ADITYA WAGH

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Machine Learning Engineer

EDUCATION

- **New York University** Sep '21 – May '23
  MS in Robotics & Electrical Engineering; GPA: 3.5/4

  Coursework: Robot Perception, Robot Localisation, Deep Learning, High Performance Machine Learning, Foundations of Robotics, Probabilility & Stochastic Processes, Digital Signal Processing
- **Birla Institute of Technology and Science (BITS), Pilani** Aug '15 – May '19
  B.Eng in Electronics Engineering

EXPERIENCE

- **AI4CE Lab at New York University** Sep '22 – Present
  Graduate Research Asistant
  - Developing new models to improve **pair-wise registration of LiDAR point cloud with a low overlap ratio**
  - Experimented with **machine learning** based **outlier rejection** techniques to find the low overlapping region.
- **Central Electronics Engineering Research Institute** Jul '18 – Dec '18
  Deep Learning Intern
  - Developed a **deep learning** based **object detection** model to detect power cables in aerial images.
  - Fine-tuned a Mask-RCNN semantic segmentation model to identify power cables on this new dataset and achieved a test accuracy of approximately 85%
- **New York University** Sep '22 – Dec '22
  Graduate Teaching Asistant
  - Co-taught the ROB-GY 6203 Robot Perception course – a graduate level course on **3D Computer Vision**.
  - Designed and graded homeworks, coding assignments and exams.

PROJECTS

- **Multi-lingual Movie Recommender** Python, PyTorch ·
  - Pass
- **Post-Earthquake Damage Assessment using Fully Convolutional Networks** Keras, Tensorflow ·
  - Designed fully convolutional **neural networks** for **multi-task semantic segmentation** of building components and their damage state using a **shared backbone and multiple heads**
  - Achieved a mAP of 97% over 5 component classes and mAP of 70% for 5 damage state classes
- **Visual Place Recognition using Bag of Visual Words** OpenCV, Sklearn ·
  - Developed a **visual re-localisation** & **loop-closure** tool to identify a previously visited location from a database of images of visited location.
  - Used **Scale-invariant feature transform (SIFT)** to extract features, **k-means clustering** algorithm to generate visual words, **TF-IDF** to improve robustness, and **k-nearest neighbours (kNN) ML algorithm** to find matching images using these visual words.
- **Deep Image Matching using Local Feature Trasformers** PyTorch, Kornia, OpenCV ·
  - Pass

TECHNICAL SKILLS

Python, **C/C++**, Bash, MATLAB, SQL, CUDA, Rust, HTML, CSS, **PyTorch**, Keras, TensorFlow, **OpenCV**, Open3D, Scikit-learn, Pandas, Kornia, NumPy, React.js, Bootstrap, CMake, Git, **Docker**, **AWS**, SLURM, High Performance Computing (HPC), Linux