

MOHAMED NALIM

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ACADEMIC CREDENTIALS

NUST (National University of Sciences and Technology) - CEME

Islamabad, Pakistan

BEng. Mechatronics Engineering - (*Merit Scholar, Allama Iqbal Scholarship, HEC - 100%*)

Nov 2021 – May 2025

PROFESSIONAL EXPERIENCE

CNSA, China | SQU, Oman | NUST, Pakistan | Lunar Vision, Japan

Remote

Mechanical Team Lead, Research intern

Jun 2024 - Sep 2024

- Led a team of 2 engineers in designing the complete mechanical system for the FLI-ME (Flying Imagers for Moon Exploration) payload, ensuring it fit within a compact 300x300x150 mm enclosure in its rest position.
- Devised a spring-loaded ejection mechanism with a rack & pinion system, spring motor, and one-way clutch bearing, along with a dual-axis ($\pm 70^\circ$) azimuth & elevation control system for precise targeting (upto 100m) and stabilization.
- Conducted trajectory analysis and impact dynamics optimization for successful deployment, imaging, & data transmission, and co-authored a peer-reviewed research paper ([IAC-24,A3,IP,212,x83782](#)) at 75th IAC in Milan, Italy on this project.

PhotoMath

Remote

Freelance Math Expert Solver | Reviewer

Aug 2022 - Jan 2024

- Solved advanced mathematics problems (Algebra, Trigonometry, Geometry, Probability, Statistics) with 80%+ accuracy.
- Reviewed and graded solutions with 75% accuracy, ensuring high-quality responses.

RIN AutoMart (PVT) LTD

Kandy, Sri Lanka

Intern

Jul 2023 - Sep 2023

Hands-on experience in machine handling (welding, drilling), automobile maintenance (brake system), & workshop management.

National Centre of Robotics & Automation-RML

Islamabad, Pakistan

Intern

Jul 2022 - Sep 2022

Drafted 3D models in SolidWorks, operated CNC, laser cutting, & lathe machines, and build PCBs from design to fabrication.

PROJECTS & INNOVATIONS

Modular Self-Reconfigurable Robot (MSRR)

Sep 2024 - Present

- Designed a 300-400g, 5-inch self-reconfigurable robot with ESP32, IMU, and ESP32-CAM for autonomous systems for multi-tasking.
- Integrated N42 neodymium magnets for robot kinematics and motion planning, enabling seamless reconfiguration.
- Optimized for automation, disaster response, space exploration and assistive robotics, leveraging sensor fusion and SLAM (Simultaneous Localization and Mapping) to enhance versatility.
- Achieved a 30-50% reduction in operational costs and a 50% weight reduction, improving efficiency and scalability.

Human Replicating Mechanical Arm

Dec 2024– Jan 2025

Fabricated a wood & metal mechanical arm replicating human movements, modeled in SolidWorks, analyzed in ANSYS for structural integrity, and tested in ROS2 and Gazebo.

4-Armed Pick & Place Robot

Sep 2023 – Aug 2024

- Designed a 10"x10" 4-DOF autonomous robot, 3D-printed with PLA, using high-torque encoder motors and a custom H-bridge to lift 4 objects with PID control, improving efficiency by 40%.
- Integrated IR, ultrasonic sensors, and the Grass Wire algorithm for autonomous navigation.

SKILLS & PROFICIENCY

Robotics & Controls: *Intermediate* - Copelia Sim, LAB View, Linux | *Beginner* - ROS2

CAD & Design: *Expert* - SolidWorks | *Advanced* - AutoCAD, PCB Design | *Intermediate* - Altium Designer

Simulation and Analysis: *Advanced* - Proteus | *Intermediate* - Ansys, FEA

Programming: *Advanced* - C++, Python, C | *Intermediate* - Assembly, DS & OOP, MATLAB | *Beginner* - Verilog

Software & Development: *Intermediate* - VS Code, ModelSim, Keil, Git | *Beginner* - Machine Learning

General Productivity and Editing: *Advanced* - MS Office, Editing

Soft Skills: Project Management, Leadership, Communication, Innovative, Analytical

Languages: *Native* - Tamil | *Advanced* - English | *Intermediate* – Urdu, Sinhala

CERTIFICATIONS & TRAININGS

Hackathon - CEME '23: Best Product Design – “Wearable Smart Sensing Insole”

30 Dec 2023

Altium Education: Course completion – “PCB Design & Manufacture”

Oct 2022

University of Morattuwa, Sri Lanka: Course completion – “Python for Beginners”

Aug 2022

EXTRA-CURRICULARS

SolidWorks User Group – Islamabad: Worked in logo creation & Member of graphics team

Apr 2023 - Present

Robotics and Automation Club (RAC): Member of UGV Team (Project: Automatic vacuum cleaner)

Jul 2022 - Present

Muneer Youngsters Club: Kasawatta Village Welfare Association

Jan 2020 - Present