

Tejaswini Dilip Deore

+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, CCOEW, Pune, India, GPA: 8.89/10

2016 - 2020

PROJECTS

Open Vocabulary 3D Scene Understanding

Nov 2024 - Dec 2024

- Engineered a pipeline for open-vocabulary 3D scene graph construction, supporting text, audio, and image queries
- Leveraged foundation models (RAM, GroundingDINO, SAM, CLIP) to extract and encode semantic object features onto PointCloud data in the CLIP feature space from 2D images
- Unified 3D object representations by merging object masks based on spatial-visual similarity and constructed hierarchical scene graphs to capture object-to-room relationships

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 vehicle trajectory

Image Caption Generator [\[code\]](#)

April 2024

- Built image captioning system using CNN-LSTM and ViT-GPT2 architecture
- 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