JONATHAN WAPMAN

Phone: (925) 548-9038
Email: jdwapman@ucdavis.edu
Website: https://jdwapman.github.io
Address: 2250 Kemper Hall
            One Shields Ave
            Davis, CA, 95616

EDUCATION

University of California, Davis   **Expected Jun. 2020**
Master of Science, Electrical Engineering
Advisor: Professor John Owens
Research Focus: GPU-Accelerated Graph Algorithms on a Streaming Architecture
GPA: 4.00/4.00

University of California, Davis   **Mar. 2018**
Bachelor of Science, Electrical Engineering
GPA: 3.96/4.00

RESEARCH EXPERIENCE

Owens Research Group – University of California, Davis   **Dec. 2018 – Present**
Graduate Student Researcher
PI: Professor John Owens (Dept. of Electrical and Computer Engineering)

- Currently researching methods to map GPU graph algorithms and load-balancing methods to a dataflow programming model in collaboration with Nvidia as part of DARPA's Software-Defined Hardware program.
- Implemented the HITS graph ranking algorithm in the Gunrock open-source parallel graph analytics library.

NASA Jet Propulsion Laboratory   **Jun. 2018 – Sept. 2018**
Guidance & Control Intern

- Developed control algorithms and software drivers to enable automated position and attitude control of a planar air-bearing platform using used for CubeSat formation flying, pointing, and rendezvous experiments.
- Planned and executed a series of laboratory tests to fully characterize the planar platform's physical properties, software performance, and position-control capabilities. Extensive data analysis performed using MATLAB.
- Planned publication covering the platform's design, performance capabilities, and applications to future CubeSat missions.

Lawrence Livermore National Laboratory   **Mar. 2018 – Jun. 2018**
Computational Engineering Intern

- Researched and simulated decentralized signal detection algorithms, information-exchange schemes, and motion strategies for chemical plume identification and localization using fully-autonomous robotic swarms.
- Created a Python module to enable development and analysis of collaborative, autonomous swarm scenarios; currently utilized for ongoing research by LLNL scientists and for a 3D visualization collaboration with UCSD.

Yankelevich Laboratory – University of California, Davis   **Jan. 2017 – Mar. 2018**
Research Assistant
PI: Professor Diego Yankelevich (Dept. of Electrical Engineering)
- Developed low-cost, automated hardware and software systems to capture, analyze, and display data for fluorescence lifetime imaging applications to guided surgery, using C++ and Python on a Raspberry Pi.
- Presented at the 2018 Undergraduate Student Research Showcase to UC Regents, CA lawmakers, CEOs, and alumni.

PROFESSIONAL EXPERIENCE

Silva Laboratory – University of California, Davis   **Sept. 2016 – Jun. 2017**
Software Developer
- Designed circuitry and programmed an Arduino for a digitally-controlled syringe with a team of three students. Used as a low-cost alternative for microfluidic educational and research projects.
- Achieved performance comparable to a $2000 industrial digitally-controlled syringe for less than $150.

Lawrence Livermore National Laboratory – National Ignition Facility   **Jun. 2016 – Sept. 2016**
Intern
- Created a sensor and LabView virtual instrument used to measure and track the capacitance of over 4000 high energy density capacitors for preventative maintenance. Achieved accuracy within 3% and repeatability within 1%.

Varian Medical Systems   **Jun. 2016 – Sept. 2016**
Intern
- Designed PCBs and software used to validate Multi-Leaved Collimator motors for radiation therapy machines.
- Programmed a GUI-based application to allow engineers to interface with MLC motor test equipment. Features include telemetry data visualizations, command sequence entry, and debugging tools.

UC Davis C-STEM Center   **Jan. 2016 – Jun. 2016**
Technical Volunteer
- Developed code examples for Arduino robotic platforms such as line-following and maze-solving procedures.
- Created teaching materials for middle-school students to learn basic coding and robotics concepts.

TEACHING EXPERIENCE

University of California, Davis   **Mar. 2018 – Sept. 2019**
Teaching Assistant – Senior Capstone Design (EEC 136 A/B)
- Assisted students and project teams with circuit design/layout, embedded device programming, project management, and quarterly written reports.

CONFERENCES

"Gunrock GPU Graph Analytics", UC Davis Industrial Affiliates Conference, May 2019.
Poster   May 2019

"Chemical Plume Detection with Collaborative, Autonomous Sensor Networks," 2018 Signal and Image Sciences Workshop at the Lawrence Livermore National Laboratory.
Poster   May 2018

"Rocket Imaging Payload: Identification of Ground-Based Targets using Contour Detection and Neural Networks with Bluetooth-Enabled Inertial Measurement Unit", UC Davis Industrial Affiliates Conference.
Award: Best Undergraduate Poster
Poster   May 2018

"Multichannel solid state photodetection system for low-cost fluorescence lifetime spectroscopy", Advanced Biomedical and Clinical Diagnostic and Surgical Guidance Systems XVI.
Contributed Slides, Presentation by Dr. Diego Yankelevich   Apr. 2018

"Low-Cost Data Collection Systems for Fluorescence Lifetime Spectroscopy Imaging", *UC Undergraduate Research Ambassador Showcase".*
Presentation   Feb. 2018

AWARDS

Outstanding Senior in Electrical Engineering (1 per year)	2018
Fred Fuchslin Memorial Scholarship	2017
Robert Murdoch Memorial Scholarship	2017
Dean's List – 10 Quarters	2014 – 2018
Pedrozzi Scholarship	2014
Eagle Scout with Bronze Palm	2013

SKILLS

Programming Languages

C, C++, CUDA, Python, MATLAB, LaTeX, Verilog, Bash

Tools & Frameworks

OpenCV, NumPy, Numba, Git, Gunrock, Googletest, Jekyll

Programs

LabView, Simulink, Eagle, Linux, MacOS, Windows, Microsoft Office

COURSEWORK

Graduate

Embedded Computing Systems (EEC 284), Linear Systems (EEC 250), Nonlinear Systems (EEC 251), Optimal Control (MAE 298), Reinforcement Learning (EEC 289A), VLSI Digital Signal Processing (EEC 281)

Undergraduate

Computer Architecture (EEC 170), Control Systems (EEC 157A), Design of Coffee (ECM 1), Differential Equations (MAT 22B), Digital Systems I/II (EEC 180 A/B), Discrete Math (ECS 20), Electromagnetics I/II (EEC 130 A/B), Linear Algebra (MAT 22A), Parallel Computer Architectures (EEC 171), Probabilistic Analysis (EEC 161), Signals & Systems (EEC 150A)