Arpit Gupta

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OBJECTIVE

Seeking **Summer Internship** opportunities in Computer Vision and Deep Learning

EDUCATION

- **Worcester Polytechnic Institute (WPI)** — Worcester, MA
  Master of Science, Robotics Engineering , GPA - 3.7/4 — Aug 2017 - Present
- **Rajiv Gandhi Technological University** — Bhopal, India
  Bachelor of Engineering, Mechanical Engineering with honors, CGPA - 7.8/10 — Aug 2010 - May 2014

LANGUAGES AND TECHNOLOGIES

- Python, JAVA, C++, JavaScript, MATLAB
- ROS, V-Rep Tensorflow, OpenCV, scikit learn, CHAI3D, PCL
- JSP, Servlets, Web Services, Databases(SQL, JCR, NoSQL)

NOTABLE PROJECTS

- **Pose Estimation using Deep Learning on Visual and LiDAR Odometry, WPI** — Feb 2018 - Present
  - Implemented Recurrent - Convolutional Neural Network to learn the spatio-temporal representation from the RGB image sequences in KITTI odometry dataset
  - Used LSTM to take optical flow learnt by CNN as input and predict the robot's pose in 6 Degrees of Freedom
  - Used PCL to extract feature descriptors from LiDAR Point cloud data and implemented Pointnet neural network architecture to estimate robot's poses
- **Real Time Vehicle Detection for Self-Driving Car using CNN, WPI** — Oct 2017 - Dec 2017
  - Trained Deep Convolutional Neural Network on GTI vehicle image dataset and achieved 98% accuracy
  - Implemented transfer learning to detect vehicles in high dimensional images/videos from KITTI benchmark
  Language and Technologies: Python, Keras, Tensorflow, OpenCV
- **Deep Reinforcement Learning, WPI** — Sept 2017 - Dec 2017
  - Implemented Model Free Deep QLearning algorithm in Tensorflow
  - Used Open AIs cart pole environment to test the algorithm on an inverted pendulum model
- **Face Recognition and Scene Recognition, WPI** — Oct 2017 - Dec 2017
  - Developed Eigenface and Fisherface algorithms from scratch in MATLAB for face Recognition
  - Implemented Bag of Words feature detector and Nearest Neighbour Classifier from scratch for Scene Recognition. Achieved SNV level accuracy with hyperparameters tuning
- **Haptic Virtual Interaction with the Da Vinci Surgical Robot, WPI** — Feb 2018 - May 2018
  - Developed surgical simulator with haptic feedback using CHAI3D, OpenGL and Bullet Physics engine
  - Built ROS interface for da vinci and Geomagic touch haptic device to interact with the surgical environment
  - Developed an incision practice module and integrated Novint Falcon haptic device for surgical practice in simulation. Developed master-slave teleoperation module for surgical training in simulation
- **Autonomous Robotic capture of flying objects using visual servoing, WPI** — Feb 2018 - May 2018
  - Developed simulation environment in V-REP for ABB IRB 140 Robot using ROS
  - Used Microsoft Kinect to predict object's trajectory using OpenCV and curve fitting
  - Solved the problem of slow data acquisition using ROS and achieved real-time performance
  - Implemented PID controller for 6-DOF robot arm to capture the objects in flight through visual feedback

WORK EXPERIENCE

- **Software Engineer, Sapient Corporation, Bangalore** — July 2016 - July 2017
  - Wrote reusable code in JAVA and OSGi for content management frameworks
  - Developed RESTful web services and servlets for e-commerce and customer facing applications
- **Systems Engineer, Infosys Limited, Pune** — July 2014 - July 2016
  - Awarded with Aimer's award for outstanding software development in Digital Experience domain
  - Developed enterprise software components with object oriented programming(JAVA) and NoSQL databases
  - Worked on large code bases for performance tuning, platform migrations and feature enhancements