Tejaswini Dilip Deore

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

EDUCATION

Master of Science in Robotics, Computer Science Concentration Sept 2022 - 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 Aug 2016 - Nov 2020
MKSSS's Cummins College of Engineering for Women, Pune, India **GPA**: 8.89/10

TECHNICAL SKILLS

Languages & Libraries: Python, C++, MATLAB**,** OpenCV, PyTorch, Matplotlib
Software & Tools: Linux (Ubuntu), ROS, Git, Visual Studio Code, Google Colab, LTSpice, EPLAN P8, MS Office Tools
Hardware: ZED Camera, ZED-F9P (RTK-GPS), VN-100 IMU, GSM, HC-SR501 (PIR Sensor), Pressure Sensor

PROJECTS

Monocular Visual Odometry System 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 library
- Developed scale estimation using GPS data and visualized trajectory

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

Image Caption Generator April 2024
- Developed image captioning system utilizing two distinct architectures: CNN-LSTM and ViT-GPT2
- Trained and evaluated models on Flickr8k dataset using BLEU, ROUGE, METEOR, and CIDEr metrics

Comparative Analysis of Optical Flow Estimation and Facial Motion Tracking April 2023
- Implemented and compared Farneback Algorithm and FlowNet 2.0 for dense optical flow estimation
- Evaluated 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 Mar 2023 - April 2023
- Designed a novel system combining GRNet and PointNet architectures to classify objects from partial point clouds
- Evaluated system performance against PointNet++, achieving 93.8% accuracy compared to PointNet++'s 70%

Robust Sensor Fusion System for State Estimation in Complex Environments Dec 2022
- Implemented GVINS algorithm to tightly 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 for Pattern Recognition and Computer Vision Jan 2024- April 2024
Khoury College of Computer Sciences, Northeastern University, Boston, MA
- Assisted 120+ students with coding and grading projects in C++, Python and OpenCV
- Conducted office hours to mentor students on topics like object classification, augmented reality, & digit recognition

Mechatronics/Electrical Engineering Co-op July 2023- Dec 2023
Festo Corporation, Marlborough, MA
- Designed and simulated safety circuitry for high voltage liquid handling system according to IEC 61010-1 standard
- Designed and assembled a control cabinet for controlling a 3-axis gantry system
- Executed comparative analysis of different piston pumps, utilizing a data acquisition system to capture and analyze performance data, determining the superior-performing pump

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