# Samarth Negi

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## EDUCATION

**University of Maryland, College Park** 2021 - ongoing

*Masters of Professional Studies, Machine Learning*

- Current GPA : 3.76

**GGSIPU, Delhi** 2015 - 2019

*Bachelors of Technology, Electronics and Communication Engineering*

- Graduated first division
- Conducted research on **applied computer vision** under Prof. Navneet Singh, focusing on building algorithms that perform well on different types of camera configurations.
- Worked on IOT data processing as part of a Research Group from Amity Incubation Centre.

## PROJECTS

**Covid Policy Effectiveness** | Data Science / Modelling 2021

- Implemented various interpolation methods for pre-processing noisy covid case data using **Numpy** and **Scipy**.
- Implemented and interpreted **decision tree classifiers** using **Scikit-Learn** to identify key demographic parameters which affect the success of a policy in a state when tackling Covid.
- Engineered multiple new features to improve model accuracy from limited dataset and conducted **PCA** on the data to find key features in the training set.
- Github

## WORK EXPERIENCE

**Gamma Research Group, UMD**

*Researcher* 12/21 - ongoing

- I maintain the Occupancy Viz library and build components for lidar map visualisation using **PyGame.**

**Sulovi Technologies** 11/20 - 09/21

*Software Developer*

- Built an ID and document processing pipeline using **Google Cloud Vision** and **Compute Engine** for automated document parsing for the ThePlanningCompany web platform.
- Wrote **cloud functions** to integrate compute engine processes with the web platform for client facing usage.

**Phicode.io** 08/19 - 10/20

*Computer Vision Engineer*

- Built a tool for the data processing team by training models for **image segmentation** in **PyTorch**, specifically for drone imagery using **Resnet** and **EfficientNet** architectures which reduced time spent per dataset through pre-screening.
- Built a visualisation tool for drone flight paths in **ThreeJs** which helped in-house pilots optimise their flight patterns.
- Conducted **crowd flow analysis** on surveillance data for Delhi state police during COVID lockdowns to generate metrics on intra-city movements.
- *AUTONOMOUS WINDMILL DRONE INSPECTION*
  - Successfully designed and deployed a novel algorithm for localising parts of a windmill from a lidar (Livox Horizon) point cloud using **PCL** and **CGAL** for autonomous windmill inspection.
  - Conducted on-site testing of various lidar sensors and configurations to capture windmill meshes.
  - Deployed the final software through **ROS** and **DJI Waypoint API's.**

**Ananth Technologies** 05/18 - 07/18

*Software Developer Intern*

- Developed an algorithm to detect broken train tracks from a video by utilising mathematical modelling of train tracks in **OpenCV**.

## SKILLS

- **LANGUAGES :** Python, Javascript, C++ *(in order of proficiency)*
- **LIBRARIES :** PyTorch, Scikit-Learn, OpenCV, Scikit-Image, Pandas, Seaborn, ThreeJs, Selenium
- **PLATFORMS :** Google Cloud Platform, ROS, DJI SDK, Livox Horizon Lidar System

## PUBLICATIONS

**An Effective Technique for Determining Fish Freshness using Image Processing**
*( ISSN: 2278-3075, Volume-8, Issue-9S, July 2019, Journal)*
**An Efficient Image Processing Based Method for Detecting Discontinuities in Railway**
*( ICECEIC-2019, Conference)*