

# Avinash P



## Indian Institute of Technology Madras

### Education

2015-Present	<b>Dual Degree in Mechanical + Computational Engineering,</b> <i>Indian Institute of Technology Madras, Chennai.</i>	CGPA : 8.19/10,
2015	<b>XII - CBSE,</b> <i>Maharishi International Residential School, Chennai,</i>	96.6% .
2013	<b>X - CBSE,</b> <i>Jawahar Higher Secondary School, Neyveli,</i>	CGPA :10.0.

### Projects/Internships

- May 2019 - **3D Reconstruction using AI**, - *Dual Degree Project*, under Dr. Mansi Sharma.
- Present
- Low cost content creation for Augmented/Virtual Reality by generating 3D models from a finite number of images using **geometry based Deep Learning** techniques.
- Jan-May
- 2019
- Image processing**, - *Computer Vision, CS6350*, under Dr. Shukendu Das.
- Implemented enhancement **HEQ, CLAHE** & segmentation **K-Means, Felzenszwalb, Graph-cut** algorithms.
  - Trained a **SVM+HOG** model to detect **NMS+sliding window** vehicles on road.
- Jan-May
- 2019
- Distributed deep learning**, - *High performance computing, AM5080*, under Dr. Sarith Sathyan.
- Implemented **parallel SGD** to train neural networks on multi-core processors using MPI4PY.
- May-Aug
- 2018
- AI for autonomous driving**, - *Dynamove*, start-up.
- Worked on object detection **YOLO**, traffic lights & signs classification **SqueezeNet**, lane segmentation and driver alertness. Our team won Rs.20,00,000 in funding from NITI AYOG.
- Aug-Nov
- 2018
- AI in Augmented Reality**, - *Virutal Reality, AM5011*, under Dr. Manivannan.
- Developed an **iOS app** that uses neural networks to detect objects and tag them with names in AR.
- Aug-Nov
- 2018
- Ray tracing**, - *Computer Graphics, CS6360*, under Dr. Shukendu Das.
- Extended ray tracer to render meshes, with back-face culling and KD trees. Tried parallelism using **CUDA**.
- Jan-May
- 2018
- Recommendation system**, - *Microsoft Code.Fun.Do AI Project*.
- Trained an **auto-encoder** using scraped images from Myntra.com and recommended clothing using **KNN**.
- May-Aug
- 2017
- Product Intern**, - *Maximl*, Industrial Software start-up.
- Worked on revamping the design/architecture of the web and mobile application.
  - Designed and developed the company's landing website.

### Achievements

- 2019 **Runner - OLX Data science challenge.**
- Built models to predict probability whether an Ad will make a sale or not.
  - Used RFs and iterated over different data pre-processing ideas by EDA. Achieved **0.21 RMSE**.
- 2018 **Winner - Exebit Data Science Challenge.**
- Built predictive models to classify fraudulent credit card transactions.
  - Compared **RF, XGB, SVM, NN** and used **SMOTE** to solve data imbalance. Achieved **0.82 F1 Score**.

### Relevant Coursework

- Data Structures, Algorithms and Programs
- Machine Learning for Engineering Applications
- High Performance Computing
- Computational Methods
- Computer Vision & Graphics
- Multi-view Imaging (Topics in Signal Processing)

### Skills

- Languages Python, C++, Swift
- Tools Numpy, Tensorflow, Scikit-learn, Open-CV, MPI, X-Code