Jonathan Wapman

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https://jdwapman.github.io/jdwapman/

Education

University of California, Davis

Master of Science, Electrical Engineering **Expected June 2020**

- **GPA:** 4.00/4.00
- **Research Focus:** Load-Balancing for GPU-Accelerated Graph Algorithms (Advisor: Professor John Owens)
- **Coursework:** Linear Systems & Signals, Nonlinear Systems, Optimal Control, Reinforcement Learning

Bachelor of Science, Electrical Engineering **Graduated March 2018**

- **GPA:** 3.96/4.00
- **Awards:** Outstanding Senior in Electrical Engineering (1 per year), Dean's List: 10 Quarters, Robert Murdoch Mem. Scholarship, Fred Fuchslin Mem. Scholarship, Best Undergraduate Poster – UC Davis Industrial Affiliates Conference

Skills

- **Engineering**: Control Systems, Digital Design, Embedded Systems, Parallel Computing, Optimization, Robotics
- **Languages:** C, C++, CUDA, Python, MATLAB, Verilog, Bash, MIPS, VB.NET
- **Software:** OpenCV, NumPy, SciPy, Numba, Git, Gunrock, Eagle, LabView, Simulink, Linux Command Line

Experience

Owens Research Group **Davis, CA**

Graduate Student Researcher *December 2018 – Present*

- 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 **Pasadena, CA**

Guidance & Control Intern *June 2018 – September 2018*

- Developed and tested control algorithms and real-time, embedded software drivers to enable automated position control of a planar air-bearing platform used for CubeSat dynamics tests to support future CubeSat missions.

Lawrence Livermore National Laboratory **Livermore, CA**

Computational Engineering Intern *March 2018 – June 2018*

- Modeled and simulated decentralized multi-agent robotic swarm algorithms for signal detection, information exchange, and motion planning applied to chemical plume identification and localization.

Engineering Intern – National Ignition Facility *June 2017 – September 2017*

- 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%.

Yankelevich & Marcu Laboratory **Davis, CA**

Research Assistant *January 2017 – March 2018*

- Implemented low-cost, automated hardware and software systems to capture, analyze, and visualize fluorescence lifetime imaging data for guided surgery applications using C++ and Python on a Raspberry Pi computer.

Projects

- **Adversarial Reinforcement Learning:** Currently researching applications of various reinforcement learning algorithms such as SARSA and Q-Learning to multi-agent environments.
- **Computer Vision:** Designed object-detection algorithms to identify ground-level targets from onboard a rocket while in flight. Algorithm executed using C++, OpenCV, and the Yolo neural network on an Nvidia Jetson TX1.
- **CubeSat Constellation Optimization:** Applied optimization and model-predictive control systems to simulate CubeSat constellation separation using atmospheric drag as the leader of a three-person team.