

# NILANJAN CHOWDHURY

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## SKILLS

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- **LANGUAGES:** Python, C, C++, MATLAB, Java, Rust, YAML, CMake, OCaml, Fortran
- **TECHNOLOGIES:** Docker, Azure, AWS, Arduino, Raspberry Pi, Pixhawk, Linux, TensorFlow, OpenCV, ROS, Rviz, PX4, Ardupilot, Autoware, Gazebo, Git, XML, Unit Test, GTest, PyTorch, TinyML
- **SOFTWARES:** Simulink, LTSpice, MSOffice, LaTeX

## PROJECTS

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- **MindScanner a Low Cost Electroencephalogram Based Biosensor For Disabled People**
  - Designed and developed the circuit and program from scratch using Raspberry Pi, Micro Python, Proteus and MATLAB
  - EEG signals stored and subjected to signal processing algorithms using MNE Signal Processing Library and cleaned from noise using FFT algorithm and ICA algorithm
  - Finalizing patent application process for the invention
- **Patrolling and Object Trackers for a Differential Drive Robot**
  - Built a differential drive robot from scratch that can patrol and track objects using ROS2, Rviz2, Gazebo, EKF, OpenCV, Behavior Trees, C++ and Python
  - Integrated the odometry, lidar and gyroscope sensors for a simulated mobile robot
  - Incorporated sensor fusion using robot localization package
  - Tested using Gtest
- **Rapidly Exploring Random Tree Path Planning Algorithm Visualization Tool**
  - Implemented an algorithm visualizer for both RRT and A\* path planning algorithm
  - Developed and tested using Python and C++ languages
  - Visualized using SFML Graphics Library for C++ and Pygames for Python

## HIGHLIGHTS AND ACHIEVEMENTS

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- Led a team of 3 and won in ThinkTank, a startup pitching competition among 80 teams
- Preparing patent applications for MindScanner and Brint Bagasse Plates
- Presented the use case of Fridrich Algorithm on a Rubik's Cube as part of club activities
- Dean's Academic Excellence Award 2019, 2020
- Led a team of 3 and developed a novel, low cost and conventional hydrogen based fuel cell for IILM Sustainability Carnival, A National Sustainability Innovation Competition
- Designed a Go-Kart using SOLIDWORKS for a National Design Competition

## EDUCATION

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IILMAHL College of Engineering and Technology, Greater Noida

Bachelor of Technology — **Mechanical Engineering**

August 2019 – June 2023