

Nathan E. Franczyk

203 S Fourth Street Apt. 304, Champaign, IL | 224-456-3714 | Franczykn96@gmail.com | www.NathanFranczyk.com

EDUCATION

University of Illinois at Urbana-Champaign, IL
Bachelor of Science in Electrical Engineering
Minor in Computer Science
Certified in Technology Commercialization

May 2019
3.48/4.00

EXPERIENCE

- University of Chicago Weizmann Research Group - Lead Developer** Oct 2016 - Present
- Drafted a polymerase chain reaction (PCR) machine to implement the group's new DNA heating procedure
 - Designed and assembled printed circuit boards to power the machine, monitor DNA quantity, and sense temperature in real time
 - Programmed a microcontroller to execute PCR in Arduino and used Python to record results and process data
 - Expanded ADC over SPI to increase the accuracy of measuring the PCR by 4 orders of magnitude
- Ameren Illinois - System Protection Engineering Intern** May 2017 - Aug 2017
- Led and developed three software automation projects that expedited projects by up to 5 months
 - Programmed automation scripts to update excel databases for grid equipment in Python and VBA in Excel
 - Issued protective equipment settings to protect substations and grid equipment from disastrous situations
 - Created and corrected distribution and communication schematics and wiring diagrams
 - Constructed logic diagrams for metering and line switching equipment to protect transformers from faults

LEADERSHIP AND ACTIVITIES

- Flower Power Energy - Cofounder** Oct 2015 - Dec 2016
- Cofounded a startup specializing in solar retrofits for portable gas generators to bring a sustainable energy source to developing countries
 - Finalist in the Cozad Venture Competition, defeating over 120 startups
 - Brainstormed, sketched, modeled, and animated retrofit designs using Autodesk Inventor
 - Developed a business model canvas, calculated financial projections, and acquired potential customers
 - Designed and built a minimal viable product for the Cozad competition showcasing the hybrid interaction of the gas and solar generators
- Illini Solar Car - Battery Team Member** Jan 2017 - May 2017
- Created and tested a setup for a thermistor circuit to monitor battery temperature
 - Assembled battery housings by spot welding batteries to tab wires and soldering wires to PCBs

SKILLS

- Programming Languages and Software Experience**
C++, Matlab, C, VBA, Python, