# Arsalan Ahmed

(510) 766-4922 Mountain House, CA arsalandoha@gmail.com linkedin.com/in/arsalanprofile

## Education

**University of California, Davis** **Sep 2023 – Dec 2025**
*Bachelor of Science, Electrical Engineering* Relevant Coursework: Device Physics, Circuit Fabrication, GPA: 3.5 *Davis, CA*

**Las Positas College** **Sep 2021 – May 2023**
*Associate of Science, Electrical Engineering* Relevant Coursework: Calculus I/II/III, Physics I/II/III, GPA: 3.7 *Livermore, CA*

## Relevant Experience

**Robotics Production Intern** **Jun 2024 – Present**
*Barobo Inc.* *Sacramento, CA*

- Designed and optimized PCB layouts in **Altium Designer**, improving circuit efficiency and compatibility.
- Assembled and soldered 1000+ programmable circuit boards and robots, ensuring **100% functionality** after testing.
- Streamlined testing, debugging and packaging processes for electronic motherboards and Arduino kits to reduce defects.
- Managed robot shipments, increasing logistics efficiency through improved inventory tracking.

**Microelectronics Fabrication Course** **Jan 2025 – Apr 2025**
*University of California, Davis* *Davis, CA*

- Gained hands-on cleanroom experience in semiconductor fabrication, working with photolithography, oxidation, diffusion, metallization, and wet etching processes.
- Conducted parametric and functional testing of MOS devices, including I-V characterization, threshold voltage measurements, and resistivity analysis.

**Software Engineer Fellow** **Jun 2024 – Aug 2024**
*Headstarter AI* *San Francisco(Remote), CA*

- Built 5 projects using React JS, Next.js, and Vercel and incorporated CICD practices for iterative development.
- Participated in weekly sessions with engineers from Google, Y Combinator, Amazon, and venture-backed startups.

## Projects

**Deep Learning Vehicle Classifier** | *PyTorch, ResNet18* **Dec 2024**

- Developed a deep learning vehicle classification system, implementing a custom PyTorch Dataset class, data augmentation techniques, and transfer learning with ResNet18.
- Optimized model performance through hyperparameter tuning (learning rate, batch size), and advanced visualization techniques including confusion matrices, per-class accuracy metrics, and confidence-based prediction analysis.
- Improved classification accuracy by **20%** through model fine-tuning and augmentation strategies.

**Multi-Object Tracking System with YOLO** | *YOLOv3* **Dec 2024**

- Integrated YOLOv3 for object detection and centroid extraction, enabling real-time identification and tracking of multiple objects within video frames.
- Developed a custom centroid-based tracking system with unique ID assignment, dynamic object registration, and trajectory visualization for robust multi-object tracking.
- Achieved a **30% reduction in tracking errors** by refining object association algorithms.

**Matrix Multiplier in Verilog** | *Verilog* **Jun 2024**

- Developed hardware-based matrix multiplication using a Multiple Access Control(MAC) unit, leveraging parallelism and high memory bandwidth for improved efficiency.
- Ensured proper synthesis and estimated hardware resources, including clock cycle time, memory usage, and logic gate count, to optimize performance and resource allocation.
- Conducted extensive testing and validation, achieving significant performance improvements.

**Handheld Console Design using Raspberry Pi** | *Raspberry Pi* **Apr 2024**

- Designed and engineered a versatile handheld portable PC capable of running Windows and retro console games.
- Utilized cutting-edge components including Raspberry Pi, compact battery, and common handheld parts.

## Technical Skills

**Languages**: C++, Python, HTML, MATLAB, LaTeX, Verilog, RISC-V
**Developer Tools**: Visual Studio, Jupyter Notebook, Eclipse IDE
**Technologies&Frameworks**: React JS, Next.js, Vercel, PyTorch, ResNet18, YOLOv3