MANAN MADAN

Projects

LEARNING PERSPECTIVES | GROUPING STUDENTS BASED ON NOTES
- ➔ Keyword extraction using POS Tagging and Chunking
- ➔ Used K-Means, K-Modes clustering of categorical data (keywords)
- ➔ Used one-hot encoding to encode the keywords.

LANE DETECTION | LANE DETECTION USING DASH-CAM FOOTAGE
- ➔ Lane Detection using Canny Edge Detection, masking, and contour detection from the footage of the DASH-CAM of the car using OpenCV.

PR2 | END TO END PERCEPTION PIPELINE
- ➔ Implemented Camera Calibration from scratch using OpenCV
- ➔ Implemented Voxel DownSample and pass-through filter using PCL
- ➔ Trained an SVM Classifier for object detection
- ➔ Trajectory planning using Moveit

HANDWRITTEN DIGIT CLASSIFICATION | CLASSIFYING MNIST DATA
- ➔ Coded a regularized logistic regression to classify handwritten digits using one vs all techniques, achieved an accuracy of 94%
- ➔ Also coded a basic neural network to train on the same data and achieved an accuracy of 97%

KINO-PLANNING | PATH PLANNING ALGORITHM
- ➔ Implemented a path planner inspired from A*path planning algorithm, but considers robot's kinodynamic constraints while planning

MONTE-CARLO LOCALIZATION | PROBABILISTIC LOCALIZATION
- ➔ Implemented Monte-Carlo localization from scratch
- ➔ Achieved accuracy >96%

Work Experience

NSIT,Delhi | Research Intern
May 2020 - July 2020
- Implement several clustering algorithms for clustering real-world categorical data
- Studied and implemented different types of encoding and decoding techniques to process data
- Worked on several algorithms and tools for natural language processing and web-scraping such as chunking, chinking, regex parser , etc.

Team ARES Robotics, Delhi | Software Lead
August 2018 - Present
- Implemented full ROS navigation stack on simulation as well as on hardware platform
- Coded an autonomous differential drive robot with various sensors such as Depth Camera, IMU, GPS, from scratch in Gazebo.

Education

Netaji Subhas Institute of Technology, Delhi
University of Delhi
2018-2022

BE Instrumentation and Control
CGPA - 7.52 (Upto 3rd sem)

Contact

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Skills

Languages: C,C++,Python
Robotics: ROS, Gazebo,Sensor Fusion, Kalman Filters, OpenCV, Perception,Path Planning
Frameworks: NLTK, Spacy, Pandas, Matplotlib, Networkx, BeautifulSoup, TextBlob, Regex

Certifications

C++ and Data Structures
- Coding Ninjas

Competitive Programming
- Coding Blocks

Algorithmic Toolbox
- UCSD

Algorithms and Data Structures
- UCSD

Algorithms on Graph
- UCSD

Arduino Programming
- Udemy

Machine Leaning
- Stanford

Achievements and Awards

> Came in 10th place in Indian Rover Championship 2019
> Qualified for European rover championship 2019
> Top 1% in JEE Advanced 2018