Aaron Jacob Varghese

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### **EDUCATION**

Boston University

Boston, MA

Sep. 2019 - Dec. 2020 (expected)

Email: aaronjacobmscs@gmail.com

International Institute of Information Technology (IIIT-H)

Hyderabad, India

Bachelor of Technology in Computer Science and Engineering (Honors in Computer Vision)

Aug. 2015 - April 2019

### EXPERIENCE

Intel Corporation

Bangalore, India

Undergraduate Machine Learning Intern

Master of Science in Computer Science

June 2018 - July 2018

- Extensive research study on efficient semantic segmentation with a goal to devise a method for real-time segmentation for autonomous driving applications.
- Trained latest semantic segmentation models for comparison with existing state-of-the-art models using PyTorch and Tensorflow on new datasets like Berkeley Deep Drive and Indian Driving Dataset.

## Center for Visual Information Technology, IIIT-H

Hyderabad, India

Undergraduate Researcher

May 2017 - May 2019

- Involved in multiple research and development projects mentored by Prof. C.V. Jawahar, ranging from an online portal for accurate annotation of videos to a full-fledged research project that resulted in a research paper.
- Close collaboration with industry experts as well as PhD and Masters students, leading to experience in deep learning, computer vision and team-based projects.

# Froogal - A digital loyalty startup

Hyderabad, India

Software Development Intern

May 2017 - August 2017

- Built a mobile app from scratch for their web-based services using React Native, Fetch API and Android Studio.
- $\circ~$  Currently live on the respective app stores with more than 10,000 downloads.

### International Institute of Information Technology

Hyderabad, India

Teaching Assistant

Fall 2017 and Spring 2019

o Courses: Computer Vision (Spring 2019) and IT Workshop (Fall 2017)

### PROJECTS

- Mini SQL Engine Built an SQL engine in Python that could parse and execute a subset of SQL commands, along with relevant error handling.
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- Proxy Server A computer networks course project to implement a server that acts as a proxy between the Internet and a computer. Made to handle both HTTP and HTTPS connections.
- Variable Quantized Ensemble Networks (under review WACV 2020)

Pytorch, Tensorflow

- Research project to achieve real-time semantic segmentation through variable quantization of ensembles of neural networks, trained on pre-determined groups of classes of popular datasets like Cityscapes and Indian Driving Dataset.
- Application of method on state of the art semantic segmentation models like PSPNet and Deeplab-v3+ showed acceptable reduction in accuracy for large improvements in inference time and memory usage.

#### • AngelSafe

Google Maps API, Angular JS, Express

- Designed and implemented a website focused on promoting safety of women during travel by making use of crowdsourced data to generate heat maps representing the level of danger in a particular area.
- Secured first place in the online round of the Code.Fun.Do hackathon organized by Microsoft India in Hyderabad.

### • Driving scene analysis (with Microsoft Research India)

Android Studio, Tensorflow Lite

- Responsible for building an Android app incorporating Tensorflow Lite to analyze videos of drivers in real-time.
- o Compression of existing state-of-the-art models and exporting to the app to test performance.

### TECHNICAL SKILLS AND RELEVANT COURSES

- Programming Languages: C++, Python, Javascript, SQL, Java, Bash
- Libraries and Tools: React/React Native, Node JS, Android Studio, PyTorch, scikit-learn, OpenCV, Keras
- Relevant Courses: Software Engineering, Database Systems, Computer Vision, Principles of Programming Languages, Distributed Systems, Algorithms, Digital Image Processing, Statistical Methods in AI