Amrutha Hakkare Arunachala

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Experience

- **EcoPRT - Autonomous transit system (http://ecoprt.com/)** — Raleigh, NC
  Research student — *Aug. 2017 - Present*
  - **Obstacle detection**: Implemented obstacle detection from stereovision camera point cloud through ground plane segmentation and clustering using PCL.
  - **Object recognition**: Used YOLO neural network for integrating real-time object detection and recognition. Currently exploring visual SLAM options for the vehicle using RTAB-Map and ORB-SLAM.
- **Cisco Systems** — Bangalore, India
  Software Engineer — *Aug. 2015 - Jul. 2017*
  - **Drone systems**: Developed an image based landing system for drones to precisely land on targets using binary image markers. Used OpenCV libraries with Python
  - **Server side Authentication-Authorization-Accounting**: Developed secure authentication solutions for Ciscos router kernel software and deployed the same on enterprise customers like Swisscom. Gained expertise in: C, Linux, Algorithms.
  - **Router simulator**: Developed an application to simulate 1000 routers working in parallel to test Fog applications on scale. Technologies used: Network programming, Java, VertX, Angular JS.
- **Cisco Systems** — Bangalore, India
  Software Engineer Intern — *Jan. 2015 - June 2015*
  - **Elastic - search nodes**: Developed a web application to monitor live search nodes of Elasticsearch, an enterprise search engine. Technologies used: Socket programming, HTML, CSS, Java Server Pages.

Education

- **North Carolina State University** — Raleigh, NC
  Master of Science in Electrical and Computer engineering; — *Aug. 2017 - Present*
- **Sri Jayachamarajendra College of Engineering** — Mysore, India
  Bachelor of Engineering, Electronics and Communication Engineering; GPA: 3.78 (9.46/10.0) — *Aug. 2011 - Jul. 2015*

Projects

- **Image search engine**: Implemented a content based image retrieval system with 3D histogram image descriptor in HSV color space.
- **Image segmentation using Markov Random Field**: Developed a expectation-maximization based image segmentation module and tested it on sea based cellular organism image dataset to obtain a covering score of 82%
- **Single View Metrology**: Demonstrated the use of Line Segment detector along with RANSAC to determine vanishing points in images, calculate the projection matrix, compute texture maps.
- **Punctuality based Automated Attendance system**: Demonstrated the use of face recognition in automating student attendance system with PCA, Viola Jones using OpenCV libraries on Visual basic, C and SQL.
- **Contribution to Google Chrome store**: Developed a chrome extension Session Saver to save current session in browser, export and import sessions from other browsers using Chrome APIs.
- **Emergency response Android app for Major League Hackathon**: Designed and developed a social motive driven android application to help people in emergency situations
- **Virtual Stylist app for Myntra hackathon**: Built an end-to-end android application to suggest suitable clothing styles to users based on recommendations. Technologies used: Hadoop, Android programming, Image processing

Programming Skills

- **Languages**: C, C++, Python, HTML, Javascript **Software**: OpenCV, MATLAB, Android, Linux OS, ROS, Tensorflow, Keras