

# ZACHARY LUTZ

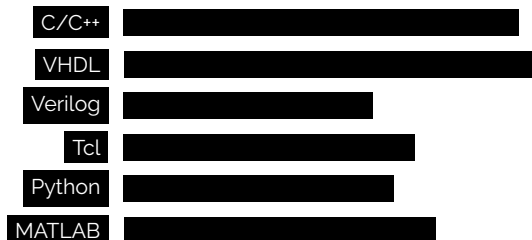
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## Senior Embedded Systems Engineer

### WHO AM I?

I am an experienced electrical engineer with a focus on firmware, embedded systems, and FPGA design. Over the past seven years, I've gained expertise in power conversion and communication protocols in the energy and aerospace sectors. A reliable team player and emerging leader, I combine my technical knowledge, adaptability, and leadership skills to drive the development of practical and sustainable engineering solutions.



### EXPERIENCE

2020 – present

#### Embedded Software • FPGA Developer

Imagen Energy

C/C++ / VHDL / MATLAB / Simulink / Linux / Python

- Software architecture, incl. communication interfaces, information security, data integrity.
- Team lead for software/firmware group.
- High-frequency real-time control design and implementation for power conversion in FPGA.
- EV charging standards and protocol implementation (CCS, CHAdeMO, ISO 15118, IEC 61851, DIN SPEC 70121)
- Embedded Linux distro customization, including device tree and BSP development using Yocto.
- Physical system modeling and simulation.

2017 – 2020

#### PLD Engineer II

Astronautics Corporation

VHDL / Verilog / Tcl / Simulink / Modelsim

- Develop RTL for integrated avionics systems such as flight displays, flight surface control products, open architecture network server platforms, air-to-ground communication.
- Requirements capture and analysis for certified DAL A programs (as defined by DO-254).
- Clock domain partitioning, timing constraints rules, static timing closure.
- Lead verification engineer.
- Develop bus functional models for device simulation.
- Designed a PLD Department simulation environment framework, using concepts from OSVVM.

2015 – 2017

#### Engineering Intern

Johnson Controls

C / WiFi / ZigBee / Bluetooth

- Advanced development team; evaluate and exploit emerging technologies for novel smart building applications.
- Power analysis of 2.4 GHz band radios
- Model Predictive Control (MPC) implementation in building automation controller networks.

### EDUCATION

2013 – 2016

#### University of Wisconsin - Milwaukee

B.S. Electrical Engineering

Pt. Koshadhish Misra Memorial Award for electrical engineering excellence – 3.95 GPA

### SKILLS/TOOLS

#### SoC/FPGA Device Families:

#### Programming Languages:

#### Simulation/Synthesis:

#### Revision Control:

#### Requirements Management:

#### Agile/Scrum Management:

#### Communication Protocols:

#### Electronics Measurement:

#### Electronics Assembly:

Intel (Cyclone); Xilinx (Spartan, Zynq); Microsemi (IGLOO2)

C/C++, VHDL, Verilog, Tcl, Python, BitBake, Bash

MATLAB, ModelSim, Quartus, Xilinx ISE, Vivado, Libero

Git, Subversion (SVN)

DOORS

Team Foundation Server (TFS), Miro

Ethernet, SPI, CAN, UART, I2C, ARINC-429, PCIe, JTAG, WebSockets

Digital multimeter (DMM), oscilloscope, logic analyzer

Soldering iron, pick and place, reflow oven.