

AADITYA RAJ BANIYA

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PROFESSIONAL SUMMARY

Software Engineer with a deep focus in ML and Computer Vision, combining production-grade systems experience with strong CS fundamentals. Designed and deployed inference pipelines on edge hardware, built full-stack AI applications, and led end-to-end research from dataset collection to live deployment. Recipient of \$13,000 in research grants and competition prizes.

SKILLS

Languages: Python, C++, Java, TypeScript, SQL

ML and Edge: PyTorch, YOLOv8, TensorRT, ONNX Runtime, OpenCV, MediaPipe, Transformers, Jetson AGX Orin, Isaac Sim

Infrastructure: Git, Docker, Linux, AWS, CI/CD

Backend and Frontend: FastAPI, Flask, REST APIs, MySQL, RAG, OpenAI and Llama APIs, React.js, Next.js, WebRTC, LiveKit

EDUCATION

Texas State University

Bachelor of Science in Computer Science, Honors Scholar. President's List. GPA: 3.8

San Marcos, TX

Expected May 2027

- **Relevant Coursework:** Machine Learning, Data Structures & Algorithms, Object-Oriented Programming, Applied Linear Algebra, Software Engineering

EXPERIENCE

Undergraduate Research Assistant, Human Digital Twin and Computer Vision

Sep 2024 – Present

Ingram School of Engineering, Texas State University

San Marcos, TX

- **Voice Alert System for Visually Impaired Workers:** Built a real-time MediaPipe pose estimation pipeline detecting hazardous factory actions and triggering voice alerts, deployed at a San Antonio facility and reducing 85% of potential workplace injury risks
- **Makerspace Sentinel (PPE Compliance):** Optimized a CBAM-enhanced YOLOv8 model for PPE compliance detection, validated on SH17 and R2PPE benchmarks, deployed to NVIDIA AGX Orin via TensorRT at 25-30ms
- **Human Action Recognition (HAR):** Improved human action recognition accuracy by 10% on industrial footage using a dual-stream pipeline combining YOLOv8, MediaPipe, and a TimeSformer trained on Assembly101

Tech Lead, MOSTify (Computer Vision Startup)

Sep 2024 – Present

BobCatalyst Innovation Accelerator Program, Texas State University

San Marcos, TX

- Architected the full CV inference pipeline end-to-end, from dataset collection and model training to optimization and deployment, compressing 3-5 days of manual time study analysis to 1-2 hours
- Conducted 40+ customer discovery interviews to validate product direction, backed by a \$5,000 BIAP II grant

Software Development Intern

April 2023 – Dec 2023

Orgware Construct Pvt. Ltd.

Nepal

- Built a Flask and React support platform connecting rural businesses, schools, and offices to IT teams, part of a push to bring digital classrooms and digital offices to underserved communities in Nepal, cutting average issue resolution time to under 20 minutes
- Noticed the MySQL schema was becoming a bottleneck as more users signed on, so redesigned it and rewrote the slow queries so it could handle 100 concurrent users without slowing down
- Wrote unit and integration tests for the Flask backend to catch bugs before they reached field users who usually had no way to troubleshoot problems on their own
- Used Git/GitHub to work with the team, opening pull requests and sorting out merge conflicts as new features went out
- Helped deploy and monitor the app on a Linux server, tracking down issues that support staff ran into while working with clients in rural areas

PROJECTS

Makerspace Sentinel

Jan 2025 – Present

Real-Time PPE Compliance Detection

- Engineered an end-to-end pipeline from dataset selection to a CBAM-enhanced YOLOv8 fine-tuned on three PPE classes
- Validated on 18,000+ unseen images; deployed to NVIDIA AGX Orin via TensorRT at 25-30ms, live in Ingram

ReelStudio | [Link](#) | Python, FastAPI, GPT-4o Vision, FAL, Kling, FFmpeg, Next.js

Mar 2026 – Mar 2026

AI Cinematic Reel Generator

- Built a 10-layer agentic pipeline converting real estate photos into beat-synced cinematic reels, with agents classifying rooms, planning shots, and generating Kling clips cut on BPM timing via FFmpeg
- Won 1st prize of \$1,000 for Best Use of FAL API

NexHacks Hackathon (CMU) | [Link](#) | Python, LiveKit, WebRTC, OpenAI API, OpenCV

Jan 2026 – Jan 2026

Autonomous Surveillance Robot

- Built a LiveKit robot on Raspberry Pi with a Next.js web console for real-time home surveillance over WebRTC
- Integrated OpenCV ArUco marker detection for indoor navigation and OpenAI API for two-way voice

AWARDS & HONORS

- \$13,000 in grants and prizes: \$5,000 BIAP II (MOSTify) | \$3,500 Quanta Fellowship (URA) | \$3,000 Makerspace Digital Twin | \$1,000 Best Use of FAL API (ReelStudio) | \$500 Bobcat Innovation Challenge
- President, Data Analytics Association; Secretary, Google Developer Group TXST
- President's List and Dean's List, 6 semesters