

Objective

Highly accountable and result oriented Electrical Engineer with in-depth experience managing projects, programs, resources and people seeking challenging technical roles to apply skills and experience.

Background Summary

- Proven ability to create strategic focus in problem resolution, design, troubleshooting, field support, management and customer service in resulting in a positive bottom line.
- Problem solving through data analytics and statistical analysis.
- Proactive in researching, defining, designing, evaluating and implementing embedded solutions.
- Excellent communication skills with the ability to relate to all levels within an organization.
- Adaptable, quick learner, with proven ability to work both independently and as a group member with positive results.

Employment Experience

Advanced Technologies Electrical Engineer

Paccar, Renton, Washington

May 2019 – March 2020

- Performed various CAN troubleshooting procedures such as verifying network termination resistance, checking CAN voltages, CAN ports, and device configuration settings.
- Designed and managed a datalogger project, in which the CAN information gets collected by the logger and gets uploaded on the server for further analysis. The project involved reworking schematics, component selections including battery, changing configuration settings, and working with R&D team, IT, and mechanical engineers to create a fully functional system.
- Participated in system integration and validation of low voltage and high voltage electrical systems for hydrogen fuel cell powered heavy-duty trucks.

Electronic Systems and Architectural Engineer

Paccar, Renton, Washington

September 2017 – May 2019

- Design and release of electrical and electronic systems and architecture for heavy commercial truck.
- Integration of subsystems into vehicle electrical/electronic network architecture using CAN and LIN communication protocols.
- Participated in Failure Mode Effects and Analysis (FMEA) to identify and mitigate critical failures.
- Developed and documented engineering specifications for new vehicle functions.
- Obtained agreement from cross functional teams on global design direction.

Electrical Design Engineer

Robison Engineering, Lynnwood, Washington

November 2016 - August 2017

- Designed Residential/Commercial Power and Lighting
- Performed electrical engineering calculations such as HVAC equipment safety/grounding/load analysis, wire design, voltage drop, etc.
- Designed One-line and Riser Diagram
- Familiar with Title 24 compliant Lighting Controls/Design
- Exterior/Interior Site Photometric
- Familiar with National Electric Code (NEC), California and Washington Energy Codes

Electrical Engineering Intern

Leviton Network Solutions, Bothell, Washington

May 2015 - Dec 2015

- Designed a POE Load Circuit in which 50V was stepped down to 12V via DC-DC converter and a linear regulator was used to adjust the gate voltage of the MOSFET (1.5-7.5V), thus changing the output current of the circuit across the load (up to 2A).
- Used various fluke devices to measure electromagnetic characteristics of the Ethernet cables such as near-end crosstalk (NEXT), far-end crosstalk (FEXT), Insertion Loss and Return Loss.
- Prepared prototypes for testing through mechanical fabrication, circuit layout and soldering
- Assisted development engineers with electrical and mechanical testing on development prototypes

- Assisted sustaining engineers with product sample testing, troubleshooting, test fixture fabrication and maintenance

Electronics Test Technician

Philips Healthcare, Bothell, Washington

November 2014 - April 2015

- Performed functional tests on Ultrasound Systems and Field Upgrade PCA kits per client's Functional Acceptance Test Procedures
- Troubleshoot system failures and made repairs as needed
- Board bring-up experience was gained. whereby a motherboard, was successively tested, validated, and iteratively debugged in order to detect faults.

Skills

Layout: Altium Designer, AutoCAD, EAGLE, ExpressPCB, Mentor Graphics, PADS

Data, Slides, and Charts: Excel, MYSQL, PowerPoint, RFFLOW, Rhapsody, SAP, Windchill, Word

Programming, Markup: HTML, CSS, Git, Java, PowerShell, Python (Numpy, Pandas, Matplotlib, SciPy, Django), MATLAB, Mathematica, Verilog, Visual Basic, XML

Simulation: LabScribe, LabView, Multisim, Power Education Toolbox (PET), PowerWorld Simulator, PSpice, Quartus,

Testing and Measurement: Altera DE1 board, Audio Precision, Canalyzer, Capacitance Meter, DAVIE, Electrical Safety Analyzer, ESA, Function Generator, Fluke DTX Analyzer, Fluke Hydra Logger, Fluke Thermometer, Fluke Thermal Imager, LCR Meter, Logic Analyzer, Multimeter, Network Analyzers, Oscilloscope, Power Supply, Spectrum Analyzer, Thermocouples, and Voltmeter.

