

# Shekhar Mohanty Hemant

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## EDUCATION

- Indian Institute of Technology Madras** Bachelors of Science (4 year) Jan. 2021 - Dec. 2024  
*Data Science and Applications* CGPA: 8.96/10.0
- Shavak Nanavati Technical Institute** Jan 2016 - Apr. 2019  
Trade Apprentice - NCVT Electronics

## WORK EXPERIENCE

- Tata Steel:** Apr. 2019 - Present  
Maintenance Assistant - 2
  - Upgraded existing automation system and successfully commissioned **ABB 800 M PLC** and **ACS 880 Drive**.
  - Performing regular maintenance activities and resolving breakdown of electrical equipment in Recoiling and inspection line.

## SKILLS

- Languages : C/C++, Python, R, Java, Bash Script, Ladder, STL, MATLAB.
- Software : AutoCAD, Fusion360, Cura(3D printing), Davinci Resolve.
- Cloud : GCP, Azure. Certification- Azure fundamentals, AI fundamentals
- Electronics / Electrical System Design.

## PROJECTS

- Warehouse Inspection Robot :** Dec. 2024
  - Demonstrated **autonomous navigation** and **object detection** in a simulated warehouse environment by a robot with camera and lidar sensors. The robot is able to navigate through waypoints and detects *parcel* in the camera feed and logs the robot position and orientation in a text file.
  - Simulation environment - **Gazebo** (warehouse with turtlebot3).  
Autonomous navigation- **ROS2** Navigation2 stack.  
Object detection - **Yolo v5** trained to detect parcel and show it in realtime as image stream.
- Spectral Classification (CH2IIRS) :** Aug. 2024
  - Created a pipeline for spectral classification of ch2 iirs dataset of Mare Moscoviense and Mare Gardner crater.
  - Pipeline- Data conversion from radiance to reflectance, MNF for denoising, KMeans and NFINDR algorithm to estimate the number of spectral classes, 1DCNN to predict spectral class for each image pixel patch and plot the abundance map.
- Machine Unlearning:** May. 2024
  - Demonstrated how machine unlearning can be done for classification task on deep neural network at ACM workshop 2024.
  - Implemented paper *Fast Yet Effective Machine Unlearning*, Tarun et al. on a custom network for classification of 10 class dataset.
- Home Automation (Envision IoT) :** May. 2023
  - Controlling the home appliances by detecting presence of human in the room.
  - Hardware - ESP32, Custom relay board, USB camera.  
Platform - ArduinoIDE code, fiespi MQTT as message broker, VueJs for frontend.
- Web application (QuantifiedSelf) :** Mar. 2022
  - Created a web application for allowing users to create trackers to log data periodically and analyse its overall trend.
  - Backend- *Flask(Gunicorn)*, *SQLite3*, *Cronjob*, *Redis* . Frontend- *VueJS*
- UAV Drone :** Mar. 2017
  - Assembled a Quadcopter to demonstrate surveillance capability.

## **ACHIEVEMENTS**

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- AIR 170 in GATE (Data Science and Artificial intelligence) 2024 examination. Score- 739
- 1st in PLC programming, CII National Workskill competition (2019).

## **VOLUNTEERING**

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- Working with IFTR (through Tata Pro engage) to create an application for collecting farmers data in an organised manner from remote locations of Chennai.