

### **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

- Participated in the design, development and validation of low voltage and high voltage electrical systems for hydrogen fuel cell powered heavy-duty trucks.
- Performed various CAN troubleshooting procedures such as verifying network termination resistance, checking CAN voltages, CAN ports, and device configuration settings.
- Designed a datalogger system 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, changing configuration settings, working with R&D team, IT, and mechanical engineers to assemble the pieces together.
- Worked in a collaborative small-team environment to explore and evaluate advanced vehicle technologies.
- Defined, designed and developed harnesses, assemblies and electrical components to support advanced technologies projects.
- Gained and applied broad product knowledge to implement new technologies to meet changing requirements in the heavy-duty truck market.
- Worked in a dynamic, fast-paced environment with internal and external organizations to explore and test future technologies.
- Leveraged internal product development processes and Six Sigma skills to ensure high quality results, manage progress and report updates.

#### **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-divisional counterparts on global design direction.
- Supported test organization in identification and resolution of design issues. Updated architectural documents accordingly.
- Provided interface documentation to wiring design, software architect(s), and other engineering design groups.
- Contributed to development and continuous improvement of procedures and practices that ensure industry-leading, high-quality, reliable electronic systems and architecture.
- Managed engineering and project management processes to maintain schedule, budget, and functionality.
- Kept abreast of emerging industry trends in the field of commercial vehicle E/E systems, network architecture and technology.

#### **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
- Energy Management Systems
- Power/Utility/Phone Coordination
- 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 (LDO) was used to adjust the output current of the circuit across the load by using power MOSFET.
- 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
- Collected, analyzed and documented test data using Microsoft Excel and Word
- Summarized test results, presented findings and interacted with product development and production groups

### **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.
- Worked with a team of technicians in a fast paced, highly technical environment
- Learned about the lean production requirements such as Kaizen, Kanban, 6S, JIT, Andon, etc.

### **Lab Technician**

**University of Washington, Bothell, Washington**

June 2014 - August 2014

- Responsible for a 12 bench Electrical Engineering lab
- Mentored students on how to use oscilloscopes, function generators, and DC power supplies
- Helped students debug their circuits, and provide alternative methods of circuit design
- Explained circuit theory, and provide assistance with homework and projects
- Responsible for stocking and ordering various components for inventory

### **Teaching Assistant**

**University of Washington, Bothell, Washington**

September 2013 - August 2014

- Consulted with course instructor and made marking scheme.
- Graded student's assignments, projects and exams in Introduction to Electrical Engineering, Circuit Theory, Applied Electromagnetics, and Devices and Circuits courses.

### **Skills**

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

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

**Programming, Markup:** HTML, CSS, Git, Java, 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.
- Performed various tests to extract PTT from ECG and PPG.
- Gained experience doing PCB layout of different ECG preamplifier configurations via ExpressPCB

### **Ultrasound Palpation System for Non-Invasive Determination of Intracranial Pressure and measurement of hemorrhage**

#### **University of Washington, Bothell, Washington**

Spring 2015

The proposed research hinges upon the use of High Intensity Focused Ultrasound (HIFU) to penetrate the skull and palpate the brain, while using a Transcranial Diagnostic (TCD) to simultaneously measure the displacement of the brain tissue at very small time intervals. The research intent is to definitively establish a link between the stiffness (The time that a given tissue requires to regain its original shape) after palpation of organic tissue and the pressure that is exerted upon it.

- Designed, simulated, and built power supply voltages of +5V and -5V for the OPA656 op amps. The design emphasized on low noise operation by using linear voltage regulators.
- Proposed a design for the Tone Burst Generator using a clock generator and 555 timer.

### **Other Projects:**

- Built few projects using HTML, CSS, and Python found in <https://github.com/ariannaghbi>
- 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.
- Wrote a MATLAB code for the Newton Raphson method, which can be used to solve the nonlinear equations for the power flow analysis
- Gained experience working on the firmware and doing schematic capture of HDMI, Sample Rate Converter, and Microcontroller through the capstone project.
- Designed, prototyped, and tested a practical ECG preamplifier.
- Designed capacitance meter and voltmeter and acquired soldering and breadboard assembly skills.
- 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.
- Designed passive and active filters to meet given specifications tested and troubleshot these filters using laboratory instruments.

**Honors**

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