Tanay Varshney

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Education

- **New York University** **May 2020**
  Master's of Science in Computer Science
- **Mumbai University** **June 2018**
  Bachelor's of Technology, Computer Engineering

Work Experience

Research Assistant, AI4CE Lab, New York University, USA **February 2019 - Present**

- Generating 3D Point cloud and performing 3D semantic segmentation in urban setting
- Tech Stack: Python, MATLAB, OpenCV.

Research Assistant, NYU Robert F. Wagner School, USA **October 2018 - Present**

- Used multiple spectral bands to **identify water sources** via **remote sensing** data while tackling issues like shadow, cloud cover, water quality and surrounding occlusions.
- Tech Stack: Python, MATLAB, OpenCV.

Machine Learning and Vision Researcher, Indian Space Research Organization, India **March - July 2018**

- Designed and implemented a **novel hybrid algorithm** based using rendezvous points for image acquisition and analysis by multiple UAVs in swarm formation to acquire images to **generate DEM**
- Built **Image Stitching Engine, 2D & 3D simulations,** module to **identify objects** and **scenes**.
- TechStack: C++, Python, OpenCV, JavaScript, Unity.

Computer Vision Intern, General Motors, India **June - July 2017**

- Worked with **L2 Automation** for autonomous vehicles (Lane and Obstacle Detection) .
- Compiled guides, **conducted seminars and learning sessions** on **Deep Learning**.
- Tech Stack: Python, MATLAB, Tensorflow,OpenCV.

Data Analyst Intern, Parallax Labs LLP, India **Oct 2016 - Feb 2017**

- Designed a **real time data analytics** platform for a pharmaceutical packaging client.
- Deployed platform on **Mixed Reality** (Microsoft HoloLens) and Web platform.
- Tech stack: Python,R, JavaScript.

Projects

Quadcopter Localization using sensor fusion **March 2019**

- Performed sensor data fusion on Vicon and IMU data
- Performed localization using Extended Kalman Filter to build flight paths
- TechStack: MATLAB

Autonomous Swarm Drones **March 2017- April 2018**

- Built a **coordinated swarm of drones** using a **De-centralized** approach(novel).
- Prototyped models to facilitate **autonomous navigation** for quad copter using Optical Flow, built a **companion app** and developed a **video processing** stack for **surveillance** application.
- TechStack: Python, C++, OpenCV, Tensorflow, Unity, ROS, AirSim, Java.

Other project included works: Image Stitching, Credit Card Fraud Detection, Smart Surveillance Camera, Self Driving toy-car, Driver awareness detector, facial recognition, AI for games, Governance Data Analytics, and Platform Development,Portfolio Management with reinforcement learning

Skills

- **Languages:** Python, R, SQL, MATLAB, C++, JavaScript, Java.
- **Major Tools, Platforms and Hardware:** ROS, ArcGIS, RaspberryPi, Arduino, Linux(Ubuntu and Raspbian).
- **Buzz words:** Computer Vision, Real Time Data Analytics, Robotics, GIS., Drones, Autonomous Vehicles

Scholarships and Achievements

- **Stood 2nd** in **Smart India Hackathon 2018,** under problem statement provided by **Indian Space Research Organization**(ISRO - Department of Space). 100,000+ participants across 27 departments.
- Earned **Machine Learning NanoDegree** by Udacity.
- **Stood 1st** In **Technical Paper Presentation** at Tatva Convergence, Mumbai. March 2017.
- Total academic scholarship of **$16,000** from New York University