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EDUCATION

Raleigh, NC, USA **North Carolina State University** **Fall 2016-Spring 2018**

- M.S. in Electrical Engineering. **CGPA: 3.97/4.00**
- *Graduate Coursework: Computer Vision with Deep Learning; Microprocessor Architecture; Computer Graphics; Computer Vision for Autonomous Robots; Advanced Visual Sensing; Automated Learning and Data Analysis; Probabilistic Graphical Models; Introduction to Computer Vision*

Tiruchirappalli, TN, India **National Institute of Technology** **Fall 2012-Spring 2016**

- B.Tech. in Instrumentation and Control Engineering. **CGPA: 8.28/10.00**
- *Undergraduate Coursework: Data Structures and Algorithms; Neural Networks and Fuzzy Logic*

EMPLOYMENT

Security Systems Engineer **M.C. Dean@Google-Mountain View,CA** **June 2018-Present**

- Designing AI-enabled security solutions with custom Tensorflow models and datasets for production deployment.
- Co-leading development of scheme for FLIR,AXIS security cameras evaluation and testing with Computer Vision and Deep Video Analytics for Google.
- Spearheading analytics tool development for M.C Dean's internal inventory management solution.
- Exposure to pilot plan development, project management and production deployment of hardware and software tools.
- Gallagher and Traka Certified Access Control Engineer. C-CURE 9000 and IPVM certification in progress.

Data Science Intern **RxDataScience-Raleigh,NC** **Summer 2017**

- Performed data mining and visualization on multi-terabyte healthcare datasets with **q, kdb+, R, D3.js, Echarts**
- Wore multiple hats and built applications with proprietary framework for a variety of clients integrating business logic
- Developed web-based user interfaces, optimized database queries by a factor of 20 and streamlined other components that fully integrated into the machine learning solution stack
- Prepared documentation and tutorials for all future new hires. Exposed to JIRA and Confluence.

RESEARCH AND PROJECTS

Graduate Research Assistant **CARL Lab NCSU** **Spring 2017-Present**

- **Visual Hazard recognition:**
  - Researching the link between visual hazard recognition and neurological activity using hand-crafted Unity 3D scenes and 360 degree videos and the Vuze headset.
  - Deep Learning based hazard recognition publication under review.
- **Rooftoop Defect Detection:**
  - Developing a custom Deep Learning solution for automated defect detection in rooftops from DJI Phantom drone footage.
  - Also exploring integration of RGB and thermal imagery for more insightful detection.
- **SLAM+BIM:**
  - Designed and implemented a pipeline that uses the sparse pointcloud of ORB SLAM 2 as a VisualSFM replacement for dense reconstruction with Multi-View Environment(MVE).
  - Enhanced above pipeline for automated registration of BIM (Building Information Models) with SLAM in real-time for online loop closure. Used ORB SLAM 2 along with Unity 3D, VisualSFM, MVE to build a custom solution. Work published at **CRC 2018** and **ASCE(Perspective-Based Image-to-BIM Alignment**)
- **Contextually Aware Mono SLAM:**
  - Integrated ORB SLAM for autonomous navigation of a Clearpath Husky and scaled its odometry for occupancy grid generation with deep learning based segmentation.
  - Implemented a basic Visual Odometry system, exposed to design considerations for NVIDIA Jetson TX1. Publication accepted at **ISARC 2018**

Autoencoder Image Compression **North Carolina State University** **Fall 2017**

- Compared the compression level of an Autoencoder with a traditional K-Means Clustering based approach for a variety of patch sizes and image types.
- Consistently outperformed the classical approach with a much lower MSE and an output with lower visual artifacts.

SKILLS

- Languages: C; C++; Python; R; MATLAB; Q; LaTeX; JavaScript; C#; MySQL
- Major Libraries: OpenCV; Tensorflow; Keras; OpenGL; WebGL; Three.js; PCL; Eigen; ROS; kdb+; D3.js; Echarts
- Software: Visual SFM; MVE; Visual Studio; Git; Cmake; Blender; Unity; Unreal Engine; Axure RXP 8; Tableau; C-Cure 9000
- Continuous Learning: **Coursera:** Control of Mobile Robots, Python Data Structures, Deep Learning Specialization **Stanford:** CS231n*;