

Rayan Alam

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Motivated Computer Science undergraduate, dedicated to building a strong foundation in software development and intelligent systems. Proven ability to transition from technical theory to practice, with hands-on experience developing smart vision systems and proposing innovative solutions for infrastructure safety. A proactive problem-solver eager to apply expertise in C++, computer vision, and system design to impactful, real-world engineering challenges.

EDUCATION

Institute of Management Sciences - Bachelor of Science, Computer Science

2024 - current, GPA: 3.41/4

Peshawar, Pakistan

Hadaf Group of Colleges - FSC, Pre-Medical

2021 - 2023, Percentage: 77.7%

Peshawar, Pakistan

PROJECTS

[Face tracking Servos](#)

Dec 2025 - Dec 2025

- Developed a real-time computer vision system in **Python** using **OpenCV** to detect and track facial landmarks through a live camera feed.
- Architected a hardware-software bridge to translate digital 2D image coordinates into precise 3D physical movement commands for a servo-driven gimbal.
- Integrated an **Arduino-controlled dual-servo system** with a mounted laser, utilizing serial communication to ensure low-latency tracking of user movement.
- Optimized control logic to maintain laser alignment with detected faces, demonstrating proficiency in sensor integration, microcontrollers, and spatial geometry.

[Sleep detector](#)

Jul 2025 - Jul 2025

- Developed a monitoring application using **MediaPipe** and **OpenCV** to track facial mesh landmarks, focusing specifically on eye-lid aperture and ocular positioning.
- Engineered a mathematical detection algorithm using the **Math** library to calculate the Eye Aspect Ratio (EAR), accurately determining the user's state as "Awake" or "Sleeping" in real-time.
- Built a cross-platform data pipeline via **PySerial** to transmit state-change triggers from a Python-based processing environment to an **Arduino** microcontroller.
- Integrated an external LCD hardware interface to provide immediate visual feedback on the user's status

[Proximity alert project using the Arduino uno R3 and HC-SR04 ultrasonic sensor](#)

- Used HC-SR04 to measure object distance in front of sensor
- Turned on red LED when object detected within 10cm (danger zone)
- Kept green LED on when object was beyond 10cm (safe zone)

- Implemented logic using digitalWrite based on measured distance
- Breadboard setup with Arduino Uno R3 and two LEDs (red, green).

[Motion Detecting project using Arduino Uno R3 and HC-SR501 motion sensor](#)

- Connected HC-SR501 PIR sensor to detect motion
- Wired red LED to turn ON when motion is detected
- Used digitalRead for sensor input and digitalWrite for LED output
- Basic breadboard setup with Arduino Uno R3.

SKILLS

- C++
- Python
- Arduino, Microcontrollers
- Git, GitHub, Visual Studio Code
- Computer Vision

CERTIFICATIONS

- AI For Everyone - DeepLearning.AI
- AI Solutions Challenge - Hack2Skill
- Photonics innovation challenge -SPIE-OPTICA GIKI Chapter