Yavuz Selim Karakaş

M.Sc. Student in Advanced Methods in Particle Physics

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PROFILE

I am a Physics graduate from Istanbul University and currently a Master's student in the International Master in Advanced Methods in Particle Physics (IMAPP) program, studying across Université Clermont Auvergne (France), TU Dortmund (Germany), and Università di Bologna (Italy).

My academic and research background combines hands-on experience with scintillator detectors and related electronics, Monte Carlo simulations using Geant4, and development of both front-end and back-end software tools for physics applications. I am also skilled in working with development boards such as Arduino, Red Pitaya, and Raspberry Pi, as well as data acquisition and visualization techniques.

I am eager to further develop my expertise in experimental and computational particle physics while contributing to international collaborations and research environments.

EDUCATION

2025 — present

Master of Science · Advanced Methods in Particle Physics

Université Clermont Auvergne · Technische Universität Dortmund · Università di Bologna

Erasmus Mundus Joint Master

IMAPP: imapp.eu

2021 — 2025

Bachelor of Science · Physics

Istanbul University

GPA: 3.27 / 4.00 · Graduated with honors.

HONORS & AWARDS

Jul 2025

Certificate of Honor

Istanbul University Faculty of Science

Certificate of Honor for high academic standing during undergraduate studies in Physics.

May 2025

Graduation Project Poster Presentation Award

Istanbul University Faculty of Science, Department of Physics

Ranked 2nd among 47 graduation project posters.

TALKS

Mar 2026

Energy-Dependent Performance of Diffuse and Specular Reflectors in Plastic Scintillation Detectors

11th BCD ISHEP Cargèse School — Young Scientist Forum · Cargèse, France

May 2025

Theoretical and Experimental Investigation of the Effect of Reflective Coating Materials on Energy-Dependent Light Collection Efficiency in Scintillator Detectors

Istanbul High Energy Physics Workshop (YEFIST) 2025 · Marmara University, Istanbul

Indico: indico.cern.ch/event/1532019/contributions/6526620/

Jan 2024

Investigation of the Effects of Surface Coating Materials and Geometries on Counting Efficiency in Scintillator Detectors via GEANT4 Simulations

National Workshop on Particle Accelerator and Detector Infrastructures and R&D · Istinye University, Istanbul

The only undergraduate admitted to present a paper. Abstract included in the conference booklet (e-ISBN: 978-625-94062-4-4).

Indico: indico.cern.ch/event/1434046/contributions/6253313/

LEADERSHIP & COMMUNITY

May 2022 — Oct 2024

President — Istanbul University Physics Club

Istanbul University

Organised 2 conferences, 2 workshops and 7 seminars on current developments in physics; grew student engagement through interactive events.

Mar 2023 — present

Co-Founder & Digital Creator — Bilimsizlik

Independent initiative

Founded a cross-platform science-communication initiative; grew it past 28,000 followers and 10 million views.

TECHNICAL SKILLS

Programming Languages

C++, Python, Fortran, VHDL

Libraries & Toolkits

Geant4, ROOT, NumPy, Pandas, Matplotlib, SciPy, Tkinter, Qt, CMake

Hardware Platforms

FPGA, Red Pitaya, Raspberry Pi, Arduino, NVIDIA Jetson Orin Nano

Software

MATLAB, FreeCAD, UltiMaker Cura, Adobe Photoshop, Canva

CERTIFICATIONS & TRAINING

Feb 2025 **ISO 17025:2017 Laboratory Competency Training**

IPC & Sisbel

Feb 2024 **Introduction to Machine Learning**

Istanbul University

Oct 2023 **Geant4 Advanced Training Course**

CERN, Switzerland

Oct 2023 **Introduction to Particle Accelerators**

Lund University (online)

Jul 2023 **Particle Physics: An Introduction**

University of Geneva (online)

Jul 2023 **Quantum Mechanics**

University of Colorado Boulder (online)

Aug 2019 **The Evolving Universe**

Caltech (online)

EVENTS ORGANISED

Feb 2024 **Head of Organising Committee — 13th Istanbul University Physics Workshop**

Istanbul University

Turkey's largest public physics workshop: 4,000+ participants, a budget above ₽3 million, 7 speakers and 3 panellists.

2022 — 2024 **Head of Organising Committee — Engin Arık Physics Seminar Series (7 seminars)**

Istanbul University

Organised a seven-part seminar series with prominent physicists in hybrid format.

Aug 2023 **Head of Organising Committee — Robotic Coding Camp**

Istanbul University

Selected 40 participants from 1,000+ applicants across 30 universities; provided seminars, hands-on training and free equipment.

Mar 2023

Head of Local Organising Committee — Training Course on Synchrotron Light in Archaeology and Cultural Heritage

Istanbul University

Coordinated an international workshop with 200+ participants.

Sep 2022

Head of Local Organising Committee — HESEB (Helmholtz–SESAME) Soft X-ray Beamline Workshop

Istanbul University

International workshop with 200 in-person and 300 online participants.

CONFERENCES ATTENDED

Feb 2025

17th Vienna Conference on Instrumentation (VCI)

TU Wien

Dec 2024

Particle Accelerators and Detectors Workshop

Istinye University

Sep 2024

2nd General Meeting of COST Action COSMIC WISPers

Istinye University

Tem 2024

Nuclear Power Plants Expo & Summit (NPPES)

İstanbul

Oct 2023

Istanbul High Energy Physics Workshop

Yıldız Technical University

LANGUAGES

Turkish

Native

English

Fluent

German

Beginner

French

Beginner