PARKER HUNTINGTON

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EDUCATION

Massachusetts Institute of Technology *2017 - 2021*
Physics (8)
Electrical Engineering and Computer Science (6-2)
GPA: 4.7 / 5.0

Wright State University *2016 - 2017*
Calculus III and Quantum Mechanics

WORK & PROJECTS

Photo Server *Summer - Fall 2021*
Wrote a web server designed as a replacement to Google Photos in rust. Built on the hyper HTTP library and Sled embedded KV-database. Exercise in zero-copy deserialization, and asynchronous programming.

CGRA Acceleration of Barnes-Hut *Fall 2020 - Spring 2021*
Worked with the MIT architecture group to research CGRA acceleration of irregular tree traversal algorithms. I successfully mapped the Barnes-Hut algorithm to a bounded size pipeline style of execution. Additionally, I designed a small hardware accelerator to reorder execution and increase cache locality. Simulations show a 6.33x speed-up over a 4-core x 16-thread CPU.

TTL RiSC CPU *Summer 2020*
Designed and built a 74xx-series based CPU around Bruce Jacob's RiSC-16 teaching operation. Features a 49-chip 8x16-bit register file with 2 read ports.

Magnetic Core Memory *Summer 2020*
Worked on recreating magnetic core memory that was famously used on the Saturn V rocket for fun.

FPGA Fixed Point Ray Tracer *Fall 2019*
Worked with a partner to create a 1080p fixed point raytracer. The scene volume was divided into an octree, and traversed by 32 ray tracing units running in parallel.

Apple Internship in Hardware Technology's Silicon Engineering Group *Summer 2019*
Learned and ran the entire silicon Place and Route flow including performing the timing, congestion, and power analysis. Worked alongside full time engineers on real designs to examine power, performance, and area tradeoffs.

FPGA Wireframe Renderer *2019*
Created a 60-fps wireframe graphics pipeline on a Xylinx Pynq-z2 fpga as part of a design "competition" class over the course of two weeks. The setup contains a double-buffer for smooth animations and a python provided projection matrix for flexibility.

Control of a Terahertz Spectrometer for Breath *2017 - 2018*
Created a control system for a compact breath analyzer. The control system consisted of smith predictors for high latency heaters, vacuum system control, and sensor integration via interfaces such as spi, rs-485, etc.

TECHNICAL STRENGTHS

Languages	Rust, C, Python, C++, Verilog, Javascript
Software	Linux, Vivado, Mathematica, Atmel Studio, Numpy
Skills	Hula-Hooping, Sailing

HONORS

Tied 1st in FPGA design "competition" class *2019*

US Physics Team *2016*

Science Olympiad National Placement *2015, 2016*
Coached for 2 years and participated in events across biology, chemistry, and physics. Placed in other science competitions such as Science Bowl (nationals double elimination).