Aaron Jacob Varghese

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EDUCATION

Boston University

Boston, MA

Master of Science in Computer Science

Expected December 2020

Email: aaronjv@bu.edu

International Institute of Information Technology (IIIT-H)

Hyderabad, India

Bachelor of Technology in Computer Science and Engineering (Honors in Computer Vision) August 2015 - April 2019

EXPERIENCE

Intel Corporation

Bangalore, India

Machine Learning Intern

June 2018 - July 2018

- Performed an 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 Berkeley Deep Drive Dataset and Indian Driving Dataset

Center for Visual Information Technology, IIIT-H

Hyderabad, India

Undergraduate Researcher

May 2017 - May 2019

- Led and contributed to 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, culminating in a research paper
 submission
- Collaborated closely 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 Froogal's web-based services using React Native, Fetch API and Android Studio
- Released on Google's Play Store and Apple's App Store with more than 10,000 downloads

International Institute of Information Technology

Hyderabad, India

Teaching Assistant

August 2017 - April 2019

- Courses: Computer Vision (Spring '19) and IT Workshop (Fall '17).

Projects

• Distributed TicTacToe and chat room

- Developed a distributed TicTacToe game, in a client-server setup using the Java RMI protocol
- Parallelized the game server to handle multiple games, along with a chat server for multiple clients/client groups
- Mini SQL Engine Developed an SQL engine in Python to parse and execute a subset of SQL commands, along with relevant error handling

• Variable Quantized Ensemble Networks (under review at WACV'20)

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

• AngelSafe

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

• Driving scene analysis (with Microsoft Research India)

- Developed an Android app using Tensorflow Lite to detect drivers facial expressions and actions in real-time
- Compressed and exported neural networks trained on custom data to the app to generate performance data
- Multiple Computer Vision and Graphics projects Developed multiple applications including a cartoon coloring app, optical flow predictor and standalone games in Unity3D, OpenGL and WebGL

TECHNICAL SKILLS AND RELEVANT COURSES

- Programming Languages: C++, Python, Javascript, SQL, Java, Bash, C#
- Libraries and Tools: React, Android Studio, PyTorch, scikit-learn, OpenCV, Keras, OpenGL, Unity
- Relevant Courses: Software Engineering, Database Systems, Computer Vision, Principles of Programming Languages, Distributed Systems, Algorithms, Data Structures, Digital Image Processing, Statistical Methods in AI, Game Design