CHARVI SHUKLA

+1 858-319-5868 | shukla.charvie@gmail.com | linkedin.com/in/charvi-shukla | github.com/charvishukla

Education

University of California, San Diego — **Sep. 2021 – May 2025**
B.S. in Mathematics-Computer Science — La Jolla, CA
B.S. in Cognitive Science (specialization in Machine Learning and Neural Computation) — La Jolla, CA

Relevant Coursework
Computer Vision, Advanced Linear Algebra, Data Structures and algorithms, Numerical Analysis, Statistical Techniques

Experience

Computer Vision Research Assistant — **August 2023 – Present**
Advanced Robotics and Controls Lab (ARClab) — *La Jolla, CA*

LLM Fine Tuning
- Processed a large medical-assessments dataset and used **LoRA finetuning** to fine tune Meta Llama 2 and Google Gemma models with **7 billion parameters**
- Used **ROUGE**, **BERT**, and **Bleu** Scores each to evaluate and compare the model's performance against human evaluators
- Deployed **CUDA based Docker containers** to efficiently train models using the PyTorch DataParallel class, leveraging **4 GPUs** in **parallel**

SuPerPM, A Surgical Perception Framework
- **Fine tuned Lepard**, a point cloud matching model for rigid and deformable scenes, over a physically constrained simulation dataset
- Implemented a custom visualization algorithm using Open3D to **visualize 3D point clouds** and their correspondences

Machine Learning Intern — **November 2023 – April 2024**
WiseCounsel.ai — *Remote*
- Developed **core negotiation engine CLI** for WiseCounsel's **end-to-end deal-making platform**, enabling structured bi-directional communication between clients and counterparties
- Enhanced CLI functionality to parse and **reconstruct highly structured legal agreements**, orchestrating multi-clause negotiations by managing LLM inputs/outputs and agreement lifecycle

Tutoring and Supplemental Instruction — **May 2022 – Present**
Academic Achievement Hub, MATH 18: Linear Algebra — *La Jolla, CA*
- Collaborated with Teaching Assistants to conduct **5** weekly discussion sessions for **20-30** undergraduates each, reinforcing **Linear Algebra** lecture content among students
- Orchestrated supplemental instruction in groups of **10 students**, engaging students in problem-solving and doubt clarifications

Computer Science and Engineering, CSE 30: Computer Organization and Systems Programming — *La Jolla, CA*
- Conducted **4.5** hours of weekly tutoring for students, debugging C and ARM Assembly code and re-iterating core class concepts

Projects

Wave-IT | *PyTorch, OpenCV, Jupyter* — **November 2023**
- Worked in a team of 2 to develop an IoT device for individuals with hearing disabilities
- Trained a **LSTM Neural network** using **PyTorch** and **MediaPipe** with manually collected data to recognize hand gestures and control smart-home devices

Diabetes Risk Prediction Project | *Pandas, Matplotlib, Sci-kit Learn* — **June 2022 - August 2022**
- Collaborated with a team of 5 to anaylze the **PIMA Diabetes Dataset** from the UCI Machine Learning Repository, studying correlation between number of observed pregnancies, age, and Diabetes Pedigree Function (DPF).
- Developed a linear regression model using **Pandas** and **Sci-kit Learn** to estimate the likelihood of diabetes diagnosis in Indian women, analyzing **9** key predictor variables

Technical Skills

Languages: Python, C/C++, Java, JavaScript, ARM, System Verilog
Developer Tools:Git, Docker, Jupyter Lab, VS Code, Gradle, Circle CI
Frameworks, Databases: PyTorch, React, Express, MongoDB, Firebase Firestore, AWS S3, DynamoDB
Libraries: Tensorflow, Pandas, CUDA, OpenCV, Numpy, Matplotlib, SciKit Learn, JavaFX