# Maitreya Dave

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Projects Link: GitHub Profile

## Objective

To work in an environment, which will help in my professional growth moreover, where I can enhance my skills and potentials to the optimum and be a part for the development and growth of the organization.

## Skills & Abilities

| | **Intermediate Proficiency** | **Elementary Proficiency** |
|---|---|---|
| **PROGRAMMING** | C, C++, MATLAB, Python | Mathematica, JAVA |
| **SOFTWARES** | MATLAB, Simulink, Linux Systems, PyTorch, TensorFlow, Open3D, Git, Microsoft Word | Mathematica, ROS, MeshLab, AWS Sagemaker, OpenSCAD, Microsoft Excel |
| **HARDWARE** | Raspberry Pi, ATMega Microcontrollers | Bosch Scara 4-axis, Yaskawa 6-axis robotic arm |

## Education

**SEP, 19 - PRESENT** **CHALMERS TEKNISKA HÖGSKOLA** **GÖTEBORG, SWEDEN**

**MSc. Engineering Mathematics and Computational Science**

Domain of Interest: Machine Learning & Inverse Problems, Linear Algebra, and Image Analysis.

Master Thesis: *Geometry Identification from Point Cloud Data*

- The objective of this thesis was to have a comparative study of algorithms for segmenting shapes from point cloud data i.e., developing models which can learn to per-point classification for 3D data. One of the approaches to solve this task was using the recently developed deep-learning based models. Some example objects of interest were cups, table, chair and more.
- This task is categorized as "part-segmentation of point clouds" in deep learning literature for 3D data. Innovative models like PointNet, PointNet++, Dynamic Graph CNN and Kernel Point Convolutions were implemented using pytorch and tensorflow.
- For test purpose, a 360-degree point clouds of test objects were capture using Intel's RealSense LiDAR L515 Camera and Open3d. (point cloud processing library).

Course List

| | | | |
|---|---|---|---|
| Statistical Inference | Statistical Learning for Big Data | Spatial Statistics & Image Analysis | Image Processing |
| Nonlinear Optimization | Dynamical Systems | Model Predictive Control | Game Theory & Rationality |
| High Performance Computing | Numerical Linear Algebra | Machine Learning Algorithms in Inverse Problems | Project Course in Mathematical Modelling |

**JULY, 14 - MAY, 18** **NMIMS UNIVERSITY (CGPA: 3.17/4.00)** **MUMBAI, INDIA**

**Bachelor of Technology (Specialization: Mechatronics)**

**Bachelor Thesis: *3D Mapping of Indoor Environment***

- Developed a low-cost system to generate a 3D Point Cloud Representation of an indoor environment using Garmin LIDAR Lite v3.
- Wrote the code for interfacing the sensor as well as for the control of stepper & servo motor. The initial prototype was in python but later switched to C for faster and precise control. The communication method used was I2C.
- Played a role in the conceptual design of the rotating mechanism along the Z-axis and Y-axis for the LIDAR sensor using a stepper and servo motor.
- Initially matplotlib was used for plotting the collected data and later for visualization MeshLab was used.

**Minor Project: *Speech Recognition***

- Using CMU Sphinx, a small vocabulary-based program was developed, the decision script was written in python to direct the movement of a mobile robot.
- The whole system was based on a Raspberry Pi 2 for remote operation of the mobile robot.
- Designed and Fabricated the PCB for the motor controller of the mobile robot.

## Experience

**JUNE, 20 – AUG, 20** **DINOSE AB** (FORMERLY AIFOREST AB) **GÖTEBORG(SWEDEN)**

**SUMMER PROJECT**

- Summer project to explore classification of respiratory sound data with the purpose of distinguishing healthy and unhealthy patients.
- TensorFlow was used to develop machine learning models.

**FEB, 18 – APR, 19** **M R SANGHAVI & CO.** **MUMBAI(INDIA)**

**JUNIOR ENGINEER (FULL TIME)**

- Designing and 3D printing structures as required using OpenSCAD for modeling and FDM based 3D printer for 3D structure.
- Maintenance of Column Chromatography Systems.

**FEB, 15 – JAN, 18** **PRITESH SIR'S STUDY CENTRE** **MUMBAI(INDIA)**
**ASSISTANT PROFESSOR (PART TIME)**

- Teaching Mathematics to 11th and 12th standard/grade students. As well as teaching topics of Engineering Mathematics to 1st and 2nd year Engineering students.
- Conducted workshops for students to introduce them to topics of programming, electronics, 3D printers.

## Extracurricular & Achievements Activities

**JULY, 17- MAY, 18** **QUARTER FINALIST AT DST & TEXAS INSTRUMENTS INDIA**
Project: Smart Cleaning Assistant
Competition: Innovation Challenge Design Contest 2017, Anchored by IIM, Bangalore.

**AUG, 16 - FEB, 17** **CERTIFIED INFORMATION SECURITY CONSULTANT (CISC)**
Certified By: Institute of Information Security, affiliated with Network Intelligence India Private Limited.
Profile: Received training in secure coding with C/C++, Penetration Testing and Vulnerability Assessment.

## Additional Information

**LANGUAGES** English - Fluent Working Proficiency (IELTS: 8.0/9.0)
Swedish - Pursuing A1
Hindi, Marathi - Native speaker

**INTEREST** Badminton, Sudoku