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 Associate Prof. Dr. Salma Elmalaki in the Pervasive Autonomy Lab.
- Successfully assembled a fully functional testbed, integrating a steering wheel, pedals, and a track chair synchronized with the CARLA simulator, utilizing a VR headset for immersive display.
- Optimized user experience to match real world driving standards for best performance and data harvesting results.
- Developed a PyGame script to enable this application to operate seamlessly on the CarlaUE4 platform.

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.
- Graded for two additional courses: Introduction to Programming with C++ and Digital Logic Design.
- Conducted weekly review sessions and held office hours to address student questions on homework and projects.
- Graded and provided constructive feedback on all assignments and projects.

Web Design Assistant, Technology Services - Fresno State **Jun 2022 - Sep 2022**

- Redesigned and maintained all department websites at CSU Fresno.
- Managed faculty and student work orders, ensuring timely updates and 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.

Edge-Optimized Hardware Accelerators for DL Inference

- Proposed optimized hardware accelerator architectures and custom dataflows for convolutional neural networks (CNNs) and recurrent neural networks (RNNs) to enhance performance on low-latency edge devices, resulting in up to 30% improvement in inference speed and 25% reduction in power consumption across target DL models.

Autonomous Driving Stack Integration

- Developed a comprehensive autonomous driving stack in ROS2, integrating perception, planning, and control modules, enabling real-time navigation and decision-making in dynamic environments.

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.

SKILLS

- **Embedded Engineering skills :** Cadence | Linux | ModelSim | FPGA | SoC | Quartus Prime | SystemC
- **Software Engineering skills :** C | C++ | C# | Python | Assembly | HTML | HDL
- **Project Management skills :** TOPSIS | SWOT | Scheduling | Project control | Planning | Communication & Team work
- **Bilingual :** English | Persian | Turkish