

ADITYA WAGH

<https://adityamwagh.me>

in adityamwagh  adityamwagh @ adityamwagh@outlook.com  (929) 424 1931

Final year graduate student well-versed in 3D computer vision tasks including but not limited to multi-view geometry, SfM, SLAM, Bundle Adjustment etc with an in-depth understanding of LiDAR point-cloud processing.






EDUCATION

- New York University** New York City, NY
MS in Electrical and Computer Engineering; GPA: 3.72/4 Sep 2021 – May 2023
Coursework: Robot Perception, Robot Localisation, Deep Learning, High Performance ML, Foundations of Robotics, Probability & Stochastic Processes, Digital Signal Processing
- Birla Institute of Technology and Science (BITS), Pilani** Pilani, India
B.Eng in Electronics Engineering Aug 2015 – May 2019

EXPERIENCE

- AI4CE Lab at New York University** New York City, NY
Graduate Research Assistant Sep 2022 – Present
 - Developing new techniques to improve pair-wise LiDAR point cloud registration with low overlap; Currently experimenting with outlier rejection techniques to find the low overlapping region.
 - Teaching Assistant for ROB-GY 6203 Robot Perception – a graduate level course about 3D Computer Vision.
- Central Electronics Engineering Research Institute** Pilani, India
Deep Learning Intern Jul 2018 – Dec 2018
 - Contributed to the development of a software pipeline for pixel wise annotation of a novel data set consisting of 6000+ Infrared and RGB aerial images of power cables
 - Fine-tuned a Mask-RCNN model for instance segmentation of power cables on this new dataset and achieved a test accuracy of approximately 70%

PROJECTS

- Fast 3D Object Detection in the Wild** MATLAB · 
 - Computed SIFT features for each image in database and queries using OpenCV's built-in SIFT feature extractor
 - Employed the k-means clustering algorithm to compute 800 cluster centroids to be used as visual words to generate a histogram of visual words in each image
 - Computed histograms of visual words for all the query images and database images and extracted similar images from the database by using the k-nearest neighbours algorithm on the generated histograms
- Post-Earthquake Damage Assessment using Fully Convolutional Networks** Tensorflow, Keras · 
 - Designed fully convolutional network for multiple semantic segmentation of building components and their damage state using a shared backbone
 - Implemented batch normalization layers to enable faster convergence and better generalization over real data since the data used for the project was synthetically generated using physics based graphical models
 - Achieved a mAP of 83% over 5 component classes and mAP of 70% for 5 damage state classes
- Visual Place Recognition using Bag of Visual Words** OpenCV, Sklearn · 
 - Computed SIFT features for each image in database and queries using OpenCV's built-in SIFT feature extractor
 - Employed the k-means clustering algorithm to compute 800 cluster centroids to be used as visual words to generate a histogram of visual words in each image
 - Computed histograms of visual words for all the query images and database images and extracted similar images from the database by using the k-nearest neighbours algorithm on the generated histograms
- Deep Image Matching using Local Feature Transformers** OpenCV · 
 - Computed SIFT features for each image in database and queries using OpenCV's built-in SIFT feature extractor
 - Employed the k-means clustering algorithm to compute 800 cluster centroids to be used as visual words to generate a histogram of visual words in each image
 - Computed histograms of visual words for all the query images and database images and extracted similar images from the database by using the k-nearest neighbours algorithm on the generated histograms
- State Estimation of a Quadrotor using On-board Camera and IMU** MATLAB · 
 - Computed SIFT features for each image in database and queries using OpenCV's built-in SIFT feature extractor
 - Employed the k-means clustering algorithm to compute 800 cluster centroids to be used as visual words to generate a histogram of visual words in each image
 - Computed histograms of visual words for all the query images and database images and extracted similar images from the database by using the k-nearest neighbours algorithm on the generated histograms

TECHNICAL SKILLS

- Languages:** Python, C++, CUDA, Bash, MATLAB
- Tools & Platforms:** VSCode, Vim, Git, GitHub, SLURM
- Frameworks:** PyTorch, Keras, TensorFlow, OpenCV, Open3D
- Operating Systems:** Linux, MacOS, Windows