

# PUYA FARD

linkedin.com/in/puyafard • 310-877-0998 • puyafardce@gmail.com

Ambitious Computer Engineer with a focus on Embedded Systems, Machine Learning, and Internet of Things (IoT). committed on delivering impactful solutions and tackle complex challenges to bring success for the organization I am a part of.

## WORK EXPERIENCE

### Research Assistant , Associate Prof. Dr. Salma Elmalaki

Mar 2024 - Present

- Research topic: Human-aware automotive testbed using CARLA with VR environment, supervised by Assistant Prof. Dr. Salma Elmalaki in the Pervasive Autonomy Lab.
- Successfully assembled a fully functional testbed, optimized user experience to match real world driving standards for best performance and studied human-in-loop experiments.

### TA & Grader, Lyles College of Engineering

Feb 2022 - May 2023

- Assisted in preparing lesson materials and supporting engineering students in a professional development course for ECE Department Chair Prof. Dr. Reza Raeisi, Introduction to Programming with C++ for Prof. Gregory Kriehn, and Digital Logic Design for Prof. Shahab Tayeb.
- Conducted weekly review sessions and held office hours to address student questions on graded homework and projects.

### Web Design Assistant, Technology Services - Fresno State

Jun 2022 - Sep 2022

- Redesigned and maintained, and managed faculty and department websites at CSU Fresno. Assisted Mr. Fatih Yener with student and faculty work orders with resolution of their requests.
- Conducted weekly team meetings and prepared performance evaluation reports for department websites.
- Developed proficiency in HTML and CSS for web development and content management using OMNI CMS.

## EDUCATION

### University of California, Irvine

2023-2024

Masters of Science in Computer Engineering

### California State University, Fresno

2021-2023

Bachelors of Science in Computer Engineering

## PROJECTS

### SmartZoo Controlling & Monitoring system

- Created a safe and intelligent control environment that ensures the safety of stingrays, reptiles and elephants in the zoo. This project leverages embedded systems, cloud-based programming, and a software-based user interface to monitor, collect, and store data.

### DCNN Image Classification algorithm

- Conducted a comparative study on DCNN, DarkNet-19, ResNet-50, and Efficient B0 architectures, achieving a 94.35% validation accuracy with Efficient B0 on a dataset of over 3500 32x32 grayscale images across 28 classes; custom-designed DCNN achieved 92.35% validation accuracy with the lowest training time, demonstrating efficient model design.

### Optimized Hardware Accelerators for Deep Learning Architectures

- Designed and optimized hardware accelerators for UNet, VGG16, and Llama3\_variant deep learning architectures. Achieved significant reductions in latency (up to 70.54%) and energy consumption (up to 54.11%) through advanced dataflow design and iterative testing.

### Music Recreation and Genre Classification with Deep Learning Models

- Developed and evaluated deep learning models for music recreation and genre classification. Synthesized music using an LSTM hidden-layer model, achieving 92% accuracy. For genre classification, a Dense Neural Network achieved the highest accuracy (86%), excelling in genres such as "Classical," "Metal," and "Pop." Additionally, principal component analysis (PCA) was employed to analyze output data effectively, improving interpretability of model predictions.

### Edge detection System on Chip (SoC) Design

- Designed and developed a high-performance edge detection algorithm module using SystemC for image and video processing at 24fps. Enhanced the module with memory-efficient data handling and pipelined processing, enabling real-time edge detection in resource-constrained environments.

## SKILLS

- **Embedded Engineering:** Cadence, Linux programming, ModelSim, FPGA, SoC, Quartus Prime, SystemC
- **Software Engineering:** C, C++, C#, Python, Assembly, HTML, HDL
- **Machine Learning Engineering:** PyTorch, TensorFlow, Keras, NumPy, Pandas, Matplotlib
- **Project Management:** TOPSIS, SWOT, Scheduling, Project Control, Planning, Communication & Teamwork
- **Languages:** English, Persian, Turkish

website

