Dr. Ilker Parmaksiz

CONTACT

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214-535-8141

LINKS

Github

Linkdin

Google Scholar

ORCID

SKILLS

Programming 5+ yrs

Academic Research 5+ yrs

Public Speaking 5+ yrs

Data Analysis 5+ yrs

Soldering 5+ yrs

Debugging 5+ yrs

Electronic Repairs 5+ yrs

Teaching 2+ yrs

HP. Computing 2+ yr

LANGUAGE

Turkish 5+ yrs

English 5+ yrs

EDUCATION

Ph. D. - Applied Physics — **12/15/22 - 05/07/25**
University of Texas at Arlington

GPA 3.8

Non-Thesis M.S. - Physics — **01/14/19- 12/15/22**
University of Texas at Arlington

GPA 3.8

B.S. - Physics (Summa Cum Laude) — **08/21/15 - 12/15/17**
University of Texas at Arlington

GPA 3.9

Associate in Science — **12/21/09 - 12/12/13**
Richland College (DCCD)

GPA 4.0

WORK EXPERIENCE

Postdoc — **10/15/25-Present**
Rice University

Integration of Opticks, a GPU-accelerated photon propagation tool, into LArSoft to significantly speed up optical photon simulation and validation, primarily for DUNE and also for other LArTPC experiments such as SBND, ICARUS, and others.

Graduate Research Assistant — **01/15/23-05/07/25**
University of Texas at Arlington

Integrated Opticks a GPU-accelerated photon propagation tool—into the NEXUS Geant4 simulation framework, enabling direct comparison with Geant4-based results. Contributed to the measurement of transverse electron diffusion in xenon and xenon-methane mixtures using the CRAB-0 high-pressure TPC prototype

Graduate Teaching Assistant — **01/15/21-01/15/23**
University of Texas at Arlington

I taught PHYS 1441 and PHYS 1443 laboratory courses. Contributed to the SBND experiment by assembling a spare MTC/A chassis for triggering operations. Integrated the GENIE neutrino event generator into the QPIX GEANT4-based simulation framework. Actively contributed to the testing, debugging, data acquisition, characterization, and analysis of CRAB-0, a high-pressure gaseous xenon detector prototype.

HARDWARE

Cryogenics	5+ yrs
Electronics	5+ yrs
Vacuum Systems	5+ yrs
Computer Tech.	5+ yrs
HP Gas Systems	4+ yrs

PROGRAMMING

C/C++	5+ yrs
Python	5+ yrs
Bash	3+ yrs
Web Development	3+ yrs
CSS	3+ yrs
PHP	3+ yrs
Java	3+ yrs
VisualBasic	1+ yr
Verilog	1+ yr
CUDA	1+ yr
NVIDA OPTIX	1+ yr
SQL	1+ yr
Machine Learning	1+ yr
MATLAB	1+ yr

TOOLS

Linux	5+ yrs

Graduate Research Assistant — **01/15/19-01/15/21**
University of Texas at Arlington

Led the simulation, construction, assembly, characterization, testing, and analysis of two SiPM Wheel photon detector prototypes featuring 16- and 64-SiPM configurations.

Student Research Assistant — **04/06/18 - 01/15/19**
University of Texas at Arlington

Continued in my previous role as a student research assistant.

Student Research Assistant — **01/19/17 - 12/15/17**
University of Texas at Arlington

Organized the research laboratory, with responsibilities that included ordering parts for experiments, building amplifiers and RC filters, soldering and characterizing SiPMs, setting up NIM logic, and constructing a liquid argon purification system at the University of Texas at Arlington.

Student Assistant — **02/10/14 - 02/09/15**
Richland College (DCCD)

Continued in my previous role as a student assistant.

Student Assistant — **07/18/12 - 12/01/13**
Richland College (DCCD)

Prepared undergraduate biology laboratories by setting up equipment and formulating all necessary chemical solutions for class experiments.

PUBLICATIONS

Advancing Particle Detection in High-Energy Physics through Simulation and Experimentation — **MavMatrix**
Dissertation

Status: Published

Performance of an Optical TPC Geant4 Simulation with Opticks GPU-Accelerated Photon Propagation — **EPJ-C**
Eur. Phys. J. C (2025) 85: 910

Status: Published

Ion Transport on Phased Radiofrequency Carpets in Xenon Gas — **EPJ-C**
Eur. Phys. J. C (2025) 85: 688

Status: Published

NEXT-CRAB-0: a high pressure gaseous xenon time projection chamber with a direct VUV camera based readout — **JINST**
2023 J. Inst. 18 P08006

Status: Published

A compact dication source for Ba2+ tagging and heavy metal ion sensor development — **JINST**
2023 JINST 18 P07044

Status: Published

Fusion 360	5+ yrs
KiCAD	5+ yrs
EasyEDA	5+ yrs
COMSOL	5+ yr
GEANT4	5+ yrs
Garfield++	3+ yr
MagBoltz	3+ yr
PyBoltz	3+ yr
Opticks	3+ yr
Slurm	3+ yr
OpenGL	1+ yr
Docker	1+ yr

Measurement of the -Ar total hadronic cross section at the LArIAT experiment — APS
Vol. 106, Iss. 5 — 1 September 2022

Status: Published

Wavelength-shifting performance of polyethylene naphthalate films in a liquid argon environment — JINST
2021 J. Inst. 16 P07017

Status: Published

Updated MiniBooNE neutrino oscillation results with increased data and new background studies — APS
Vol. 103, Iss. 5 — 1 March 2021

Status: Published

The liquid argon in a testbeam (LArIAT) experiment — JINST
2020 JINST 15 P04026

Status: Published

Emanation and bulk fluorescence in liquid argon from tetraphenyl butadiene wavelength shifting coatings — JINST
2019 J. Inst. 14 P02021

Status: Published

CONTRIBUTOR

GEANT4 / Advanced Examples — 2025-Present
CERN

COLLABORATION

DUNE Experiment — 2025-Present
USA

NEXT Experiment — 2021-Present
Spain

QPiX Experiment — 2019-2021
UTA

SBND Experiment — 2019-2020
FermiLab

LArIAT Experiment — 2016-2018
FermiLab

MicroBooNE Experiment — 2016-2018
FermiLab

WORKSHOPS & CONFERENCES

DUNE Collaboration Meeting — January 2026
CERN

3rd DRD4 Collaboration Meeting — April 2025
CERN

NEXT Collaboration Meetings — 2021-2023
Spain

DUNE Software Meeting — March 2024
Spain

CPAD 2023 — November 2023
SLAC National Accelerator Laboratory

CPAD 2022 — December 2022
Stony Brook University,New York

APS Texas Section Zone 13 — April 2019
Stephen F. Austin State University Nacogdoches TX

APS Texas Meeting — May 2017
University of Texas at Dallas

APS New Mexico meeting — October 2016
New Mexico State University

SCHOLARSHIPS AND AWARDS

Scharff Physics Award — May 2025

Truman Black End Physics Scholarship — May 2024

HENP Graduate School Physics — May 2023

Truman Black End Physics Scholarship — May 2022

DDOC COS Physics — May 2021

James L. Horwitz Physics Scholarship — May 2021

Truman Black End Physics Scholarship — May 2020

Graduate School Ray Fellowship — May 2020

Physics STEM Doc Fellowship	**2019-2025**
J. Marquis Physics Scholarship	**May 2017**
Scharff Physics Award	**May 2016**
Phi Theta Kappa Scholarship	**2015-2017**
Outstanding Transfer Scholarship	**2015-2018**