Radhakrishnan Ravi Vignesh

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Education

Texas A&M University College Station, TX
Master of Science in Civil Engineering; Specialization: Transportation Engineering *Aug. 2018 – Present*

Indian Institute of Technology Madras Chennai, India
B.Tech in Civil Engineering; Minor: Industrial Engineering; CGPA: 8.01/10.00 *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, LaTeX, 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.

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 to allocation ambulances with an optimal scene arrival time.

Udacity Projects

- **Behavioral Cloning**: Trained a simulator to drive a car around a track smoothly. An **image regression** model with an architecture similar to NVIDIA's Deep Nural Network architecture was developed after performing various modifications using **Transfer learning** technique and using various functions of **Keras** library
- **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: Computer Vision, Deep Learning, Sensor Fusion

Extra Curricular Activities

- **Captain** of IIT Madras Squash Team during 2017-18 leading to a silver medal finish in the Inter Collegiate Sports Fest
- Active Volunteer of National Services Scheme of India - IIT Madras Chapter, 2014-15 and was awarded the **Star Volunteer Award**