

AYAN ALI SALEEM

+92-335-3737414 • ayansaleem827@gmail.com

• www.linkedin.com/in/ayan-saleem • <https://github.com/ayanali827>

Profile

Research-focused Electrical Engineer pursuing a Master's in Robotics and Artificial Intelligence, specializing in autonomous systems, machine learning, and human-robot interaction. Experienced in developing intelligent robotic prototypes, perception algorithms, and control frameworks integrating hardware and software for autonomous decision-making. I am skilled in Python, MATLAB, ROS, and MuJoCo, with additional experience in C/C++ and hardware simulation tools. Current research focuses on AI-driven perception and adaptive control for intelligent robotic inspection and smart infrastructure systems

Education

ITMO University	Saint Petersburg, Russia
<i>MSC Robotics and Artificial Intelligence</i> CGPA: 5/5	2024- 2026

NED UNIVERSITY OF ENGINEERING AND TECHNOLOGY	Karachi, Pakistan
<i>BE Electrical Engineering</i> CGPA: 3.4/4	2019- 2023

SHAH ABDUL LATIF GOVT. DEGREE COLLEGE	Mirpur Khas, Pakistan
<i>Higher Secondary Certificate (Pre-Engineering Group) A-1 grade</i>	2017-2019

Academic Experience

Here are my academic projects showcasing my electrical engineering skills:

Object Detection for Autonomous Vehicle Navigation using YOLO | 2025–2026

- Designed and implemented a complete object detection pipeline using YOLOv8, YOLO11, and YOLO12 on the KITTI autonomous driving dataset.
- Conducted systematic comparative evaluation across architectures using mAP@0.5, mAP@0.5:0.95, precision–recall, FPS, FLOPs, and model size.
- Performed class-wise performance analysis for vehicles, pedestrians, and cyclists, identifying challenges in small and rare object detection.
- Developed perception modules intended for integration with downstream path planning and control systems in autonomous navigation.

Neural Radiance Fields (NeRF) for Scene Reconstruction | 2025

- Implemented NeRF pipelines for continuous 3D scene representation and novel view synthesis.
- Worked with multi-view image datasets, camera pose estimation, and volumetric rendering.
- Analyzed reconstruction quality, convergence behavior, and data requirements.
- Applied NeRF concepts to imaging-based 3D reconstruction relevant to robotics perception and mapping.

Tri-Nav: Integrated A, DWA, and MPC for Robot Navigation | 2025

- Developed a hybrid navigation framework for ground robots in a MuJoCo simulation.
- Integrated A* (global), Dynamic Window Approach (local), and MPC (control).
- Focused on robustness in cluttered maze environments and real-time execution.

Hybrid PV System Design & Smart Automation | 2023

- Developed a hybrid renewable energy system with automated switching.
- Integrated IoT-based smart home automation using microcontrollers.

Additional Skills and Certifications Technical Skills

- **Robotics & Control:** ROS, SLAM, sensor fusion, MPC, PID, computer vision, MuJoCo, Gazebo, Motion Planning (A*, DWA, MPC), PID Control
- **Software & Tools:** MATLAB, ETAP, Multisim, Proteus, AutoCAD, SketchUp
- **Programming:** Python (Proficient), C++, C
- **Power & Systems:** Control systems design, optimization, signal processing

Professional Experience

Sapphire Renewables (Wind Power Company Ltd.)

Karachi, Pakistan

Operations Management Engineer

Feb 2024 – Sep 2024

- Assessed wind turbine data for predictive maintenance, improving uptime.
- Scheduled and supervised maintenance to minimize energy losses.
- Produced detailed breakdown reports and SOPs for plant operations.
- Conducted performance analysis to enhance turbine energy output.

Winston Marriot Ltd.

United Kingdom

Engineering Trainee (R&D)

Dec 2023 – Feb 2024

South Asia Pakistan Terminals (SAPT)

Karachi, Pakistan

Maintenance Engineering Intern

Sep 2022 – Oct 2022

- Worked on the electrical maintenance and operation of port infrastructure, supporting ship-to-shore and yard operations.
- Assisted in installation, inspection, and troubleshooting of electrical systems related to port activity monitoring, including CCTV and surveillance camera networks for operational safety and security
- Participated in preventive and predictive maintenance activities for electrical equipment, contributing to a measurable reduction in unexpected breakdowns.

Unicol Limited

Mirpur Khas, Pakistan

Maintenance Intern

Feb 2022 – Mar 2022

- Worked on industrial automation systems, focusing on PLC-based control logic and SCADA monitoring for sugar plant operations
- Gained hands-on exposure to SCADA interfaces, including system monitoring, alarm handling, and basic process visualization.
- Supported the operation and maintenance of electrical substations, observing transformers, switchgear, protection relays, and power distribution systems.

International Programs & Competitions

World Atomic Week

Moscow, Russia

ROSATOM

Aug 2025

- Awarded Participation Certificate for the Global HackAtom international student championship during World Atomic Week, contributing to the development of innovative nuclear-technology solutions in a high-intensity, collaborative environment.
- Represented ITMO university in a global forum of 35+ countries and 1,200+ participants, enhancing cross-cultural teamwork, problem-solving, and technical innovation skills.
- Engaged with industry experts and advanced nuclear technologies, gaining practical insights into energy systems, R&D approaches, and global innovation trends.

ObninskTech Winter School

Obninsk, Russia

ROSATOM

Feb 2025

- Participated in a prestigious international nuclear science program organized by Rosatom, MEPhI, and ObninskTech, collaborating with students and professionals from 39 countries to foster innovation and knowledge exchange
- Led Group 3.1 (The Co-Creators), investigating hydrophobicity of low-friction surfaces in steam turbines.
- Developed a Python GUI to visualize droplet behavior under steam pressure & centrifugal forces.
- Awarded 2nd Place in the final competition among international teams

ObninskTech Summer School

Obninsk, Russia

ROSATOM

June 2025

- Engaged in seminars on AI, nuclear, and digital technologies, fostering innovation and collaboration.
- Built international networks with peers and industry experts
- Winner of the 2nd Round of HackAtom 2025, presenting “NukeNet
- A Gamified Knowledge & Networking Hub” to connect flagship universities.

Extracurricular & Volunteer Experience

Winner – Hackathon 2025 (Rosatom Student Competition): Developed *Nuke Net*

- *A Gamified Knowledge & Networking Hub*” to connect flagship universities.

NED IEEE Society May 2022-Aug 2023

- *IT Team Member – Developed a simple native JS DOM Manipulation Templating Library for the IEEE blog.*

Certifications

- Deep Learning Specialization – Coursera
- Advanced Data Analytics – Google
- AI Engineering – IBM
- IoT Programming Specialization
- Data Science & Excel Foundations