MOHAMMED AMIR KHABAZA

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EDUCATION

UC Merced — *B.S in Computer Science & Engineering* *Expected Graduation: May 2026*
GPA: 3.83

Relevant Coursework: Data Structures & Algorithms, Probability & Statistics, Machine Learning, Discrete Math, Boolean Algebra
Affiliations / Honors: College Track Scholar, CSF Member, 10,000 Degrees Scholar, PCF Scholar

SKILLS

Programming: Python, C++, Java, JavaScript/TypeScript, SQL, Ruby, Go, MATLAB, Kotlin
AI & Data Tools: TensorFlow, Keras, PyTorch, Scikit-learn, Pandas, NumPy, Matplotlib, MongoDB, Tableau
Systems & Platforms: React, Node.js, Flask, FastAPI, Git, Perforce, Linux, CUDA, OpenCV, MediaPipe
Specialties: Data Analysis, Model Evaluation, Computer Vision, Agentic AI, Human–Computer Interaction

PROJECTS

EthicScope (Winner, HackDavis 2025)
Founding Developer *April 2025 - Present*

- Designed a mobile and web app to analyze product barcodes and assess ethical & environmental impact using ML-based data aggregation.
- Built backend with **Flask, MongoDB, and Cerebras**; developed visual data dashboards using **React + Tailwind.**
- Helped over 1,000 simulated test users make informed, transparent purchasing decisions.

Devpost: https://devpost.com/software/ethicscope

AIVue: Control with Vision (Winner, SF Hacks 2025)
Team Lead & Developer *March 2025 - Present*

- Engineered a **hands-free computer control system** for people with disabilities using **eye-tracking, blink detection, and speech commands.**
- Implemented computer vision with **Python, OpenCV, MediaPipe**, and Kalman filters; integrated **speech-to-text AI** and **MongoDB Atlas.**
- Improved gaze accuracy by 32% and reduced latency by 18% through adaptive AI filtering.

Devpost: https://devpost.com/software/aivue-control-with-vision

AI Tumor Detection Machine Learning Model: AI4ALL
Undergraduate Machine Learning Researcher *January 2024 - October 2025*

- Developed a **VGG-16 CNN** for brain MRI tumor classification, achieving **94% accuracy** on validation data.
- Collaborated with interdisciplinary researchers to improve model interpretability and bias detection.
- Used **TensorFlow, Keras, and Scikit-learn** for model training, preprocessing, and ROC analysis.

EXPERIENCE

PADSYS – Merced, CA
Undergraduate Research Intern *August 2025 – Present*

- Investigating I/O bottlenecks in High-Performance Computing (HPC) systems by profiling AI workloads, focusing on processes like checkpointing and data loading.
- Deploying and benchmarking computer vision models (YOLOv12, mmdetection library) in containerized Ubuntu environments using Docker to analyze I/O performance.

Sierra Nevada Research Institute (MERT) – Merced, CA
Weather Station Researcher (CH4HgDRONE project) *August 2025 – Present*

- Developing a remote, Raspberry Pi-based weather station to collect environmental data (temperature, wind, eddy covariance) for the CH4HgDRONE project.
- Tasked with researching and evaluating sensor hardware (e.g., Ecowitt, RM Young) to identify cost-effective solutions for ecosystem and mercury research.