Akash Kalimili

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Skills

Hardware: Microelectronics/Hardware Design, DSP, Analog and Digital Circuitry, Microcontrollers (Intel, Arduino), FPGAs, PCB Design, Testing and Validation, Bluetooth 4.0, I^2C, SPI
Software: Cadsoft Eagle, Altium Designer, OrCad PSpice, Arduino, Processing, Matlab, Verilog, VHDL, AutoCad, Python, C++, C, Java
Equipment: Power Supplies, Mixed Signal Oscilliscopes, Signal Generators, Spectrum and Logic Analyzers, Soldering Irons, DMMs, 3D printers, Machine Shop Equipment

Work

Intel Corporation - Wind River Systems, Test Engineering Intern (Ottawa, ON) Jan - Apr 2016
- Developed a patch for VaxWorks 653 3.1 RTOS which will be shipped to all users
- Deployed ROM payloads on multiple Freescale Multicore Communications Processors for testing, and validation with Simics
- Ported and fixed test cases which increased pass rate by 8.2 %

Gamelynx, Software Engineer (Waterloo, ON) Mar - Apr 2016
- Designed and developed pipeline and data scrape scripts of iTunes and Twitter for market analysis

Research

Wireless Inertial Navigation Research, Hardware Engineer (Alexandria, VA) 2014 - 2015
- Funded by the Micro Electronics Research Lab, built an inertial position tracking system with wireless data communication
- With an accelerometer input, designed signal conditioning, digitization and serialization circuitry for data transfer via Bluetooth
- Integration algorithms were written in Verilog using a NEXYS 3 Spartan - 6 FPGA.

Prosthetics Research, Hardware Engineer (Alexandria, VA) 2013 - 2015
- Designed and developed a prosthetic hand which replicated user's hand motions
- Second prototype included use of EEG headset and wireless data transfer from Arduino to prosthetic hand
- Featured at USA Science and Engineering Festival, Techstravaganza, and Malaria Free World Engineering Fair

Projects

PillRemind May - Present
- Funded by Velocity Startup Program, engineering a smart pill container to connect with mobile application for reminder system for users. Using Intel Edison for Wi-Fi. Currently working on inductive charging feature.

Translaid, EngHack Oct 2015
- Using Myo armbands, wrote Lua scripts that distinguished 15 gestures. Developed a pipeline program, in Java, to interface with Myo SDK and an Arduino for an external LCD. Developed translation and text-to-speech interface with OS X El Capitan.

SmartRemote Jan - Jun 2015
- Built an embedded system that take control of any light switch. Enclosure consisted of motor with arm that was in physical contact with the light switch. Using an Arduino, Bluetooth module, and a laptop, enabled remote control of light switches.

Cyclone Jan - Jun 2014
- Designed and built a replica of the famous cyclone arcade game using solely digital and analog circuitry. Created circuitry for timer, score counter, sound system and led matrix for the user interface. Designed PCB containing display with Cadsoft Eagle.

AM | Optical Communication System Sep - Dec 2014
- Designed AM circuitry with op amps, power amps, RC filters. Simulated circuitry with PSpice and CircuitLab. Developed circuit was able to send 3 signals over one line. Implemented similar design to develop a 3 channel optical wireless communication.

AutoRadar Jan - Jun 2015
- Designed autonomous ultrasonic radar system. Prototyped a control interface using a joystick controller. Using an Arduino, programmed system to have auto mode and control mode for specific measurements.

ThermoReg Sept - Jun 2013
- Rapidly prototyped a circuit that maintained the temperature of an ongoing research (The Effect of Ethanol on Planaria Regeneration Rates). Using data from multiple temperature sensors, developed code on custom built board to control heater state by the use of a relay. Designed apparatus setup in Google SketchUp.

Airbnb New User Booking, Kaggle Competition Jan - Mar 2016
- Designed and tuned a random forest classifier to predict where a new user would make his first booking. Feature Engineering was done to create new categories such as number of clicks, session duration, device model used, and age. Placed Top 17 %.

Photo Classify, Yelp Hackathon Mar - Apr 2016
- Wrote program, wit AWS, that takes a user uploaded image and returns the restaurant's Yelp page using transfer learning from Google TensorFlow's Inception-V3 model. Trained off of images obtained from a web scrape of popular US Restaurants

Education

University of Waterloo, Waterloo, ON, CA 2015 - 2020
BASc in Electrical Engineering
Relevant Coursework: ECE140 Linear Circuits, ECE124 Digital Circuits and Systems, ECE150 Fundamentals of Programming, ECE155 Engineering Design with Embedded Systems

Thomas Jefferson High School for Science and Technology (TJHSST), Alexandria, VA, USA 2011 - 2015
High School Advanced Studies – Jefferson Diploma
Relevant Coursework: Advanced Analog Electronics, Advanced Digital Electronics, Advanced Microprocessor System Design, Audio Electronics, Automation & Robotics 1 Robot Design & Prototyping, Automation & Robotics 2 Microcontroller Systems

Awards

10^{th} Highest Score in State on AMC 10, 4^{th} Highest Score in the State on AMC 12, Award from Toshiba & NSTA for Research on Silicosis

Activities

ECE Academic Representative, MKV Res Council Representative, Senior Botball Robotics Team Member, Officer of BioEngineering Club