Tejaswini Dilip Deore

+1 857-313-5903 • deore.t@northeastern.edu • LinkedIn • GitHub • Portfolio

EDUCATION

Master of Science in Robotics, Computer Science Concentration Expected Graduation: Dec 2024
Northeastern University, Boston, MA **GPA**: 4.0/4.0
Courses: Robotic Sensing and Navigation, Computer Vision, Reinforcement Learning, Artificial Intelligence

Bachelor of Technology in Electronics and Telecommunication, CCOEW, Pune, India, **GPA**: 8.89/10 2016 - 2020

PROJECTS

Monocular Visual Odometry System [code] Aug 2024
- Implemented a visual odometry system for vehicle trajectory estimation using KITTI dataset
- Designed a pipeline for feature detection, tracking, and motion estimation using OpenCV
- Integrated GPS data for scale estimation and visualized the vehicle trajectory

Point Cloud Processing and Visualization with PCL [code] July 2024
- Developed an advanced point cloud processing pipeline using Point Cloud Library (PCL)
- Employed voxel grid filtering, RANSAC plane segmentation, and Euclidean cluster extraction techniques

Image Caption Generator [code] April 2024
- Built image captioning system using CNN-LSTM and ViT-GPT2 architectures
- Trained and evaluated models on Flickr8k dataset with BLEU, ROUGE, METEOR, and CIDEr metrics

Comparative Analysis of Optical Flow Estimation and Facial Motion Tracking [code] April 2023
- Engineered and compared Farneback Algorithm and FlowNet 2.0 for dense optical flow estimation
- Assessed performance using L1 error, average endpoint error, and average angular error metrics
- Compared performance of Farneback and FlowNet 2.0 for facial motion tracking, analyzing percentage overlap of predicted bounding boxes using optical flow and Harr-Cascade classifier methods

3D Object Classification from Partial Point Cloud [code] Mar 2023 - April 2023
- Designed a novel system combining GRNet and PointNet architectures to classify objects from partial point clouds
- Achieved 93.8% accuracy, surpassing PointNet++'s 70%, in system performance evaluation

Robust Sensor Fusion System for State Estimation in Complex Environments [code] Dec 2022
- Devised GVINS algorithm to fuse GNSS, visual, and inertial data for state estimation
- Developed RTK-GPS system using ROS and an NTRIP Client to enhance global positioning accuracy
- Evaluated Visual-Inertial Navigation System performance across various environments using ORB-SLAM3

WORK EXPERIENCE

Graduate Teaching Assistant Jan 2024 - April 2024
Northeastern University, Boston, MA
- Guided 120+ students in coding projects and graded assignments focused on C++, Python, and OpenCV for the Pattern Recognition and Computer Vision course
- Held office hours to guide students on topics like object classification, augmented reality, and digit recognition

Mechatronics Engineering Co-op July 2023 - Dec 2023
Festo Corporation, Marlborough, MA
- Designed and simulated safety circuitry for a high-voltage liquid handling system adhering to IEC 61010-1 standard
- Developed and assembled a control cabinet for controlling a 3-axis gantry system
- Conducted comparative analysis of piston pumps by utilizing a data acquisition system to evaluate performance

European Train Control System (ETCS) Application Engineer Oct 2020 - June 2022
Alstom, Bangalore, India
- Led data curation for major work packages of Radio Block Centre, Denmark, ensuring on-time delivery
- Reviewed technical documents and tools to propose effective solutions supporting decision-making
- Trained 20 team members to operate European Rail Train Management System data design tools and processes

TECHNICAL SKILLS

Programming Languages	C++, Python, MATLAB
Libraries	OpenCV, PyTorch, PCL, NumPy, Matplotlib
Software Tools	ROS, Git, Ubuntu, LTSpice, EPLAN P8