Leo Neat

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EDUCATION

UC SANTA CRUZ

BS in Computer Science
Expected May 2019 | Santa Cruz, CA
Conc. in Software Engineering
Jack Baskin School of Engineering
Dean's List (All Semesters)
Cum. GPA: 3.92 / 4.0

(Awaiting Acceptance)
M.S. in Computer Engineering
Expected May 2020 | Santa Cruz, CA
4 + 1 B.S/M.S. program
Currently taking graduate level classes to apply to my M.S. degree upon acceptance

COURSEWORK

GRADUATE

Computer Vision and Image Processing
Advanced Algorithm Analysis

UNDERGRADUATE

Machine Learning
Advanced Programming
Comparative Programming Languages
Abstract Data Types
Web Development
Probability and Statistics
Computer Systems
Assembly Language
Discrete Math
Data Structures
Linear Algebra
Vector Calculus

SKILLS

PROGRAMMING

Over 5000 lines:
Java • Python • Android
Over 1000 lines:
C • C++
Familiar:
Shell • Arduino

TOOLS

Experienced:
Android Studio • Linux O.S. • LaTeX • Git
Intermediate
OpenCV • SQLite • Keras
Familiar
AWS • Google Firebase • TensorFlow's Object Detection API • Cmake

ANDROID DEVELOPMENT EXPERIENCE

UCSC COMPUTER VISION LAB

Onboard Inference Speed Test Application
September 2018 – present| Santa Cruz, CA

- Developed an android application that can be used to compare the inference speed of different mobile Convolutional Neural Networks(CNNs)
- Application synchronously detects objects in the camera's field of and display's bounding boxes over the Camera2 API preview
- Allows lab students to upload their own TensorFlow Lite CNN to test and compare inference speeds.

CNN Model Test Application
December 2016 – June 2018| Santa Cruz, CA

- Worked with a P.H.D. student to develop an assistive technology application to aid blind individual's spacial awareness
- Developed a system that streamed images from an Android device's camera to a server where it was processed by a text detection CNN
- Created an Android UX that was specifically used to relay the information from the server to blind individuals
- A paper about the application was accepted for publication:
  L. Neat, R. Peng, S. Qin, R. Manduchi "Scene Text Access: A Comparison of Mobile OCR Modalities for Blind Users" 23rd International Conference on Intelligent User Interfaces. ACM, 2019

AQUIFI | Software Engineering Intern

June 2018 – Sep 2018 | Palo Alto, CA

- Devloped an Android application that was used to off-load data from Aquifi's handheld camera devices
- System would send user selected image data and meta-data to different Aquifi servers for regression testing, training, etc...
- Used AWS SNS to notify respective company teams when new data was uploaded
- Application is still being used by Aquifi today

JET PROPULSON LABORATORY | Software Engineering Intern

June 2017 – Sep 2017| Pasadena, CA

- Designed and built a software and hardware system that utilizes an Android phone to emulate a star for EMCCD camera testing
- Saved NASA thousands of dollars in development cost and months of testing
- The Android application allowed JPL scientists to image complex light structures that were emitted by the phone screen
- The camera characterization system is currently being used by different teams at NASA for spaceflight detector evaluation
- The system was published in a well known Astronomy journal:
  Michael Bottom, Leo S. Neat, Leon K. Harding, Patrick Morrissey, Seth R. Meeker, Richard T. Demers "Smartphone scene generator for efficient characterization of visible imaging detectors", Proc. SPIE 10709, High Energy, Optical, and Infrared Detectors for Astronomy VIII, 107092R (6 July 2018); doi: 10.1117/12.2312335;

PERSONAL |On-board Assistive Text Detector

September 2018 – present| Santa Cruz, CA

- Developing an Android app for blind individuals inspired by my work at UCSC
- Application uses Google Firebase Vision detection as its text detector
- Currently in alpha testing but will be pushed to the Google Play Store soon