

Atharva Nayak

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EDUCATION

Northeastern University (NEU) , Boston, MA	May 2026
<i>Master of Science in Robotics, Concentration: Electrical and Computer Engineering</i>	GPA: 3.85
Coursework: Robot Sensing and Navigation, Robot Mechanics and Control, Mobile Robotics, Pattern Recognition and Computer Vision	
Research Focus: Real-time sensor fusion, robotic control systems, and automation in high-performance environments	
Vivekanand Education Society's Institute of Technology (VESIT) , Mumbai, India	May 2024
<i>Bachelor of Technology in Electronics and Telecommunication</i>	GPA: 8.55
Coursework: Signals & Systems, Linear Integrated Circuits, Embedded Systems, Digital Communication, Sensor Tech	
Veermata Jijabai Technological Institute (VJTI) , Mumbai, India	Aug 2018 - Jun 2021
<i>Diploma in Electronics Engineering</i>	Percentage: 93.32%

SKILLS

Programming Languages: Python, C++, MATLAB, Verilog

Frameworks & Middleware: ROS, ROS2

Libraries: OpenCV, TensorFlow, NumPy, SciPy

Software & OS: VS Code, Eclipse, Vivado, Xilinx ISE, Git, Linux

Protocols: I2C, SPI, UART, USB, CSI-2, Ethernet

Technologies: Robotics and Automation, Machine Learning, Image Processing, Sensor Integration, PCB Schematic Capture, SLAM, IoT

Tools: Raspberry Pi, Arduino, FPGA, TurtleBot 3, Oscilloscope, CAD (basic familiarity), Altium

Testing & Automation: Python test automation, sensor calibration, data analysis, test plan creation

WORK EXPERIENCE

Vivekanand Education Society's Institute of Technology (VESIT) , Mumbai, India	Jun 2023 - Dec 2023
<i>Research Intern</i>	
<ul style="list-style-type: none">Optimized PWM control for brushless DC motors using Verilog, improving motor operation and precision in speed control for enhanced energy efficiencyDeveloped an FPGA-based Electronic Speed Controller (ESC), eliminating the external microcontroller and enhancing computational efficiency and communication between processor and components	

PROJECTS

Point-LIO SLAM Development for Autonomous Navigation , NEU	Oct 2024 - Nov 2024
<i>Designed and implemented a high-performance SLAM system using LiDAR and IMU data for precise real-time mapping and navigation on SPOT and NUance (Autonomous Car)</i>	
<ul style="list-style-type: none">Integrated LiDAR and IMU sensors with an EKF-based fusion approach, ensuring accurate localization and mapping even during rapid or aggressive movementsValidated the system on Boston Dynamics Spot, overcoming data collection challenges and showcasing high-bandwidth performance in real-world scenarios	
Navigation with IMU and GPS with Dead Reckoning , NEU	Oct 2024 - Nov 2024
<i>A navigation system combining GPS and IMU data for real-time, precise trajectory estimation</i>	
<ul style="list-style-type: none">Built and deployed Python-based ROS2 drivers for real-time sensor data acquisition from GPS and IMU, enabling robust localization, navigation, and dead reckoningAnalysed IMU noise characteristics through Allan Variance and calibrated magnetometer for hard/soft iron distortions along with error compensation in IMU and GPS dataCompensated for accelerometer bias to estimate vehicle's forward velocity, and fused yaw angle computed from gyroscope and magnetometer data to estimate heading for Dead Reckoning with IMUPerformed sensor fusion to get an improved estimate of the vehicle's overall trajectory including GPS-lacking environments	
Non-Invasive Glucometer , VESIT	Jun 2023 - Apr 2024
<i>Developed a device to monitor blood glucose levels without finger pricks</i>	
<ul style="list-style-type: none">Developed a machine learning model for non-invasive glucose prediction by collecting and processing training data using an Arduino and PPG sensor; tested and validated reliable glucose level analysisDesigned and implemented a PHP and SQL-based webpage to log user data and provide real-time data visualization through an intuitive interface	