Trever Wagenhals

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EDUCATION

University of Massachusetts, Lowell — Anticipated Fall 2018

Accelerated Bachelor/Master of Science, Computer Engineering, Minor in Business Administration

GPA: 3.63

Tau Beta Pi Engineering Honor Society Fellow

Relevant Coursework: *Microprocessor System Design I/II, Digital System Design, Computer Architecture & Design, VHDL/Verilog Synthesis Design, C Programming, Data Structures, Operating Systems, Computer Vision & Digital Image Processing, Logic Design*

TECHNICAL SKILLS

Applications: Vivado, ModelSim, GIT, Command Line, Visual Studio, LogicWorks, PSpice, VDbench

Programming: VHDL, Verilog, C/C++, Python, MATLAB, Shell Scripting

Equipment: Oscilloscope, function generator, spectrum analyzer, AC/DC power supply, soldering, schematic reading

Certifications: CompTIA A+, Network+, Security+, CASP, Fiber Optics, C|EH

PROFESSIONAL EXPERIENCE

94E (Radio and Comsec Repair) SPC-P**, **United States Army Reserves — January 2013 – Present

- Deployed to Kuwait, troubleshooting circuits in air conditioners, computers, vehicles, and generators
- Created VBA scripts to automate computer updating process, saving time and resources

Electrical Engineer Assistant (EA), BAE Systems, Inc. — September 2017 – Present

- Design a signal generator in firmware through phase accumulation and DSP modules utilizing Taylor Series DDS
- Create a light and fully modular design to be used in multiple projects, meeting timing at varying clock rates
- Support wide frequency spectrum with programmable frequency, frequency jitter, and frequency slew rate
- Provide support for programmable pulse width, PRI, PRI jitter, and PRI slew rate
- Verify functionality using a spectrum analyzer in the frequency and time domains, identifying and fixing errors

Firmware Engineering Intern (Technical Intern 4), BAE Systems, Inc. — May 2017 – August 2017

- Implemented various radar features in VHDL, simulating all changes within ModelSim
- Ensured designs met timing constraints, making alterations until requirements were satisfied
- Updated specification documentation to describe all revisions and pushed all changes to GIT
- Created register initialization stimulation scripts in MATLAB and VBA Excel to interact with testbenches

Research and Development Hardware Engineering Co-op, Teradyne — Spring 2016

- Researched methods to enable hot-plugging for PCIe devices
- Programmed microprocessors in C to interact with registers over I2C/SMBus protocols, generated shell scripts to prepare system environment at runtime, and created a GUI in Python to provide abstraction
- Implemented design verification procedures to prepare final product for shipment

SUPPLEMENTARY EXPERIENCE

Cellular Signal Amplification System — August 2016 – April 2017

- Designed a dual-Yagi, cross-polarized MIMO antenna system with a 70dB inline amplifier to increase cellular reception inside a metal enclosure, allowing a factor of 15x download speed increase

Microprocessors II and Embedded Systems, University of Massachusetts Lowell — Spring 2016

- Programmed a microprocessor to control an LED based on varying ADC values through a photo-resistor
- Bit-banged the ADC values to an embedded system through GPIO programming and handshaking
- Created an I2C library to talk to a real-time clock and read/write values to its registers
- Sent the data to a server when the handshake was acknowledged between the two devices
- Baked a custom Linux image with preloaded modules and created a custom driver to probe

Advanced Individual Training, United States Army Reserves, Secret Clearance — March 2013 – August 2013

- Developed skills in RF communications, reading schematics, locating hardware malfunctions, soldering components, designing a multi-meter, and creating secure networks/keys to encrypt each radio