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

LA CANADA HIGH SCHOOL

Grad. May 2015 | Pasadena, CA

LINKS

Github:// **Leo-Neat**
LinkedIn:// **leo-neat**

COURSEWORK

GRADUATE

Computer Vision and Image Processing
Advanced Algorithm Analysis

UNDERGRADUATE

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

SKILLS

PROGRAMMING

Over 5000 lines:
Java • Python • Android • LaTeX
Over 1000 lines:
C • C++
Familiar:
TensorFlow's Object Detection API • Keras • OpenCV • SQLite • Shell • Arduino

EXPERIENCE

AQUIFI | Software Engineering Intern

June 2018 – Sep 2018 | Palo Alto, CA

- Responsible for developing an Android application that allows users to quickly offload data from Aquifi devices to different servers for quality assurance, regression testing, training, etc...
- Wrote, tested, and modified system level camera code that ended up in production
- Developed an algorithm to detect corrupted frames in camera streams and recover the streams if necessary

JET PROPULSION LABORATORY | Software Engineering Intern

Optical Software for WFIRST Mission | Summer 2017

- Designed and built a camera characterization system for EMCCD camera evaluation using an Android phone to emulate a star.
- The camera characterization system is currently being used by different teams at NASA for spaceflight detector evaluation
- Saved NASA thousands of dollars in development cost and months of testing time

Computer Vision for Earth Facing Telescopes | Summer 2016

- Wrote code that implemented OpenCV's tracking methods in order to determine cloud heights from MISR (Multi-angle Imaging SpectroRadiometer) satellite images
- Researched different forms of feature detection and optical flow in order to solve a stereo problem apparent in MISR's images

Optical Software for WFIRST Mission | Summer 2015

- Developed code that reduced the execution time of the Wide-Field Infrared Survey Telescope (WFIRST) coronagraph testbed by a factor of 14
- Wrote an algorithm for detecting cosmic radiation in images from Electron Multiplying Charge Coupled Device (EMCCD) cameras

Software and Ground Truthing Intern | Summer 2014

- Wrote a Graphical User Interface which was utilized by JPL scientists for data manipulation and visualization of images
- Developed master class for multi-core processing system for use in JPL computer lab

RESEARCH

UC SANTA CRUZ COMPUTER VISION LAB | Undergrad Research

December 2016 – Present | Santa Cruz, CA

Worked with **Prof Roberto Manduchi** and **Dr. Siyang Qin** to create an Android application to be used by the visually impaired to identify text in their surroundings. The application streams image data from the phone's camera to a server which returns the location and characters of text found in the data sent to the server. Currently developing an Android application that is used to test and compare the inference speed of TensorFlow Lite models on mobile devices and studying the costs and benefits of on-board vs. server side inference for mobile Convolutional Neural Networks.

PROJECTS

CROWD SIZE DETECTOR

Developed a platform using Tensor-Flow's object detection API to monitor the number of people in a variety of public locations.

UCSC HACKATHON

Wrote a Monte Carlo simulation to help predict the demand for each of the Computer Science Classes offered at UCSC. The program's goal was to help reduce the number of people unable to get into Computer Science classes.

PUBLICATIONS

1. 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.

2. 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;

3. Harding, et al. "Technology Advancement of the CCD201-20 EMCCD for the WFIRST-AFTA Coronagraph Instrument: sensor characterization and radiation damage." Journal of Astronomical Telescopes, Instruments, and Systems 2.1 (2016): 011007-011007.