John Harkins

(Address and phone number redacted.)

http://jharkins95.github.io | https://www.linkedin.com/in/jharkins95

EDUCATION

Candidate, Bachelor of Science in Engineering, Computer Engineering May 2018
University of Pennsylvania, *School of Engineering and Applied Science* Philadelphia, PA
GPA: **3.87/4.00**
Awards: Tau Beta Pi Inductee, 2017; Dean's List 2016 – 2017, 2015 – 2016, 2014 – 2015; full scholarship/grant funding
Relevant Courses: Software Engineering, Algorithms and Data Structures, Computer Organization and Design, System-on-a-Chip Architecture, Embedded Systems and Microcontroller Laboratory, Circuit-Level Modeling for Digital Systems

EXPERIENCE

Teaching Assistant August 2016 – present
Department of Electrical and Systems Engineering, University of Pennsylvania

- Develop course materials for undergraduate- and graduate-level embedded systems and microcontroller courses.
- Grade lab assignments and examinations for 100 students.
- Assist students in completing homework and lab assignments during lab and office hours.

Hardware/Software Engineering Intern May 2017 – August 2017
Intel Sports Group, Intel Corporation, Santa Clara, CA

- Designed software in Unity for VR/AR sports-related applications, including camera automation and play detection for full 2-hour basketball broadcasts.
- Developed firmware for wearable devices used in human performance and body kinetics applications.
- Documented 1000+ lines of code for protocol to transmit data between smart watch and mobile phone using Blueooth GATT services.

Undergraduate Research Assistant May 2016 – August 2016
mLab, University of Pennsylvania

- Designed circuitry to read pressure-sensitive mat and power array of 12 high-voltage electroluminescent panels for interactive yoga mat applications.
- Wrote embedded serial communication software in C and interfaced microcontrollers with computer to collect pressure data.
- Developed graphical user interface in C++ and Qt to visualize data.

Lead Product Engineer October 2015 – March 2016
PennOrb, University of Pennsylvania

- Created and interfaced remote-controllable LED circuit with Raspberry Pi that illuminates red or green to highlight a building's energy usage.
- Saved average of 2240 kWh in monthly energy usage.
- Developed online data entry form for facilities staff using the Google Sheets Python API.

SKILLS

Programming Languages

- Proficient: Java, C, C++
- Working Knowledge: C#, Rust, Linux Shell (bash), Windows Command Line
- Some Experience: Python, LaTeX, HTML, CSS, OCaml, Verilog

Hardware Design/Simulation: Xilinx Vivado, LTSpice, EAGLE, CircuitLab, Electric
Software Development Tools: Unity, Git, Eclipse, Android Studio, IntelliJ IDEA, Code::Blocks

PROJECTS

Game Programming: Programmed Donkey Kong Country (Java) and checkers (C++) for school projects. Developed clones of Flappy Bird, Tetris, and Pong in spare time.
Software Optimization: Optimized MPEG video encoder to run at 5x speedup over base execution time using two-core Xilinx ZedBoard and Zynq FPGA.
Processor Design: Designed 2-instruction wide superscalar RISC-like processor in Verilog with 5-stage pipeline.
Embedded Systems: Designed programmable breadboard (prototyping board for circuits) capable of producing signal waveforms and measuring voltage at any point of user's choice.