

# Kyle Powers

Email: [Kyle.E.Powers@virginia.edu](mailto:Kyle.E.Powers@virginia.edu)

Phone: 508-395-9590

Website: [www.KylePowers.info](http://www.KylePowers.info)

Current Address: 101 Carrollton Terrace, Apartment 14, Charlottesville, Virginia, 22903

## Objective

To drive innovation by utilizing my education, research, and professional experience to produce cutting-edge technologies

## Education

**University of Virginia**

**Charlottesville, VA**

**August 2009 – Present**

**School of Engineering and Applied Science**

- Bachelor of Science in Electrical Engineering, GPA – 3.19 (Third Year), 3.05 (Cumulative – Technical)
- Focus in Very Large Scale Integration (VLSI), variation tolerance, and high performance, low power research

## Work Experience

**Intel Corporation**

**Hudson, MA**

**May 2012 – August 2012**

**Yield Analysis – Defect Metrology Intern**

- Utilized ad-hoc query tools such as SQLPathFinder to assemble data from multiple databases and rearrange the data using techniques such as data ranking, pivoting, and stacking which was then fed into Excel/JMP for analysis
- Used NT-based software such as Klarity to access and analyze in-line defect data collected from metrology tools
- Scripted JSL code using 1Click! methodology for layer and tool owners to achieve automated defect data acquisition

**Intel Corporation**

**Hudson, MA**

**May 2010 – August 2010**

**Manufacturing Technician Intern**

- Operated GaSonic machines that plasma etched the photoresist from silicon wafers in a Class 1 fabrication facility
- Created *Pocketable Reference*, an additional training aid and tool information reference for new employees
- Developed a system of categorization to increase production, yield rates, and both active/passive communication
- Identified an eye-related hazard and potential cause for decreased yield rates; Developed an informative campaign

## Research

**High-Performance Low-Power Lab**

**Charlottesville, VA**

**January 2012 – May 2012**

**Undergraduate Researcher**

- Co-researched a new taxonomy for reconfigurable fault-tolerant parallel prefix adders under Mircea R. Stan, Ph.D.
- Explored the application of Arithmetic Description Language (ARITH), a language for describing and translating arithmetic algorithms to Hardware Description Language (HDL) codes based on weighted number systems

## Select Projects

- Led a group of five in designing a [digital signal processor](#) in FreePDK 45nm technology using Cadence Virtuoso
- Studied [memristors](#) and their application in crossbar latches as an alternative to microprocessor transistors
- Worked in a group of two to design, simulate, build, and experimentally verify a [DC coupled multi-stage amplifier](#)
- Designed a [gumball machine controller](#) using a finite state machine with D flip-flops, a priority encoder and decoder
- Collaborated in a five-person group to create a Java-based [Google Chat I.M. Client](#) using XMPP and Swing

## Skills

- **Software:** Cadence Virtuoso, FPGA Advantage, LTSpice, Logisim, MATLAB, Eclipse, SQLPathFinder, JMP, Klarity
- **Lab Hardware:** Protoboards, microcontrollers, impedance analyzers, oscilloscopes, function generators, SEM/AFMs
- **Programming:** Java, C++, Objective-C, VHDL, Shell, Assembly, SQL, JSL (Unix, Windows XP/Vista/7, Apple OSX)

## Relevant Courses

### Computer Engineering

- **Computer Architecture:** Instruction set architectures, processor design, computer arithmetic, memory systems
- **Computer Science:** Object-oriented programming through the study of algorithms and data structures
- **Digital Logic Design:** Boolean algebra and logic gates, combinational/sequential/arithmetic network design
- **Discrete Math:** Proof techniques, first order predicate logic/induction, finite/infinite sets, combinatorial problems
- **Signals and Systems:** Linear time-invariant systems, Fourier analysis of signals, frequency input/output analysis

### Electrical Engineering

- **Circuit Analysis:** Kirchhoff's laws, AC and DC analysis, transfer functions, resonance, Thévenin/Norton models
- **Electronics:** Gain/frequency response of linear/differential/feedback amplifiers, multi-vibrators, and digital circuits
- **Electromagnetic Fields:** Static/dynamic E&M fields, plane wave propagation, Maxwell's Laws, electrical properties
- **Microfabrication (Spring 2013):** Diffusion, oxidation, implantation, photolithography, wet/dry etch, trench isolation, etc.
- **Solid State Devices:** Band theory, atomic structure, charge-transport, Schottky diodes, bipolar and FET transistors
- **VLSI (Fall 2012):** CMOS combinational/sequential circuits, memory, clocking, interconnect, layout, and implementation

## Volunteering

- "I'm in. Intel Involved": Collaborated with RCGnet and [Community Harvest](#) to plant vegetables for local donation