-Based FPGA Implementation of the General Triplet Track Fit Algorithm for Real-Time Particle Tracking	
Hacettepe University <i>B.Sc. in Engineering Physics</i>	04.10.2021 Ankara, Turkey
• Bachelor's Thesis: Monte Carlo Simulations in High Energy Physics.	
Universität Duisburg-Essen (Erasmus+) <i>B.Sc. in Physics</i>	05.10.2017 - 31.03.2018 Duisburg, Germany

WORK EXPERIENCE

SAP SE <i>Machine Learning Engineer / Working Student (On-site)</i>	Walldorf, Germany 08.07.2024 – 30.09.2025
• 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 .	
<i>Big Data Analyst / Working Student (On-site)</i>	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) <i>Student Researcher (On-site)</i>	Villigen, Schwitzerland 01.10.2023 – 13.10.2023
• Measured the charged-pion lifetime and branching ratio to electrons vs. muons including systematic and statistical uncertainties at the πM1 beamline using a detector setup of scintillators, a degrader, and a calorimeter .	
Physikalisches Institut Heidelberg <i>Scientific Assistant (On-site)</i>	Heidelberg, Germany 01.07.2022 – 30.09.2022
• Investigated the impact of increased magnetic field strength and sensor thickness on the physics performance of the Mu3e experiment to guide the optimization of detector design .	
• Simulated the spectrometer's magnetic field using neodymium magnets ($Nd_2Fe_{14}B$) to separate electrons and positrons , implemented in Mathematica .	
The Scientific and Technological Research Council of Turkey High Performance and Grid Computing Center <i>Internship (Remote)</i>	Ankara, Turkey 15.03.2021 – 15.09.2021
• Project: TRUBA2023 (Turkish Science e-Infrastructure)	

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

Kraków, Poland

08.07.2019 – 22.08.2019

- Data analysis on **charged particle production** in **Xe-Xe collisions**.
- Simulated **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
Summer Student (On-site)

Greifswald, Germany

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)

Winter Student (On-site)

Istanbul, Turkey

03.02.2020 – 07.03.2020

COMPUTING SKILLS

Operating Systems: Mac OS, Linux, Windows

Programming Languages: C/C++, Python, Bash, L^AT_EX, 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 (CHEP)

Kraków, Poland

FPGA Implementation of the General Triplet Track Fit

23.10.2024

CAMPUS ACTIVITIES

Hacettepe University Physics Society

Founding Member

Ankara, Turkey

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