Qijia (Agnes) Li

(607) 262-4840 | https://agnesl01.github.io/ | ql268@cornell.edu

EDUCATION

Cornell University, College of Engineering, Ithaca, NY **Expected Dec 2023**
Bachelor of Science, Electrical and Computer Engineering
GPA: 4.0/4.0 (Dean's List, Fall 2019-Spring 2023)

Teaching Assistant:
- Introduction to Microelectronics **Jan 2023-May 2023**
- Introduction to Computing with Python **Aug 2021-Dec 2021**

Duties include developing lab projects, leading lab sessions, holding office hours, and grading assignments and exams.

PUBLICATIONS

- **Q. Li**, Y. Hou, and K.K. Afridi, "Merged Switched-Capacitor Piezoelectric Resonator-Based DC-DC Converter with High Conversion Ratio," in *IEEE COMPEL 2023* (accepted, oral presentation).

RESEARCH EXPERIENCE

Merged Switched-Capacitor Piezoelectric Resonator-Based DC-DC Converter with High Conversion Ratio
Undergraduate Researcher, Member of Professor Afridi's Group **Oct 2021-Present**

- Explored the combination of piezoelectric resonators and switched capacitors in DC-DC converters to achieve high efficiency with high conversion ratio. Finished the theoretical analysis of the proposed converter.
- Performed the steady-state analysis of the converter using MATLAB. Simulated the converter with designed sensing control using PLECS and SIMetrix/SIMPLIS, and analyzed its efficiencies with different input voltages.
- Built a prototype of the proposed converter. Executed a series of experiments to troubleshoot the prototype and measured the efficiencies of the converter.

Light-Based Isolated High-Voltage-Conversion-Ratio Compact Power Converters
Undergraduate Researcher, Member of Professor Afridi's Group **Jun 2020-Oct 2021**

- Explored methods of utilizing light to convert high voltage to low voltage while achieving higher efficiency and smaller size than conventional power converters.
- Built 3 theoretical models of the power converter using LTspice and tested their efficiencies when the output power is 1W. Analyzed the power loss of all the converter models.
- Communicated with companies that produce the electronic components we needed and bought the components.

WORK EXPERIENCE

SONOS, Electrical Engineering Co-op – Power and Audio, Electronic Product Development Team **Jul 2022-Dec 2022**

- Designed a flyback transformer that will be used in a product with given output requirements. Wrote flyback transformer specifications and ordered samples from the vendors.
- Designed the entire flyback converter circuit including the auxiliary winding circuit and the feedback circuit. Drew the flyback converter schematic with OrCAD.
- Tested the performance of the flyback converter and debugged its circuit with an evaluation board.

HONORS & AWARDS

ELI Undergraduate Research Award (2x) **2020 Summer, 2023 Summer**
COMPEL Student Travel Grant **Jun 2023**
IEEE Eta Kappa Nu**,** Cornell University, *Member* **Jan 2023-Present**

SPECIALIZED SKILLS

Programming Language: Python, C/C++, MATLAB, Java, assembly language, Verilog
Software & Tools: LTspice, PLECS, SIMetrix/SIMPLIS, Altium Designer, Cadence Virtuoso, COMSOL, L-Edit