Parsa Esfandiari

pesfandiari78@ucla.edu | (424)-448-2819 | linkedin.com/in/parsaEsfandiari Los Angeles, CA

EDUCATION

Ph.D. Mechanical Engineering | (Design and Solid Mechanics) 2024-Present

University Of California, Los Angeles. GPA: 3.91

- Selected Coursework: Compliant Mechanisms, Biomechanics, Bionic Systems Engineering

M.S. Mechanical Engineering | (Controls and Mechatronics) 2023-2024

University Of California, San Diego

- Selected Coursework: Robotics, Robot Motion Planning, Nonlinear Control, Linear Systems Theory

B.S. Mechanical Engineering | (Robotics and Controls) 2018-2023

Sharif University of Technology

- Selected Coursework: Automatic Control, Mechanism Design, Applied Electronics, Optimal Design

RESEARCH & TECHNICAL EXPERIENCE

GuptaLab, UCLA- Researcher 2024-Present

- Designed a **table-top laser-driven micro-impact platform** capable of generating **impact velocities up to 4 km/s** and **~10^8 s^{-1} strain rates**, exceeding conventional impact testing regimes.
- Engineered optical layouts and **multilayer thin-film coatings** to achieve **8–24 ns loading durations** with repeatable diagnostics.
- Performed experimental validation and quantitative analysis of **ultra-high strain-rate material response**, bridging mechanics, optics, and instrumentation.

Bioinspired Robotics and Design Lab, UC San Diego- Researcher Winter 2023

- Designed a **2-DOF gantry system** for a bio-inspired eel robot, enabling smooth planar motion during locomotion experiments.
- Engineered structural damping solutions that **attenuated >90% of vibration transmission** to the test platform.
- Optimized low-friction tube-routing mechanisms to maintain synchronization with robot motion.

Robotics System laboratory (SUT)- Researcher Spring 2022-Feb 2023

- Developed **real-time deep learning models** for **sign language gesture recognition**, integrated into **VR environments** using Unity.
- Designed and deployed an **AI-driven VR educational game**, achieving a **195% improvement in learning outcomes.**
- Published findings in an **IEEE-reviewed conference**, demonstrating scalable human-robot interaction systems. (**Paper**)

SELECTED ENGINEERING PROJECTS

5-DOF Robotic Cake Icing System | Kinematics, Design, Fabrication | RoMeLa Fall 2025

- Designed and fabricated a **5-DOF robotic manipulator** with Cartesian motion, rotation, and **syringe-based extrusion** using custom **3D-printed components**.
- Developed and validated **forward/inverse kinematics**, workspace analysis, and trajectory planning under height and clearance constraints.

Trajectory Planning of KUKA YouBot | Motion Planning & Simulation Winter 2023

- Implemented **time-optimal trajectory planning** in **CoppeliaSim** under velocity and acceleration constraints, completing pick-and-place tasks in **<10 s.**

GA-Optimized PID Control of SCARA Robot | Controls & Optimization Spring 2022

- Tuned PID controllers using a **Genetic Algorithm** in MATLAB, achieving **~20% improvement** in tracking accuracy and response speed.

INDUSTRY EXPERIENCE & TECHNICAL SKILLS

Engineering Intern — SAIPA Corporation | Fall 2022

Engineering Intern — Iran Khodro Automobiles Peugeot (IKAP) | Fall 2021

Programming: Python, C/C++, C#, MATLAB

Robotics & Controls: Kinematics, Trajectory Planning, PID Control, System Identification, Simulink

Simulation & VR: CoppeliaSim, Unity, OpenSim

CAD/CAE: SolidWorks, AutoCAD, ANSYS

Hardware: Arduino, Sensors, Actuators, 3D Printing