

# Sam Hirsch

## Computer Engineer and Entrepreneur

[sam.hirsch66@gmail.com](mailto:sam.hirsch66@gmail.com)

Salt Lake City, UT

[linkedin.com/in/shirsch75](https://www.linkedin.com/in/shirsch75)

[samhirsch.me](http://samhirsch.me)

### Education

**BS in Computer Engineering**, University of Utah – GPA 3.96

**September 2017 – December 2021**

### Experience

#### **Undergraduate Research Assistant**

*Center for Parallel Computing, University of Utah*

**Salt Lake City, Utah**

*Sept. 2021 – Present*

Expanded on work performed with Berkeley (see below) and synthesized research into paper

- Wrote a testing framework to automate benchmark generation on different systems
- Prepared compelling performance results and discussion of code benefits with experimental data layout tool

#### **Student Research Assistant**

*Computational Research Division, Lawrence Berkeley National Laboratory*

**Berkeley, California**

*May 2021 – Sept. 2021*

Researched memory access pattern optimizations for GPU accelerators as part of the Exascale Computing Project

- Wrote domain-specific benchmarking code for experimental systems using NVIDIA, AMD, and Intel hardware
- Interfaced directly with researchers at other labs, AMD, and Intel to understand hardware and share data

#### **Undergraduate Research Assistant**

*Compiler Technology to Optimize Performance, University of Utah*

**Salt Lake City, Utah**

*May 2020 – April 2021*

Researched automatic tuning of C code using experimental LLVM development code

- Worked with director of School of Computing, Dr. Mary Hall, in conjunction with work at Argonne National Lab
- Compared methods of developer guided, architecture-oriented code optimization for C kernel functions

#### **Chief Technology Officer**

*Rexchanger, LLC*

**Salt Lake City, Utah**

*Aug. 2019 – Sept. 2021*

Lead the full-stack development of the Rexchanger platform

- Built a scalable backend using Python and Django, hosted on AWS, and a cross-platform mobile app with Flutter
- Planned development road-map and managed technical communication

#### **Web and Media Compatibility Intern**

*Compatibility Team, Streamroot Inc. (now a subsidiary of CenturyLink)*

**Paris, France**

*Sept. 2019 – Jan. 2020*

Developed iOS application and integrated with deployment chain for seamless QA of new SDK builds

- Built companion webapp and CLI to receive logs from the SDK and push test configurations to devices in real-time
- Detailed the project on the company blog (<https://link.medium.com/JSUY3NqCM9>).

### Projects

#### **Autonomous Vehicle P2P Network (Undergraduate Senior Project)**

- Created a rudimentary autonomous vehicle model incorporating computer vision, LIDAR processing, and routing
- Developed protocol for inter-vehicle communication and use of shared information

#### **16-bit RISC Computer (Class Project)**

- Designed a fully-functional digital CPU with Verilog-HDL and an FPGA board
- Wrote a Guitar Hero clone, in our custom machine code, that live-transcribes music to demo the CPU

#### **VR Arcade for Paralyzed Patients (Extended Class Project)**

- Worked with four other students to create a virtual reality arcade using Unity and SteamVR
- Cooperated with a research team at the University hospital to integrate the “Sip and Puff” device, to make the game accessible to paralyzed patients and help them practice using the device

### Leadership

- Sole Teaching Assistant for Verilog-based Digital System Design laboratory project (2021)
- TA for Electrical Engineering lab for non-majors (2020 – 2021) and Digital System Design course (2021)
- Student Associate and Director of High School Utah Entrepreneurship Challenge (2018 – 2020)
- Summer camp counselor, canoe trip leader, lifeguard, and Wilderness First Responder (2019)