Raphael Long

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EDUCATION

University of Illinois at Urbana Champaign
B.S. in Computer Science
May 2021
4.00/4.00 GPA

Palo Alto High School
2013-2017
4.00/4.00 Unweighted GPA

Relevant Coursework:
Data Structures (CS 225), Discrete Structures (CS 173), Software Design Studio (CS 126)

EXPERIENCE

Machine Learning Research (with Phil Long) — Palo Alto, CA
- Improved best lower bound on halflines error, a fundamental machine learning problem — May 2018 - Present
- Working towards matching lower bound with upper bound

Capital One — Champaign, IL
Software Engineering Intern — Jan. 2018 - May 2018
- Built data visualization tools for internal use using Angular 5
- Restructured SQL database for faster queries

GNU Linux User Group — Champaign, IL
- Discussed current events in Linux and the open source community — Sept. 2017 - Present
- Organized group purchase of hardware

Wireless Interference Research (with Minnie Ho) — Palo Alto, CA
- Used MATLAB to model propagation of noise in wireless systems — Sept. 2016 - May 2017
- Analyzed different methods of transmitting data (BPSK, QPSK, etc)

FIRST Robotics — Palo Alto, CA
Software Captain (Team 6036), Web Captain (Team 8), Scouting Captain (Team 8) — Sept. 2013 - May 2017
- Led team of 4 to develop autonomous and remote control robot code and taught C++, Java, UNIX and Git
- Led team of 5 in web development and taught HTML, CSS, JS and Git
- Developed system to analyze competitor robots' ability and managed 30+ members in competition setting

PROJECTS

N-Dimensional Conway's Game of Life — Apr. 2018 - May 2018
- Built simulation in C++ using recursive templated class definitions

Facial Recognition — Apr. 2018 - May 2018
- Used C++ OpenCV facial detection and recognition to pull faces from webcam and tag by name in real time

Procedurally Generated Game Engine — Jan 2018 - Feb. 2018
- Constructed framework that pulls descriptive text from JSON files to produce game world
- Supports game saves and is structured for easy additions to game logic

Schedule Optimizer — Sept. 2017 - Dec. 2017
- Generates schedules for students, resolving conflicts and minimizing gaps between classes
- Created production pipeline and algorithm

PygHack Hackathon Participant — Sept. 2017 - Sept. 2017
- Built app to alert police of illegal parking, especially in handicap spots
- Implemented MongoDB database, back-end API and simple front-end data visualization tool

Arch Linux Workstation Install and Configure — Sept. 2017 - Oct. 2017
- Configured daemons and dotfiles for personal use

Fairness Research (with Moritz Hardt) — Nov. 2015 - May 2016
- Analyzed data in Python using numpy to illustrate unexpected bias in machine learning
- Developed mathematical definitions of fairness and prejudice

SKILLS

Proficient in Java, Python (numpy, pandas), C++, Git, UNIX, Javascript (Node, Angular), HTML and CSS
Experienced with MatLab, SQL, MongoDB and Lua