Ahmad Ilyas

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LinkedIn

Education

Bachelors of Technology in Electronics & Communication Engineering, Zakir Husain College of Engineering and Technology, Aligarh Muslim University (Expected May 2026)

- **Cumulative GPA:** 9.315 / 10.0 (Until 6th Semester)

Research Interests

Robotics, Additive Manufacturing, Analog Circuit Design, Control Systems

Research Experience

Summer Research Intern | Indian Institute of Technology (IIT), Ropar (Hybrid)
May 2025 – July 2025

- Designed and simulated a novel mixed-signal Proportional-Integral (PI) controller for a Cesium-based atomic clock.
- Developed a dual-loop wavelength/frequency lock system for the atomic clock in MATLAB.

Summer Research Fellow | Indian Institute of Space Science and Technology (IIST), Thiruvananthapuram (On-site)
May 2024 – July 2024

- Developed and benchmarked U-Net based architectures for semantic segmentation of fetal anatomy in ultrasound images.
- Improved Dice Similarity Coefficient over baseline by implementing an ensemble architecture with ResNet.
- *Funded by the prestigious IASC Summer Research Fellowship Program (SRFP).*

Publications & Posters

- **[Ilyas, A.]**, et al. (2025). "High-PSR, Ultra-Low Quiescent Current, Capless LDO Regulator Using a Self-Biased Recycling Folded-Cascode Error Amplifier in 90 nm CMOS". *Accepted for presentation at IEEE DELCON 2025.*
- **[Ilyas, A.]**, et al. (2025). "Fine-tuning Text-to-Speech Models for English Technical Speech and Regional Languages". *Poster presented at: AMU-OSU Indo-US STEM Research Program 2025.*

Selected Technical Projects

XR Interaction with Robotics | Coursework Major Project
June 2025 – Present

- Engineered a system for teleoperating a custom robot using an AjnaXR headset, creating an immersive control environment in Unity.
- Designed and 3D-printed the robot chassis and established a real-time video stream from the robot to the XR headset.
- Developing head tracking live video stream system.

Autonomous Robot | Lab Collaboration Project

August 2025 - Present

- Migrating ROS1 Noetic program to ROS2 Humble.
- Simulation in Gazebo Ignition
- Mapping of room with 3D LiDAR.

Quadruped Robot with Inverse Kinematics | Coursework Mini Project
Dec 2024 – May 2025

- Designed and 3D-printed a quadruped robot to implement and study advanced locomotion gaits (walking and trotting).
- Developed an automatic forward-moving and rotational algorithm with inverse kinematics and built a web-based controller for manual operation.

Soft Robotic Actuator | Personal Project
Jan 2024

- Designed and fabricated a pneumatic-based, three-fingered soft robotic actuator using Platinum-grade 25A silicone.
- Investigated casting/molding for creating flexible mechanisms suitable for adaptive grasping, a key technology for advanced robotics.

Embedded Classroom Broadcasting System | Startup Venture
Dec 2024 – June 2025

- Core team member developing a cost-effective classroom broadcasting system. Responsible for bare-metal firmware (C), designing a robust RS-485 multi-node communication protocol, and PCB design/assembly.

Leadership Experience

Coordinator | AMU Roboclub
Sep 2023 – Present

- Coordinated a team of 50+ students, organizing robotics workshops and competitions (ROS, Fusion360, Arduino, Basic Robotics, etc.)
- Led the technical team for ABU Robocon 2023, IIT-Rorkee Cognizance 2024, IIT-Delhi Tryst 2025, and Technoxian 2025.

Joint Secretary | Engineering Design and Implementation Club (EDIC)
Dec 2023 - Present

- Spearheaded workshops on analog electronics and embedded systems to provide hands-on experience to junior students.

Technical Skills

- **Programming:** Python (PyTorch, Keras, OpenCV), C/C++, MATLAB, ROS2
- **Simulation & CAD:** Fusion 360, SolidWorks, Onshape, LTSpice, Cadence Virtuoso, Simscape, Gazebo, Webots
- **Hardware & Fabrication:** FFF 3D Printing**,** CNC Machining, PCB Design (KICAD, Eagle), Embedded Systems (RPi, Arduino), Analog & Digital Circuit Design

Honors & Awards

- **IASC Summer Research Fellowship (SRFP-24)**, Indian Academy of Sciences (May 2024)
- **Silver Medal**, Analog Design Hackathon, ZHCET (Mar 2024)