Akash Kalimili

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Portfolio
http://akashkalimil.github.io/ak/

Electrical Engineering 1A
Student ID: 20618271

Technical Summary

Hardware Design & Circuitry	FPGAs (NEXYS 3), Microprocessors, MicroControllers, Serial Communication (Bluetooth 4.0), Analog Signal Processing, Digital Signal Processing, Voltage Regulation, Mixed Signal Circuitry, and Discrete Circuitry
Electrical Equipment	Printed Circuit Board mills, Laser Cutters, Mixed Signal Oscilloscopes, Soldering Irons, Machine Shop Equipment, 3D Printers, and Signal Generators
Software	Python, C, PSpice, Circuit Lab, Cadsoft Eagle, Autodesk Inventor, Solidworks, Xilinx ISE, and Arduino IDE

Engineering Courses and Projects

Senior Tech MicroElectronics Research Lab [2014-2015]

Engineered an inertial position tracking system with wireless data communication and data processing with a field programmable gate array. Designed signal conditioning circuit with an accelerometer input. Developed digitization and serialization circuitry for data transfer via bluetooth. Coded and implemented integration algorithms on a gate array.

Advanced MicroProcessor System Design [2014-2015]

Designed and developed with motorola microprocessor and programmed with assembly. Tested with mixed signal oscilloscopes, and learned microprocessor architecture.

Advanced Analog Electronics [2013-2014]

Designed AM & FM modulation circuitry with op amps, power amps, RC filters. Simulated circuitry with PSpice and CircuitLab. Troubleshooted and analyzed circuitry with oscilloscopes and multimeters.

Audio Electronics [2013-2014]

Designed and developed mixed signal circuitry for digital processing of an analog sample and testing done with oscilloscopes.

Advanced Digital Electronics [2013-2014]

Designed and built an application using exclusively discrete circuitry. Worked with multiplexed displays, decoders, and transistors

Automation and Robotics 1 Robot Design and Prototyping [2013-2014]

Built a prosthetic hand which replicated motions of a user. Flex sensors served as a source of data, and a micro controller was used for data processing. The project was showcased at the USA Science and Engineering Festival, Malaria Fair, TJHSST Open House, and Techstravaganza. Bluetooth was later incorporated to provide wireless capability.

Automation and Robotics 2 MicroController Based System [2013-2014]

Prototyped with 3D Printers, Laser Cutters, and PCB Design to develop and design an ultrasonic radar system with user based directional control

Work and Volunteer Experience

Academic Intern, Prepare2excel LLC, Herndon, VA, USA [2014]

- Taught Mathematics and English. Prepared and developed study guides and lesson plans to employer's specifications. Communicated and/or responded to parents' questions and requests to employer
- Created and proposed a new method of grade storage and data analysis using MS Excel

- Volunteer Mentor of Green Briar West Elementary School Math Team [2013-2015]
- Volunteer Engineering and Design Mentor for Local Robotics Team [2013-2015]
- G.I.V.E Volunteer [2015-2015]
- STEMbassadors Program Volunteer [2013-2014]

Activities & Interests

- Electrical and Computer Engineering Academic Representative [2015-Present]
- Residence Council Representative [2015-Present]
- University of Waterloo Satellite Team [2015-Present]
- Officer of BioEngineering Projects for the Future [2013-2015]
- Senior TJ BotBall Robotics Team Member [2013-2015]
- Class Council [2012-2013]

Awards

- Tenth Highest Score in the State and awarded with Top 1% Distinguishable Honor Roll on the American Mathematics Competition 10
- Fourth Highest Score in the State and awarded with Top 5% Honor Roll on the American Mathematics Competition 12
- Honorable Mention from Toshiba and NSTA for team research on Pneumonoultra-microscopicsilicovolcanoconis

Education

- **Candidate for Bachelor of Applied Science**, Electrical Engineering, University of Waterloo, Waterloo, ON, Sept. 2015 - present
- **Thomas Jefferson Diploma**, Thomas Jefferson High School for Science and Technology, Alexandria, Virginia, USA, Sept. 2011 - June 2015