

Ryan Jacobs

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EDUCATION

- **University of California, Los Angeles** Westwood, CA
Computer Science & Engineering Sept. 2017 – June 2020
- **Del Oro High School** Loomis, CA
Valedictorian (Rank #1/427) Aug. 2013 – May. 2017

EXPERIENCE

- **WebFPGA - Kickstarter Founder** Sacramento, CA
React.js, BASH, TCL, iPXE, Redis, PCB Design, STMicro Firmware May 2019 - Present
 - **Full-Stack Product Design/Implementation:** Created custom PCBs, accompanying firmware, and high-level software to ease the FPGA development processes for both newcomers and experts in the field. The remote synthesis toolchain produces viable bitstreams in the cloud and transmits them down to the host machine, where the FPGA board is programmed over WebUSB – no additional software or drivers required. Google Chrome and Opera are supported browsers. **\$30k in product revenue to date.**
 - **React.js:** Created an easy-to-use Web IDE for users to experiment and learn Verilog/HDL design patterns.
 - **Kubernetes, iPXE, CoreOS:** Implemented multi-cluster infrastructure to queue HDL synthesis jobs. Used iPXE to orchestrate on-premise diskless server blades. Used Redis to cache and deliver already synthesized bitstreams.
 - **PCB Design, STMicro Firmware:** Designed and assembled printed circuit boards. Wrote microcontroller firmware and compression utilities to efficiently transfer FPGA bitstreams over WebUSB.
- **Numadex, Inc. - Software Engineering Internship** Santa Monica, CA
C#, Python, Protobuf, gRPC, Unity Summer 2019
 - **Kinect Azure SDK:** Polled Kinect color/depth image sensors to create three-dimensional point-clouds. Packetized said point-clouds (and motion sensor data) and transmitted them to a client device over gRPC/TCP/IP.
 - **Unity:** Received networked point-cloud and rendered frames in real-time. Wrote custom GPU shaders to handle point-cloud rendering. Typical usage: 250k points * 30 fps @ sub-100 Mbps link speed; sub-75ms latency.
 - **Oculus Rift VR:** Employed Unity's Oculus integrations to allow user to explore the point-cloud in virtual reality.
- **LeaseLock - Software Engineer** Marina del Rey, CA
Node.js, PostgreSQL, AWS, TypeScript, React Sept. 2019 - Present
 - **Credential Management Store:** Storage and retrieval of PMS (Property Management System) API keys. Each property has a distinct set of keys that rotate and expire. This system automatically renews the API keys upon expiration – and on failure, notifies the engineering team. Designed to scale to 100k+ real estate properties.
 - **Automated Property Underwriting:** An analytics platform to process historical property and tenant data. Programmatically produced Excel spreadsheets that expressed reinsurance loss ratios, tenant default/damage rates, and general statistics. Eliminated daily menial work for the risk management team by roughly 30%.

PROJECTS

- **c:** A drop-in BASH extension that allows script-like execution of C programs; [GitHub 1.7k stars, 100k+ downloads](https://github.com/ryanmjacobs/c);
github.com/ryanmjacobs/c
- **ucla-laundry:** Node.js + Puppeteer to scrape dormitory laundry data and R to plot the data;
github.com/ryanmjacobs/ucla-laundry
- **4sk8:** Augmented a skateboard with hardware peripherals to guide the rider to a destination;
github.com/ryanmjacobs/4sk8

SKILLS

Languages: Ruby, C/C++, BASH, JavaScript, R **Technologies:** Git, React.js, Kubernetes, Docker, iPXE