

# MARK MIW

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## SENIOR CIRCUIT DESIGN ENGINEER

### WORK EXPERIENCE

#### Raytheon

##### Senior Electrical Engineer I

(Oct 2019 - Present)

- Designed, simulated, and tested high-speed differential digital signals through an Ultrascale+ FPGA reaching up to 25gbps.
- Integrated and designed the schematic and layout of a clean RF front end chain reaching up to 12GHz.
- Performed various analyses' such as signal integrity, power integrity, stress analysis, link budgets, timing analysis, via-transition design, and power stability through Hyperlynx, ADS, ANSYS HFSS, and PSPICE/HSPICE.
- Debugged board bring up and automated board-level functionality, performance testing, and post data capturing analysis.
- Automated oscilloscopes, function generators, network analyzers, ethernet recorders, and more using Matlab and Labview.

#### Northrop Grumman

##### Circuit Design Engineer II (Digital Products)

(May 2018 - Oct 2019)

- Provided technical review of schematic capture, PCB layout, and architecture for boards up to 42 layers.
- Designed, integrated, and analyzed high-speed FPGAs, MCUs, buffers, amplifiers, clocking, and SRAM.
- Prototyped, built, and tested circuits for breadboard performance testing using oscilloscopes, spectrum analyzers, and VNAs.
- Analyzed worst-case timing and signal integrity for SERDES, I2C, DDR3/4, SPI, and UART interfaces using Hyperlynx SI.
- Created circuits for FPGAs, power amplifiers, DC-DC converters, LDOs, filters, ADCs,

#### Hawaiian Electric Company

##### Designer II (Renewable Energy Engineer)

(May 2016 – May 2018)

- Modeled, analyzed, and verified over \$300,000,000 of renewable generation with Matlab saving up to \$30,000,000 a year.
- Supported the creation of a renewable Power Purchase Agreement. Required the derivation of new solar and wind plant metrics based on big data analytics for Hawaii's highly variable and penetrated grid.
- Analyzed data and created scripts to support/automate transmission and distribution modeling efforts and event analysis.

#### Hawaiian Electric Company

##### Designer (Power Plant Engineer)

(August 2015 – May 2016)

- Prepared drawings, calculations, and specifications in accordance with applicable NEC codes and regulations.
- Managed major capital projects to improve and maintain plant operations.

#### Hawaii Center for Advanced Communications

##### Radio Frequency Engineer Research Assistant

(November 2014 – July 2015)

- Proposed, designed, and fabricated an alternative automatic tracking antenna.
- Supported Radio Frequency Engineers with network analyzer/spectrum analyzer testing, PCB design, and fabrication.

### SKILLS

**Proficient in:** Matlab, Hyperlynx SI/PI, ADS, ANSYS HFSS, SPICE, Mentor Graphics Designer, CAD Eagle, SketchUp

**Knowledge of:** C/C++, Linux, LogicWorks, GIS, PIC, Visio, and Solidworks

### PROJECTS

#### Micromouse:

- Created an autonomous robot that finds the center of a 16x16 cell maze within five seconds.
- Designed the schematics, layouts, and 3D models for an autonomous robot on CAD Eagle and SketchUp.
- Implemented a PID control feedback loop in C.

#### Real-Time Analog Retrodirective Antenna

- Designed and simulated a non-moving, analog, automatic tracking antenna on ADS, and ANSYS HFSS.
- Fabricated with a CNC milling machine and tested utilizing a spectrum analyzer.

### ACHIEVEMENTS

- 1<sup>st</sup> Place at the IEEE Region 6 Micromouse and PCB Design 2015

### EDUCATION

University of Hawaii at Manoa, B.S. Electrical Engineering

(August 2011 – May 2015)