

PUYA FARD

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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

