Tanay Varshney

EDUCATION

MS. Computer Science   New York University
MAY 2020

B. Tech. Computer Engineering   Mumbai University
MAY 2018

WORK EXPERIENCE

Research Assistant   NYU Tandon
Computer Vision   FEBRUARY 2019 - PRESENT
- Unsupervised/ Semi-Supervised Object and Point cloud Recognition

Research Assistant   NYU Wagner
Computer Vision   OCTOBER 2018 - MAY 2019
- Used spectral imaging and remote sensing to identify irrigation cannals

Research Intern   Indian Space Research Organization
Machine Learning and Computer Vision   MARCH 2018 - JULY 2018
- Designed a novel hybrid algorithm for image acquisition and analysis by multiple UAVs in swarm formation for DEM generation
- Built Image Stitching Engine, 2D & 3D simulations, module to identify objects and scenes.

Intern   General Motors
Computer Vision   JUNE 2017 - JULY 2017
- Worked with L2 Automation for autonomous vehicles
- Compiled guides, conducted seminars and learning sessions on Deep Learning and computer vision.

Intern   Parallax Labs LLP
Data Analyst   OCTOBER 2016 - FEBRUARY 2017
- Designed a real time data analytics platform(Hardware Systems)
- Deployed platform on Mixed Reality (Microsoft HoloLens) and Web platform.

SKILLS

Languages   **Key Frameworks / Libraries**
- Python   - SQL   - Pytorch   - Kafka
- C++   - R   - OpenCV   - ROS
- MATLAB   - Java   - Spark   - D3.js

Industry Buzz   **Tools / Platforms / Hardware**
- Deep Learning   - ArcGIS   - Hadoop
- Computer Vision   - Databricks   - Unity 3D
- Big Data   - Raspberry PI - APM
- Real Time Data Analysis   - Tableau
- Autonomous Vehicles   - MySQL
- Robotics   - MongoDB

THESIS

Master's Thesis   APRIL 2019 - PRESENT
Point Cloud Semantic Segmentation
- Generating 3D Point cloud and performing 3D semi supervised semantic segmentation in urban setting

Bachelor's Thesis   APRIL 2018
Autonomous Swarm Drones
- Built a De-centralized swarm of autonomous drones (simulation) to form shapes.
- Built a closed loop hardware platform using camera and sensor data fusion for obstacle avoidance and localization
- Build mobile app and video analytics platform for personal assistant capabilities.

PROJECTS

Quadcopter Localization using Optical Flow   MAY 2019
and APRIL tags
Computer Vision and Sensor Fusion
- Used optical flow to compute quadcopter velocity and APRIL tag to compute POSE
- Performed localization using Extended Kalman Filter to build flight paths (No libraries)

International Foreign Aid Data Visualization   APRIL 2019
and Analysis
Data Analysis and Visualization
- Using International foreign aid data to answer policy questions using interactive visualizations

MTA (Subway) traffic analysis for leveraging   APRIL 2019
dynamic marketing
Big Data and Real Time Analysis
- Developed an end to end system leveraging MTA turnstile data to perform targeted advertisements.
- Built a scalable stream data analysis system using kafka and spark along with a business facing dashboard

Quadcopter Localization using sensor fusion   MARCH 2019
Computer Vision and Sensor Fusion
- Performed sensor data fusion on Vicon and IMU data
- Performed localization using Extended Kalman Filter/Kalman filter hybrid to build flight paths. (No libraries)

Portfolio Management   DECEMBER 2018
Reinforcement Learning and Natural Language Processing
- The project uses Deep reinforcement learning to manage a portfolio stocks.
- Used market trend data to train a DDPG agent.
- Added external context for the agent by performing news sentiment analysis.
- We achieved a 75% return on investment over the period of 2 years on a starting capital of USD 10,000

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