

FAZIL ONURALP ARDIC

+1 (310) 597-0023 | foardic@ucla.edu | Los Angeles, CA | www.linkedin.com/in/fazilonuralpardic | www.fazilonuralpardic.com

EDUCATION

University of California Los Angeles (UCLA), Los Angeles, CA

Expected June 2025

Electrical Engineering Major | Neuroscience Minor

- GPA: 4.0 (Dean's Honors List, ECE Fast Track Program, Tau Beta Pi [TBP], IEEE-Eta Kappa Nu [IEEE-HKN])
- Define Muhtar Kent Education Foundation Scholarship of \$30,000 per year
- Relevant Courses: Systems and Signals, Digital Signal Processing, Data Structures & Algorithms (C++), Neuroanatomy, Cellular and Systems Neuroscience, Foundations of Computer Vision (in progress), Applied Numerical Computing (in progress), Convex Optimization (in progress)

Uskudar American Academy (UAA), Istanbul, Turkey

June 2021

Bilingual IB Diploma 44/45, SAT: 1570/1600, ACT: 35/36

- 3rd in the Class of 2021. GPA: 97.47/100 (UAA admission is extremely competitive with 0.32% students out of 1,168,048 selected)
- Virginia Canfield Award for Overall Excellence, Certificate of Excellence in Math, English, Social Sciences, NHS & NEHS member

PUBLICATIONS

- All-optical image denoising using a diffractive visual processor. Işıl, Ç., Gan, T., **Ardic, F. O.**, Menteshoglu, K., Digani, J., Karaca, H., Chen, H., Li, J., Mengu, D., Jarrahi, M., Akşit, K., & Ozcan, A. Light, science & applications, 2024; 13(1), 43. <https://doi.org/10.1038/s41377-024-01385-6>
- Unidirectional imaging with partially coherent light. Ma, G., Shen, C., Li, J., Huang L., Isil, Cagatay., **Ardic, F. O.**, Yang, X., Li, Y., Wang, Y., Rahman M. S. S., Ozcan, A. Advanced Photonics Nexus 3.6 (2024): 066008-066008. <https://doi.org/10.1117/1.APN.3.6.066008>

RESEARCH

The Ozcan Research Group @ UCLA | Undergraduate Researcher

September 2022 - Present

- Transformed PyTorch and TensorFlow code training neural network into faster paradigm JAX with algorithm improvements
- Enhanced Diffractive Deep Neural Network (D2NN) algorithm was 6.1x faster than TensorFlow, 4.6x faster than PyTorch
- Implemented D2NN, Convolutional Neural Network (CNN), and Generative Adversarial Network (GAN) architectures
- Presented project poster at Howard Hughes Medical Institute Day 2023, won best oral presentation and best project awards
- Presented published research at National Conference on Undergraduate Research (NCUR) 2024

Retinal Circuits Research Group @ UCLA | Paid Undergraduate Researcher

June 2024 - Present

- Built a code pipeline taking in spike sorted Micro Electrode Array (MEA) recordings to train a bio-inspired CNN
- Increased training speed of the CNN 5x using Keras 3 with JAX backend
- Explored novel CNN architectures with 3D convolutions, adaptive activation functions and transfer learning
- Performed data visualization with activation maximization, layer-wise kernel inspection

Neurostatistics Research Group @ MIT | Paid Undergraduate Researcher

June 2023 - August 2023

- Established a code-flow for training various machine learning models (GB, MLP, Logistic Regression) using Scikit-Learn Library
- Performed time, frequency, and time-frequency signal analysis on EEG Waveforms
- Created Convolutional Neural Network Architectures (CNN) using JAX and PyTorch for classification tasks
- Gave a 1.5hr presentation about project to lab group comprising of 70 slides with original figures made using Adobe Illustrator
- Drafting a journal manuscript for publication

Crux @ UCLA | Team Lead, Member

September 2022 - June 2023

- Led a team of 14 people in a design project where a multilayer perceptron (MLP) was used to measure stress level based on EEGs
- Deployed a kNN Classifier using Scikit-Learn for an emotion recognition task differentiating EEG data (member)
- Presented research poster in 1st California Neurotech Conference to students from various universities and industry experts (member)

Physics Extended Essay for IB Senior Thesis | Independent Researcher

January 2020 - June 2021

- Expanded existing mathematical models from previous papers with rotational dynamics
- Wrote ~500 lines of Python code to solve a coupled system of nonlinear ODEs using 4th order Runge Kutta method
- Devised experimental apparatus utilizing pneumatics and DC Motors. Performed experiment and analyzed results using LoggerPro

EMPLOYMENT

Electrical and Computer Engineering Department @ UCLA | Lab Teaching Assistant

April 2023 - Present

- Invited by the Professor to assist students taking ECE 3 Introduction to Electrical Engineering Course
- Guided students in using oscilloscopes, writing code in C, building circuits, performing analysis using Analog Discovery 2
- Suggested sensor fusion designs and possible PID control system implementations using Arduino IDE for final project

Engineering Transfer Center @ UCLA | Communications Lead

January 2022 - June 2022

- Organized events and interacted with engineering transfer student community of 516 people
- Designed Celebrate eTransfers commencement website honoring graduating class of ~200 students with Wix
- Authored the Engineering Transfer Center's weekly newsletter sent to all engineering transfer students (~500)

TECHNICAL SKILLS

- **Machine Learning:** PyTorch | TensorFlow | JAX | Scikit-Learn | Keras 3
- **Programming:** C++ | Python | MATLAB
- **Visual Design:** Adobe Illustrator | Wix
- **Languages:** Turkish (Native) | English (Advanced, IELTS 8) | German (Intermediate, TELC B1)
- **Microprocessors:** Arduino | Raspberry Pi
- **Circuits:** Soldering | Oscilloscope | Analog Discovery 2
- **Computer-Aided Design:** Onshape | CAD