MOHAMED NALIM

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ACADEMIC CREDENTIALS

NUST – CEME, Pakistan **Nov 2021 – Jun 2025**

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

PROFESSIONAL EXPERIENCE

Ultratec 3D Printing & Innovative Technologies

Mechatronics Engineer Intern – Dubai, UAE **Nov 2025 - Present**

- Assist in the design, assembly, and testing of mechatronics systems for 3D printing and robotics.
- Collaborate with cross-functional teams to ensure efficient integration of mechanical, electrical, and control systems.
- Conduct troubleshooting and maintenance of 3D printers and related components, enhancing system reliability.

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

Mechanical Team Lead, Research intern - Remote **Jun 2024 - Sep 2024**

- Led a team of 2 engineers in a concept to design project, FLI-ME (Flying Imagers for Moon Exploration) mission is currently competing for a slot in the International Missions Bay of the Chang'E-8 lunar lander scheduled to launch in 2028 by China.
- Designed a compact deployment system (30×30×15 cm) with a spring-loaded rack & pinion, spring motor, and one-way clutch, enabling dual-axis (±70°) targeting and stabilization up to 100 m range.
- Co-authored a peer-reviewed paper presented at the 75th IAC, Milan (IAC-24,A3,IP,212,x83782).

RIN AutoMart (PVT) LTD

Intern - Kandy, Sri Lanka **Jul 2023 - Sep 2023**

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

National Centre of Robotics & Automation-RML

Intern - Islamabad, Pakistan **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 (Final Year Project) **Sep 2024 - May 2025**

- Designed a 300g, 10 x 10 cm cylindrical shaped modular robot using ESP32, IMU, UWB (BU04), and N20 encoder motors, achieving ±5 cm localization accuracy and 50% weight & 30 - 50% cost reduction over existing models.
- Integrated N55 magnets for reconfiguration and built an MQTT-based GUI for real-time control and visualization.
- Stabilize the bots over 40° inclination; optimized for space, disaster, and assistive robotics.

Human Replicating Mechanical Arm **Dec 2024 - Jan 2025**

Wood & metal manufactured mechanical arm replicating human arm & finger 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**

- Prototyped 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 Grassfire algorithm for autonomous navigation.

SKILLS & PROFICIENCY

Robotics & Controls: Intermediate - CoppeliaSim, LabView, Linux | Beginner - ROS2, Gazebo

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

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

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

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

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

ACTIVITIES & CERTIFICATIONS

Robotics and Automation Club (RAC): Member of UGV Team **Jul 2022 - May 2025**

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**