

Pranav Prakash

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Research Interest: Data Science, Image Processing, Unsupervised learning, Time-series data, Biomedical, Algorithm Design, Computer Vision

Education

Master of Science in Electrical, Signals and Systems 2017 - 2019
TU Delft University, Netherlands

Bachelor of Technology, Electronics and Communication Engineering 2012 - 2016
National Institute of Technology, Trichy, India

Skills

Technical Skills: Signal Processing Computer Vision Deep Learning Machine Learning Statistics Time-Series

Remote Sensing Filtering Sensor Fusion Linux Probability Object Tracking

Programming Skills: C C++ Tensorflow Pytorch Python Flask OpenCV Matlab git

Languages: English Hindi

Work Experience

Senior Data Scientist at AiDash, June 2022 – Present, Bangalore, India

As a Senior Data Scientist at Aidash, I have been responsible for leading a vertical focused on Encroachment Management, which involves assessing the risk on assets held by clients, primarily gas pipelines, using Remote Sensing, Machine Learning and computer vision techniques applied to Satellite data. I am also involved with vegetation management for utility companies. My contributions to this project include:

- Developed a vegetation health management model, a niche product offered by select global companies, currently utilized by prominent utility companies which can reduce their search area for unhealthy vegetation by over 60 percent
- Developing and improving the accuracy of segmentation networks for land-use-land-classification, using U-net and its modifications for our change detection module with 90 percent accuracy.
- Implemented semi-supervised pre-training with generative networks to leverage a large amount of unlabeled data, thereby generalizing the network over large regions using a limited number of labeled samples. This led to the development of vegetation and building segmentation network with over 80 percent accuracy leading to over 50 percent reduction in manual effort required for generating the analytics on clients assets

Signal Processing Engineer at Swimtraxx, January 2021 – April 2022, Leuven, Belgium

Designed and implemented algorithms for biometric signals at a sport tech startup to classify and detect swim parameters in real-time on an ARM cortex-M4 processor to achieve an accuracy of over 98 percent over swim parameters detection namely lap time, stroke counts, turn time and stroke type classifications. I have worked on

- Sensor fusion in IMU data using Madgwick orientation filter for drift compensation in gyroscope data and orientation estimate of swimmers
- Feature engineering and regression analysis for anomaly detection; to identify time-series IMU features necessary to classify swim against other activities and also to classify stroke types in real-time

Computer Vision Engineer at Bird Control Group, November 2019 – October 2020, Delft, Netherlands

Used computer vision and neural network for automated control of a consumer ready autonomic device, algorithms deployed using AWS Greengrass platform in an automated and continuously integrated environment. I worked on optimizing the YOLOv3 network for object detection and classification of small objects to run efficiently on Nvidia Jetson Nano board. Used Simple Online Tracking algorithm for continuous realtime tracking of objects.

Research and Project Experience

Thesis: Identification of Quasi Normal Modes dr.ir. Rob F Remis, TU Delft, *Jan 2019 - August 2019*

Data-driven identification of quasi normal modes for optimization of wave-field imaging. [Link to the thesis](#) [Link to the presentation](#)

Digit Classification and Captioning using CapsNets and Recurrent Neural Networks, TU Delft, *Jan 2018 - April 2018*

Developed a caption generating network using Capsule Network and RNN and compared it with the standard captioning network of attention-based CNN with RNN in Keras.