

Radhakrishnan Ravi Vignesh

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EDUCATION

Texas A&M University

Master of Science in Civil Engineering; Specialization: Transportation Engineering

College Station, TX

Aug. 2018 – Present

Indian Institute of Technology Madras

B.Tech in Civil Engineering; Minor: Industrial Engineering; CGPA: 8.01/10.00

Chennai, India

Aug. 2014 – July. 2018

INTERESTS

Network Optimization, Computer Vision, Deep Learning

RELEVANT TECHNICAL SKILLS

Programming Languages: C, C++, Python, R

Libraries: Numpy, OpenCV, Scikit Learn, Pandas, Tensorflow, Keras, Eigen(C++)

Software Skills: AutoCAD, Revit, MATLAB, Civil 3D, L^AT_EX, git

EXPERIENCE

Bachelors Thesis: Optimization of Network Algorithms

IIT Madras

Advisor: Dr. Karthik K Srinivasan

Aug 2017 - June 2018

- Optimized the **label setting algorithm** given by D.Shier for finding the **best K elementary paths** in a directed graph and bench marked against other best known algorithms such as that of Marta M.B Pascoal and Hoffman & Pavley.
- Experiments were performed on **randomized grid networks** and real world networks and compared with other existing algorithms. The algorithm performed significantly better than other algorithms **asymptotically**.
- The algorithm was used to arrive at **Pareto-optimal** solutions for multi-objective optimization problem

Tamil Nadu Health Systems Project)

Government of Tamil Nadu, India

Software Developer Intern

May 2017 - July 2017

- Developed a **heuristic algorithm** with an accuracy of over **90%** to find the victim pickup locations of emergency vehicles and hence automating the data entry of victim pickup time and hospital reach time of the vehicles.
- The **zonal distribution** of calls was used for **greedy allocation** of ambulances optimizing the scene arrival time.

PROJECTS

- **Behavioral Cloning:** Trained a simulator to drive a car around a track smoothly. An **image regression** model was developed after performing various modifications on NVIDIA's deep neural network architecture using **Transfer learning** technique. **Keras** library was used in the implementation.
- **Traffic Sign Classifier:** Developed a traffic sign classifier model using deep neural networks with an architecture similar to **LeNet** using Tensorflow library and obtained **94%** test accuracy using German Traffic sign data set. Various **data augmentation** techniques were employed to arrive at a higher accuracy.
- **Lane Detection:** The lane region and the radii of curvature of the lane boundaries were detected in a video recorded from a car. The video involved various brightness and shadow levels along with different textures on the road.
- **Extended Kalman Filters:** The measurements from a noisy Laser and a noisy Radar were **fused** using Kalman Filter and Extended Kalman Filter Equations and the position and velocity of objects were detected.

COURSEWORK

Texas A&M: Urban Transportation Planning, Traffic Engineering: Characteristics, Street and Highway Design

IIT Madras: Transportation Network Analysis, Analytical Techniques in Transportation Engineering, Fundamentals of Operations Research, Industrial Engineering, Computer Simulation, Computer Applications in Transportation Engineering, Decision Modelling, Probability and Statistics, Differential Equations

Udacity Self Driving Car Engineer Nanodegree: Computer Vision, Deep Learning, Sensor Fusion

EXTRA CURRICULAR ACTIVITIES

- **Captained** IIT Madras Squash Team during 2017-18 including an annual Pan India Sports Meet and also led the team to a silver medal finish in the Inter Collegiate Sports Fest held in Chennai, India
- Active Volunteer of National Services Scheme of India - IIT Madras Chapter, 2014-15 and taught math to disadvantaged rural children and hence was awarded the **Star Volunteer Award**