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# Chengming(Steven) Li

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## Summary

**Portfolio:** <https://stevenlcm16.wixsite.com/chengmingli-steven>

**GitHub:** <https://github.com/stevenli518>

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**Detail-oriented team player seeking a full-time role, starting from 06-07/2025, in Hardware engineering-related positions to apply and expand technical skills**

- **Hardware Skills**

PCB Design (Altium), Component selection, Analog-Digital circuit design, Microcontroller programming, Communication Protocols (I2C, SPI, UART)

- **Programming Languages**

Python, C/C++, C#, Verilog/System Verilog, MATLAB, Tcl, Shell scripting

- **Lab Equipment & Skills**

Oscilloscope, Signal Generator, Digital Multi-meter, Logic Analyzer, Spectrum Analyzer, Temperature Chamber, Surface Mount Soldering, Command Expert

- **Software Skills**

Altium, LTspice, Cadence Virtuoso, Allegro, ADS, Quartus, ModelSim, Simplicity Studio, VSCode, Visual Studio, MS Office, GitHub, Confluence, Lattice, Slack

**Relevant Coursework:** Communication Circuit Design, Power Amplifier Design, Analog IC Design, Power Management IC

## Work/Research Experience

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### Renesas Electronics America Inc

San Jose, CA

Hardware Engineer Intern

June 2024 - Sep 2024

- Analyzed induction cooktop circuits, focusing on component selection, datasheets, power consumption, and circuit protection
- Simulated induction cooktop (IH) in LTspice, Flux, and Altium and tested LC tank, gate driver, and OVP using Oscilloscope
- Compared 8-layer Allegro Gerber files with Altium designs and summarized differences in electrical and non-electrical layers

### Eridan Communications

Sunnyvale, CA

RF Test Engineer Intern

June 2023 - Aug 2023

- Built a MATLAB and C# DLL-to-Python conversion framework on GitHub for 7+ instruments and PCB testing
- Developed and executed batch scripts to semi-auto the installation process (under 5 minutes) of VScode, Python, and Rclone

### University of Colorado at Boulder (Dr. Taylor Barton's RF Power and Analog Lab)

Boulder, CO

Research Assistant

Aug 2022 - May 2023

- Implemented multi-digital filters using Vivado FPGA (Red Pitaya) to reduce the distortion in the Class-AB Power Amplifier
- Automated the test with RF Generator, Spectrum Analyzer, and Power Supply to collect the IMD3, Pout, and Current data
- Processed the IMD3 data using Python and characterized the optimal transfer function using the network analyzer

## Project Experience (for more info and pics: <https://stevenlcm16.wixsite.com/chengmingli-steven/projects>)

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### 9-bit 65nm TSMC process SAR ADC Tape out, PCB Design and Test Automation

San Diego, CA

PCB Designer and Test Script Developer

April 2024 - Dec 2024

- Laid out comparator, non-overlapping clock generator, and digital logic and optimized CDAC ratios using Cadence Virtuoso
- Used Common centroid and Dummy device to minimize input offset (90 uV) and propagation delay(323.6 ps) of comparator
- Designed the schematic and layout of the PCB board for testing in Altium, considering the drive and debug configurability
- Built Keysight instrument control and data collecting code in Python and processed INL, DNL, SNR, and SFDR in MATLAB

### 3-level Buck (1.8V – 0.8V) Converter PMIC Design in Cadence Virtuoso

San Diego, CA

Mixed Signal Circuit Designer

Sep 2024 - Dec 2024

- Modeled and optimized in MATLAB the size of transistors, inductor, and capacitor to achieve low power loss and small area
- Designed the schematic and simulation testbench of non-overlapping and deadtime generator, level shifter, and error amplifier
- Performed voltage and temperature variations simulation and achieved 87% nominal efficiency and 0.24 W\*mm<sup>2</sup>

### 2-Stage Class J HBT Power Amplifier Design in ADS

San Diego, CA

RF PA Designer

Oct 2024 - Nov 2024

- Developed the schematic and matching network of 2-stage ClassJ PA in ADS, using the loadpull technique to favor efficiency
- Tuned the output matching to achieve -0.5 dB matching loss and low input return loss using Smith-chart and S-parameter
- Achieved 32dB flat gain, 48.45% efficiency at PL = 35.55dbm and Fc = 2.535GHz using wideband interstage matching

### Scalable Electrosurgical Unit for Controlling and Powering the Ligasure Dissection Device

Boulder, CO

Software Lead (Sponsor: Medtronic)

Aug 2022 - May 2023

- Created ADC, PWM, SCI, and CLA modules in C on the TI TMS320F28004C board in response to firmware development
- Reduced the RMS values calculation from 25% to 1.7% errors by using the bitwise mask to optimize the instruction cycles

## Education

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### University of California San Diego

San Diego, CA

Master of Science in Electrical and Computer Engineering

Cumulative GPA: 3.67/4.00

**Graduation Time:** July 2025

University of Colorado at Boulder (BS in ECE)

Cumulative GPA: 3.81/4.00

Boulder, CO