

Nathan Lam



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Software Engineer with experience developing custom GUIs, image processing tools, and computer vision solutions

EDUCATION



UNIVERSITY OF HAWAII AT MANOA

FALL 2014 - SPRING 2018

B.S. COMPUTER ENGINEERING

GPA: 3.87 / 4.00

PROGRAMMING: Python • C++ • C • HTML • CSS • JavaScript • Java

TOOLS & LIBRARIES: Python • OpenCV • PyQt • PyQtGraph • gRPC • Git • Vim • Cygwin

EXPERIENCE

SPECTRUM PHOTONICS | SOFTWARE ENGINEER

Python, OpenCV, PyQt, PyQtGraph, gRPC

August 2018 - Present

- Collaborated with QA, Firmware Engineers, and Project Managers to design and develop cross-platform GUIs to detect chemical and biological plumes using hyperspectral imaging (HSI).
- Delivered GUI binary executables for Department of Defense contracts: Compact Configurable Real-Time Infrared HSI System (\$1.5M), Hybrid Active/Passive Remote Sensor System (\$1.5M), DARPA Invisible Headlights (\$300K), and Compact Dual-band Thermal and LWIR HSI Payload for SUAS (\$150K).
- Led design choices for the client-server architecture of PUB/SUB and REQ/REP information transfer protocols across multiple systems.
- Improved image processing and video streaming performance by over 600% (10 FPS to 60+ FPS) using multiprocessing and threading for both infrared and 3-channel BGR camera feeds.
- Saved 200+ hours of manual testing by automating core GUI integration tests and developing re-configurable GUIs with custom loggers, plotters, and diagnostic tools to alleviate manual debugging across remote machines.

BOOZ ALLEN HAMILTON | SOFTWARE DEVELOPER INTERN

Python, LIDAR, ZigBee

May 2017 - August 2017

- Led team of six to develop autonomous robotic vehicles capable of relaying situational awareness and sensory information to surrounding vehicles for collective decision-making.
- Designed a proof-of-concept system based on blockchain technology to define trust relationships between vehicle-to-vehicle communications.
- Managed project timeline, scope, and cost constraints to ensure progress and delivery within a \$5K budget.
- Acquired \$195K in additional project funding after demonstrating high-trust communications and resilience against the injection of malicious inputs by rouge actors; Placed 3rd out of 76 Intern Summer Games teams.

SPECTRUM PHOTONICS | SOFTWARE ENGINEER INTERN

Python, Django, Raspberry Pi

May 2016 - August 2016

- Logged 500K lines of daily infrared camera data by implementing a portable data-logger web-server interface.
- Reduced data processing time by eliminating manual sorting using automated scripts to process CSV files.

PROJECTS

SENTIMENT ANALYSIS ALGORITHMIC TRADING BOT PYTHON, TWITTER, SLACK, EQUITY TRADING

Developed real-time trading bot by applying keyword sentiment analysis on high-profile Twitter accounts with the potential for market moving tweets. Utilized the Twitter API to retrieve real-time queries, processed tweets to obtain a sentiment score based on a positive, negative, or neutral rating then forwarded results to a Slack channel for automated push notifications.

MICROMOUSE

C, OBJECT-ORIENTED DESIGN, AUTONOMOUS EMBEDDED FIRMWARE

Designed and built an autonomous self-contained robotic vehicle capable of navigating through a previously unknown maze with the shortest path and time using Depth-First Search and Floodfill solving algorithms. Implemented adaptive intelligence through positional velocity controllers for smooth exploration of maze configurations.