Alex Eidt

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Experience

Paul G. Allen School of Computer Science and Engineering **January 2021 – August 2021**
Teaching Assistant *Remote*

- Teaching Assistant for CSE 163, an Intermediate Data Programming course focused on learning Data and Image Analysis in Python using analytic and machine learning techniques.
- Libraries taught were pandas, numpy, scikit-learn, matplotlib and seaborn.
- Co-lead weekly quiz sections of 20 students with fellow TA to review course concepts and go through example exercises.
- Held weekly office hours to answer student questions and graded weekly homeworks and final projects.

UW Solar in the Urban Infrastructure Lab **October 2018 – September 2020**
Web Master *Seattle, WA*

- Created and designed new UW Solar (uwsolar.be.uw.edu) website using Vue.js and Node.js with a fellow computer science undergraduate.
- Designed the Urban Infrastructure Lab website (uil.be.uw.edu) using WordPress. Held weekly meetings with club officers, faculty, and UW Web developers to guide website design and host easily maintainable sites.
- Created documentation for future UW Solar students to easily understand, update and maintain the UW Solar website.
- Project Lead for a project to get a solar array installed on the Manastash Ridge Observatory. Oversaw cost estimation, schematic, and solar array design with UW Solar team to create a proposal and energy audit for a ground mounted solar array at the Observatory.

Projects

FFmpeg Wrapper | *Go, FFmpeg* **December 2021**

- Created an FFmpeg wrapper in Go to provide simple, cross-platform video I/O and webcam streaming.
- Used pipes to transfer image data between Go and the FFmpeg process.

ARM CPU | *Verilog* **October 2021 – December 2021**

- Built a 64-bit 5 stage pipelined ARM CPU for a computer architecture class.
- Built in data forwarding and accelerated branches.
- Implemented basic ALU Operations, Loads, Stores, Branches and Comparisons.
- Created test benches for all sub-modules and simulated them with ModelSim to ensure correct behavior.

Karve | *Java* **August 2021 – October 2021**

- Created a content aware image resizer (Seam Carver) that can resize images vertically and horizontally in real time using an optimized pathfinding algorithm. github.com/AlexEidt/Karve.

ASCII Video Renderer | *Python, Numpy* **June 2021 – September 2021**

- Created a script to quickly convert any video file into ASCII form. github.com/AlexEidt/ASCII-Video.
- Developed a novel algorithm that is heavily optimized using parallelization and numpy, resulting in conversion speeds of 10 FPS on Full HD video (1920x1080) and 30 FPS on HD video (1280x720).
- Runs 400x as fast as the conventional ASCII image converters.
- Created a YouTube video explaining the algorithm. youtu.be/SzqKClkCi_0.

Side Scroller | *Verilog* **March 2021**

- Created a Side-Scroller Game in pure Verilog with a partner on an FPGA.
- Used Algorithmic State Machines to convert graphics code from software to hardware.
- Project Demo on YouTube: youtu.be/5JxGhRVQ_Ns.

Education

University of Washington (UW) **September 2018 – December 2021**
Bachelor of Science in Electrical and Computer Engineering GPA: 3.62 *Seattle, WA*

Technical Skills

Languages: Python, Java, C/C++, JavaScript, Kotlin, Go, Verilog
Developer Tools: VS Code, IntelliJ, Git, Linux, Bash
Skills: Algorithm Design, Computer Vision, Image Processing, Data Analysis, Resilience, Teamwork, Problem Solving