FORREST KORAN

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OBJECTIVE

Seeking an embedded software/firmware development position

TECHNICAL STRENGTHS

Languages	C, Python, LaTeX, x86 and ARM assembly
Protocols	I2C, I2S, UART, DDR4, SPI, eMMC
Tools & Technologies	Git, SVN, GCC, UEFI, Vim, OpenSCAD
Hardware Platforms	x86, ATMEGA, Arduino, Edison, ARM Cortex

PROFESSIONAL EXPERIENCE

Portland State University September 2016 -
Volunteer, Portland State Aerospace Society *Portland, OR*

· Lead a group of undergraduates on the attitude control system for OreSat, Oregon's first CubeSat
· Created an open source hardware and software package for control of brushless DC motors
· Tools and Languages: C, Python, NumPy, Edison, MRAA, EagleCAD, SolidWorks

Skied Chamonix-Zermatt, climbed Cavall Bernat at Montserrat April 2016 - August 2016

Intel Corporation September 2015 - March 2016
Firmware Engineer, 3D XPoint Controller *Hillsboro, OR*

· Instrumented firmware to collect performance data that enabled improvements in hardware design
· Improved yield numbers by identifying and fixing bugs in the DDR4 diagnostic code that were causing false positives for part failure
· Tools and Languages: C

Chongqing Medical University August 2014 - July 2015
Foreign Teacher of English *Chongqing, China*

· Taught Oral English courses for undergraduates
· Wrote a tool to build a phrasebook of medical terminology by applying an iterative relaxation algorithm to bilingual scientific abstracts, to help researchers in translating their work into English
· Tools and Languages: Python, NLTK

Intel Corporation January 2011 - May 2014
Firmware Engineer, Mobile Communications Group *Hillsboro, OR*

· Helped architect Windows/Android dual boot and implemented it in firmware
· Improved BIOS bootup time by a factor of 3x as a result of analyzing the bootup process, identifying and optimizing the critical paths
· Optimized UEFI device drivers for SPI, eMMC
· Implemented UEFI secure variable store
· Shepherded features from pre-silicon emulation to factor reference designs
· Provided test FW for power optimization
· Supported OEM power-ons with Acer and Winstron in Asia
· Configured ACPI tables and GPIO settings to enable Linux kernel drivers and power management
· Tools and Languages: C, x86 Assembly

Intel Corporation June 2010 - December 2010
Intern, Test Development Engineering *Hillsboro, OR*

- Wrote a suite of UEFI utilities to test communication with peripheral devices over SPI, I2C, eMMC, and GPIO on an Intel reference platform
- Worked with engineers from Microsoft to ensure the platform performed as expected
- Wrote a framework to support sophisticated executable content during automated functional test
- Improved stability of the multi-threaded control software for Intel's High Density Modular Test suite
- Tools and Languages: C, C++

Garmin AT January 2009 - June 2009
Intern, Manufacturing Test Engineering *Salem, OR*

- Worked in the assembly, testing and service plant for Garmin's general aviation subsidiary
- Designed and built an ATMEGA-based embedded controller for a manufacturing test fixture
- Helped build an environmental test chamber and wrote scripts to control RF test equipment including spectrum analyzers, function generators and GPS simulators
- Documented test procedures for ISO-9001 compliance
- Tools and Languages: C, ExpressPCB

EDUCATION

Portland State University *December 2010*
B.S. in Computer Engineering
Minor in Computer Science

ACADEMIC EXPERIENCE

Capstone Project: Wireless Audio Device

Group project to prototype a wireless audio product for a startup company.

- Tools and Languages: C, EagleCAD, CMSIS, Bluetooth, I2S, ARM Cortex M3

Interactive Robot

Built a robot to approach and react to visitors at a department poster fair

- Tools and Languages: C, VEX, RobotOS, Arduino, GCC-AVR, LTspice, OpenCV

CPU Branch Prediction Tournament

Used the perceptron model described in *Neural Methods for Dynamic Branch Prediction*, Jimenez & Lin 2002 to win a class competition to maximize simulated branch prediction hit rate

- Tools and Languages: VHDL

Instruction level simulator for the PDP-8 minicomputer

Wrote a simulator for the entire PDP-8 instruction set and demonstrated it with a "Hello World" binary

- Tools and Languages: C

Closed loop motor control with a sound card

Built a speed regulator for a brushed DC motor using Fourier analysis of current draw

- Tools and Languages: Python, Linux

Bicycle Speedometer

Built a device to log and display the speed of my bicycle on my daily commute

- Tools and Languages: C, Arduino IDE