Tin Thurein

Electrical Engineer · Hardware Enthusiast · EIT

(+1) 415-699-1146 | tinthurein@outlook.com | https://tthurein.github.io | tthurein | tinthurein

Summary

Highly motivated electrical engineer who possesses Electrical, Mechanical and Communication engineering knowledge with hands-on experience, with a focus on finding solutions to energy, transportation, and sustainability problems.

Education

UC Santa Cruz — *Santa Cruz, CA*

M.S. in Electrical Engineering — *Expected: March 2022*

- **Research Areas:** Neuromorphic computing, Memristors

University of California, Santa Cruz — *Santa Cruz, CA*

B.S. in Electrical Engineering — *June 2017*

- Concentration in Electronics/ Optoelectronics
- Graduated with Honors in Major; Major GPA: 3.50
- **Relevant Coursework**: Digital Low Power CMOS Design, CMOS RF Design, Logic Design, Micro System Design, Computer Networks, Signals and Systems, Optical Electronics/Photonics, Digital Signal Processing, Digital Communications, Analog Electronics, Feedback Control systems, Electric Power Systems
- **Project Area**: Signal processing and interfacing, IoT, SCADA, ZigBee Mesh network, 3G Communication

Work Experience

Analog Devices — *Santa Clara, CA*

Reliability Hardware & ESD/Latch-Up Engineer — *July 2019 - Present*

- Responsible for developing and implementing reliability test plans for new products, conducting accelerated testing of packaged and wafer-level chip-scale packaged devices including the board design and setup of the test.
- Define reliability qualification requirements for new silicon, packages and process qualification and troubleshoot PCB boards and component level failures occurring during burn-in or HAST cycles.
- Define and develop ESD and Latch-up methodologies for all new, existing and fab transferred products to characterize ESD & Latch-up properties.
- Generate ESD/Latch-up device characterization plans and perform data analysis on ESD/Latch-up related failures.

Nordson March — *Concord, CA*

Engineering: R&D Product Development — *October 2017 - July 2019*

- Build and test new vacuum chamber and HFE (High-Flux Electrode) designs, configure high power RF generators along with RF matching networks and develop process recipe configurations for various plasma applications and chemical depositions.
- Improve process cycle time for customers by developing process recipe, optimizing RF power delivery systems, and RF matching networks for the highest plasma treatment, uniformity, and throughput.

Projects

High speed, Low power 16:1 Mux

- Designed a 16-bit multiplexer with bandgap reference and internal LDOs for low power operation.
- Responsible for designing process built on TSMC's 0.18um gen2, analyzing switching times, leakage current, bandwidth and RON

HAST and Burn-in oven test system automations

- Designed controller boards for power supplies and scopes, high-voltage in-situ DUT voltage monitoring, current monitoring and vector drivers.
- Responsible for GUI, firmware and system level automation implementation over a wide range of HAST and Burn-in ovens.

Automated Water Monitoring System with Secure Control

(1st Place Pitch at Santa Cruz IDEA Hub 2017 for Senior Capstone project)

- An IoT Supervisory Control and Data Acquisition (SCADA) system with the capability of continuous monitoring reservoirs with secure remote access to control the pumps.

Signal Processing in MATLAB

- Frequency Domain Adaptive Filter in MATLAB for echo cancellation of real and synthetic signals.

Network Router with Firewall

- A custom network topology with firewall in *Mininet*, only allowing network traffic with ICMP packets while blocking untrusted hosts.

Reversi: Internet-connected two-player game with 16x32 RGB display matrix

- A two-player wifi connected game with the ability to play against computer.

Ball Catching game on FPGA

- Implemented in *Spartan 3E* FPGA development board with Display output via VGA port to the monitor, using keyboard arrow keys as an input.

AM/ FM Radio Receiver

- Superheterodyne FM receiver with pre-selector, 2-stage mixer and demodulator using Phased Lock Loop.
- AM receiver with envelope detector and audio amplifier.

Audio Amplifier With 20-20KHz Range, Low SNR

- An audio amplifier with a low SNR, adjustable volume and gain.

Adjustable Power Supply

- A switch mode, variable power supply with output voltage from 0 to 20 Volts, and adjustable current.

Skills

Software Engineering	C,C++, Java, Python, MIPS, Verilog, PLC, HMI
Engineering	FPGA/ CPLD, Analog/ Power Electronics, Logic Design, DSP, Analog & Digital Communication, Optical Communication, PCB, Circuit Simulation, Material Properties Mechanical design and assembly
Embedded Systems	I2C, UART, SPI, MicroControllers, Sensors, Protocol debugging hardware
Software	SolidWorks, Autodesk Inventor, MATLAB, Allegro PCB Design, Cadence Suite, LTSPICE, EAGLE CAD, National Instrument Circuit Suite, Xilinx, PSoC IDE, WireShark
Applied Mathematics	Control Theory, Linear Dynamical Systems, Machine Learning