Satvik Panchal

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EDUCATION

M.S. Computer Science May 2025
Arizona State University, Tempe, AZ **3.9 GPA**
B.S. Computer Science May 2024
Arizona State University, Tempe, AZ **4.0 GPA**
Honors: Dean's List Spring 2021 – Spring 2024

TECHNICAL SKILLS

Programming Languages: Python, C, C++, Java, R, C#, SQL
Technologies & Frameworks: Apache (Kafka, Spark), Splunk, GitHub, JIRA, MySQL, PostgreSQL, REST APIs, Ubuntu, Pandas, TensorFlow, PyTorch, Scikit-learn, NumPy, Optuna, Docker, FastAPI, Flask, AWS (Lambda, SQS, EC2, ECR, CloudWatch, IoT Core)

PROFESSIONAL EXPERIENCE

MOOG Space and Defense, Gilbert, AZ: **Software Engineering Intern** May 2024 – April 2025

- Engineered a **database** of flight-critical hardware components with a **Streamlit UI** for rapid (less than 3s) data retrieval.
- Implemented rigorous **unit testing** in **C** for critical software components using the **Unity framework** and **CMock**, achieving **100% code coverage** verified with **gcov** to ensure robust and reliable code quality.

Arizona State University, Tempe, AZ: **SCAI Peer Mentor** March 2024 – May 2025

- Led inclusive events and mentorship programs that helped **300+ students** feel confident navigating college life, thrive academically, and explore careers in computing, research and industry (**SWE, AI, Data Science**) pathways.

Solisa AI (Startup), Chandler, AZ: **Machine Learning Engineering Intern** May 2024 – July 2024

- Developed a **TensorFlow** model trained on over **13,000** data points, and achieving an **AUC score** of **75%**.
- Employed advanced **feature engineering** techniques, including data clustering with **DBSCAN** and prudent undersampling using the **NearMiss** technique, to optimize model performance.
- Used the **Optuna** library and the **Neural Network Intelligence** framework for automatic hyperparameter tuning and real-time monitoring of model training history, enhancing overall model effectiveness.

Astro Seed, Tempe, AZ: **Machine Learning Engineer (Contract, Capstone Project)** August 2023 – May 2024

- Secured **second place** out of **130+** teams, each working on varied capstone projects.
- Led a 5-person team to build a **ResNet50 CNN** in **TensorFlow**, achieving **97.67%** accuracy in plant deficiency detection.
- Architected and **fine-tuned** the model by integrating custom layers, improving class-wise precision by **12%.**

Nike, Beaverton, OR: **Software Engineering Intern (Contract)** June 2022 – Aug 2022

- Engineered a **Splunk** health visualization dashboard that dynamically displays real-time data for system monitoring.
- Architected a comprehensive audit visualization dashboard, leveraging **Splunk Cloud** and writing queries to display asset kind, name, and time log data, ensuring efficient data tracking and management.

RELEVANT PROJECTS

Jarvis AI Assistant July 2025 – Present

- Engineered a **voice-first AI assistant** integrating wake-word detection (**VOSK**), **Open AI's Whisper** transcription, **Edge-TTS** voice output, and **Gemini LLM** to drive autonomous reasoning and orchestrate multi-tool workflows.
- Built a **RAG powered memory + tool ecosystem** using **ChromaDB (all-MiniLM-L6-v2 embeddings)** for context-aware retrieval, real-time screen analysis, external API connectivity (weather, system operations), and seamless **UI**.

AWS AI-Powered Serverless Edge Face Recognition February 2025 – May 2025

- Architected an **edge AI pipeline** using **AWS IoT Greengrass**, **EC2**, and **MQTT** for real-time face detection with **MTCNN**, achieving **100% accuracy** and **0.77s average latency** on **100 test images**.
- Deployed serverless pipeline with **AWS Lambda**, **SQS**, and **FaceNet**, enabling a full-stack **cloud-to-edge ML inference**.
- Implemented a custom **autoscaler** in **Python** that dynamically launched up to **15 EC2** instances based on **SQS** load, completing inference workloads (e.g., **100 requests**) in **96 seconds** with **zero failures**.

AI Cheers Bot February 2025 – May 2025

- Engineered an **AI-driven robotic arm** system using **YOLOv8** for real-time cup detection (**98% accuracy** on 250+ labeled images) and a **ResNet18** servo regressor (**MSE**:0.012) to perform a cheers gesture with 90% success on a Raspberry Pi.

EXTRACURRICULAR EXPERIENCE

Python Users Group, Tempe, AZ: President August 2022 – May 2024

- Led a **100+** member club, mentoring officers and streamlining operations to build a cohesive leadership team.
- Orchestrated large-scale **Python workshops** for **50+ participants**, covering practical skills in areas such as machine learning, deep learning, data engineering, cloud computing, and other advanced topics.