Nitish Gupta

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EDUCATION

University of Central Florida — Orlando, FL

M.Sc. *in Computer Engineering (GPA: 3.82)* — *Aug. 2016 – July 2018*

Research: Wireless vehicular networks, Vehicle Safety, ADAS, Intelligent Transportation Systems

University of Mumbai — Mumbai, India

B.Eng. *in Electronics Engineering (GPA: 3.90)* — *Aug. 2010 – May 2014*

Ranked *1st* amongst 120 students in the Electronics dept.

Second year representative and Head of creative team at Annual college festival – *Pegasus*

WORK EXPERIENCE

Networked Systems Laboratory at UCF — Orlando, FL

Graduate Research Assistant — *Feb. 2017 - Present*

- **Vehicle Safety Communications Applications** – *Sponser: CAMP*
  TensorFlow is an open source software library for numerical computation using data flow graphs; primarily used for training deep learning models.
- **Advance Vehicle Emulator** – *Sponser: Ford Motor Company*
  Apache Beam is a unified model for defining both batch and streaming data-parallel processing pipelines, as well as a set of language-specific SDKs for constructing pipelines and runners.
- **Small-scale Connected Autonomous Vehicle** – *Sponser: NSL*
  Apache Beam is a unified model for defining both batch and streaming data-parallel processing pipelines, as well as a set of language-specific SDKs for constructing pipelines and runners.

Giant Health Events — London, UK

Machine Learning Intern — *May 2017 - June 2017*

- Programmed a Support Vector Machine and Regression models to train on the scrapped data from LinkedIn and classify potential customers and speakers who might be interested in attending the event
- Training dataset was the previous years attendees information

Tata Consultancy Services Ltd. — Mumbai, India

Business Intelligence Developer — *Sep. 2014 - July 2016*

- Migrated 95 high-complexity reports into production (Business Objects and Crystal reports to Microstrategy) within 3 months, along with a team of four members (Agile methodology)
- Developed Interactive reports in Microstrategy to calculate and analyze financial tax for ABN AMRO bank

TECHNICAL SKILLS

Languages: C, C++, Python, MATLAB, Embedded C, Java, Assembly, Verilog, UNIX, SQL, LaTeX

Hardware: LiDAR, Stereo Camera, Nvidia Jetson TX2, Arduino, Raspberry Pi, ARM, TI-MSP, FPGA

Libraries: TensorFlow, Keras, TFLearn, Scikit-learn, SciPy, OpenCV, PCL

Tools: ROS, NS3, SUMO simulator, Xilinx, Git, Linux, Visual Studio, Microstrategy, Business Objects

PROJECTS

Drivers Behavior Cloning — *Sep. 2017 Oct. 2017*

- Designed a CNN to predict steering wheel angles in a challenging simulated environment based on the human driving behavior (Validation Loss $< 0.35\%$)

Traffic Sign Classification using Camera — *Aug. 2017 Sep. 2017*

- Built and fine-tuned a CNN over a small dataset to classify traffic signs, using a mounted camera
- Attained 97% test accuracy on a German traffic sign dataset

Autonomous Rescue Robot — *Feb. 2017 Apr. 2017*

- Built a 4-wheeled autonomous car for search and rescue operations in a disaster-affected area to explore and identify victims
- Programmed ROS (Robot Operating System) nodes for gathering the odometry data along with the scans from a Kinect sensor (to create 2D Occupancy maps) into a raspberry pi
- Implemented a Particle Filter for localization and a Path Planning algorithm for navigation to various goals using offline maps created during the training phase

Path Planning and Q-Learning in a grid world *Feb. 2017 Mar. 2017*

- Implemented A-star path planning algorithm with Manhattan and Euclidean distance choice in an interactive grid world GUI using pythons tkinter library
- Designed a Reinforcement learning engine with deterministic and stochastic behavior in the grid world

Concurrent Physics Engine *Oct. 2016 Nov. 2016*

- Linearized a Physics Engine consisting of circles moving with random velocities around the screen and colliding with each other
- Implemented concurrent (Lock-free) version of SAP (Sweep and Prune) and Hash grid

Surveillance based on Tracking and Targeting *Oct. 2013 Mar. 2014*

- Built a MATLAB based security system to tackle the situations like 26/11 Mumbai terrorist attacks
- Led a team of three members to develop a real-time object detection and tracking algorithm, which controlled a camera-laser mounted robotic arm to continuously track and target the suspect

PUBLICATIONS

Nitish A. Gupta, Sayyed Jaffar Ali Raza, Gita R. Sukthankar, Nisarg Chitalaya, Real-World Modeling of Path Finding Agent Using Robot Operating System (ROS), FCRAR, vol.30, May 2017