Jacob Tamor

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EDUCATION

Cornell University **Expected May 2024**
Master of Engineering, Electrical and Computer Engineering
Cornell University **Expected Dec 2023**
Bachelor of Engineering, Electrical and Computer Engineering
GPA: 3.82; Dean's List
Relevant Coursework: Computer Systems Programming, Analog Integrated Circuit Design, Semiconductor Physics, Signals and Systems, RF Integrated Circuits, Digital VLSI Design, Design with Embedded Operating Systems,
In Progress: Digital System Design Using Microcontrollers, Power Electronics, Sensor Design

WORK EXPERIENCE

Square, *Electrical Engineering Intern* **May-Aug 2023**

- Took ownership of the end-to-end PCBA development of a device that measures and logs battery current as it powers the 2nd generation Square Reader for contactless and chip
- Selected LDO regulators, Op-amps, MOSFETs, and MCU chips, as well as their associated schematics to use for power distribution, power sensing, and on-board microcontroller control
- Made LTspice simulations and built circuit prototypes to model and provide a proof of concept for the final design, taking advantage of multimeters, oscilloscopes, and current probes to test the devices chosen
- Implemented the final PCB layout with 6-layers using Altium Designer

Calix, *Optical Engineering Intern/Assistant* **Jun 2022-Apr 2023**

- Developed Python scripts that automate test benches needed for optical hardware qualifications, expediting processes for hardware system validation
- Constructed simulations of the behavior of light as it changes and attenuates throughout an optical fiber

PROJECT EXPERIENCE

Wildlife Tagging, *M.Eng Hardware Designer* **Aug 2023-Present**

- Contribute to designing the hardware for a collar that will monitor animals and their environment in the wild, using interfaces such as GPS, LTE, solar charging, and video/audio recording
- Assemble existing PCB prototype for the collar design and ensure expected PCB connections, soldering on new connections as needed for temporary fixes and testing purposes
- Performed tests on the PCB to check for correct power distribution, voltage rail measurements, and I2C functionality
- Sourced new components to improve weight requirements size of the collar, as well as to improve power rail precision
- Implemented changes to improve power delivery and efficiency using different DC-DC converter methods
- Designing a collar release mechanism using electropermanent magnets in order to control collar drop-off

Cornell Cup Robotics Team, *ECE Sub-team Lead* **Oct 2020-May 2023**

- Lead a team of 10+ students to design electrical systems that can successfully power each aspect of the robot, as well as implement embedded programs to interface between mechanical and computer systems for robot control
- Fronted projects for designing UART communication systems between microprocessors to encode and transmit information across a main computer and peripheral microcontrollers that hold sensory data
- Developed APIs from hardware sensors to abstract functions that software teams use for algorithm development

Sound Filtering Integrated Circuit, *Student Analog Designer* **Oct 2022-Dec 2022**

- Developed an integrated circuit using Cadence Virtuoso that will take in a voltage signal that represent sound waves and provide three outputs for the amplitudes of three different frequency registers
- Designed op-amps from the transistor level and create active RC filters to extract a targeted frequency range
- Implemented diode bridge rectifiers as AC-DC converters to obtain the amplitudes of the desired frequency ranges

SPECIALIZED SKILLS

LANGUAGES: Python, Java, JavaScript, C++, C, OCaml, Arduino, Verilog, SQL, MATLAB
SKILLS: Altium Designer, Autodesk EAGLE, KiCad, Soldering, Cadence Virtuoso, Circuit Analysis, LTspice, PLECS
TOOLS: Oscilloscope, Signal Generator, Linux, Raspberry Pi NumPy, Matplotlib, PySerial, Git, UART, I2C, Putty