

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

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

- Developed a software system 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

Software Architect Intern for WFIRST Mission | Summer 2017

- Designed and built a software and hardware system that utilizes an Android phone to emulate a star for EMCCD camera testing
- 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

Software Engineer for Earth Facing Telescopes | Summer 2016

- Wrote code that implemented OpenCV's tracking methods in order to determine cloud heights for weather prediction
- Researched different forms of feature detection and optical flow in order to solve a stereo problem apparent in MISR's images

Software Engineering Intern for WFIRST Mission | Summer 2015

- Multi-threaded a telescope testbed initialization which reduced its startup speed by a factor of 14
- Developed an algorithm for detecting radiation corrupted segments in images taken with EMCCD cameras

Software and Ground Truthing Intern | Summer 2014

- Created 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

- Developed a system that streams images from an Android device's camera to a server where it is processed by a CNN which returns the location and text in the image
- Created a human computer interaction interface that relays the information received by the Android phone from the server to a blind user
- Developing a system that can be 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 CNNs.

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 "Bringing Transparency Design into Practice." 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.