Communication Protocol Knowledge: CAN, LIN, I2C, SPI, UART

Languages: Farsi, English

Education

University of Washington, Bothell, Washington

Graduation Date: June 2016

- M.S. in Electrical Engineering
- Major GPA: 3.5
- **Relevant Coursework completed:** Power System Operation and Analysis, Acoustical Engineering: Medical Device Instrumentation, Complementary Metal Oxide Semiconductors (CMOS)

University of Washington, Bothell, Washington

Graduation Date: June 2014

- B.S. in Electrical Engineering with a minor in Math
- Cumulative GPA: 3.3 Major GPA: 3.6
- **Relevant Coursework completed:** Continuous and Discrete Time Linear Systems, Applied Electromagnetics (including antenna, RF, transmission lines), Microprocessor Systems Design, Sensors, Electronic Circuit Design (Analog and Digital), and Medical Electronics

Academic Experience

Design and Implementation of Prototypes for Wireless Biomedical Applications

University of Washington, Bothell, Washington

Jan 2016 – June 2016

The proposed research hinges upon acquiring cuff-less blood pressure indirectly via pulse transit time (PTT) obtained from electrocardiogram (ECG) and photoplethysmogram (PPG).

- Designed, prototyped, and tested a practical dry non-contact ECG preamplifier for humans:
 - Instrumentation Amplifier having an adjustable gain of 10k-1M via 100k potentiometer and common-mode rejection ratio of 62 dB
 - Two cascaded unity gain sallen-key low pass filters with cut-off frequency of 15 Hz by using the butterworth approximation to get rid of high frequency noises and ripples.
 - A band reject active filter to get rid 60 hz noise from power lines.
 - Right driven Leg to reduce common-mode interference from body
- Gained experience doing PCB layout of different ECG preamplifier configurations via ExpressPCB

Other Projects:

- Built few programming and markup projects found in <https://github.com/ariannaghibi>

- Constructed and programmed a high quality robot car that features infrared line tracking and ultrasonic collision avoidance using Arduino, Dual H-bridge DC motor driver (up to 4A and 46V) and servo motor (1-2 ms duty cycle and 3000 RPM).
- Experience designing a PCB from start to finish using Altium.
- Various CMOS fabrication technologies and equipment was used including a mask aligner, furnace, metal sputter, and spin-coater to fabricate the CMOS transistors. The resulting MOSFETs, CMOS inverters, ring oscillators and logic gates were then tested.
- Designed the Real-Time Blood Flow Monitor using the microcontroller and displayed the heart rate on LCD display. Used MATLAB and spectral analysis using shifted Fast Fourier Transform to demodulate the doppler echo waves into audio signals and calculated the heart rate algorithm and then used Arduino's based C/C++ to figure out the algorithm for heart rate display on LCD.
- Gained experience working on the firmware and doing schematic capture of HDMI, Sample Rate Converter, and Microcontroller through the capstone project. The knowledge of some RF concepts was also gained such as signal-to-noise ratio (SNR) and Total Harmonic Distortion (THD).
- Designed, prototyped and tested an athletic data logging shoe that will capture essential data using accelerometer, FSR sensors (via multiplexer) and process via Arduino.
- Designed an audio amplifier that takes a small signal input from a portable music player, amplifies it and send it to the speaker.
- Designed, implemented and tested the traffic light controller at a four-way intersection on a FPGA using the hardware language Verilog.

Honors

- Engineer-in-Training (EIT) Certification - 2017
- Dean's List: Summer 2012, Fall 2012, Winter 2013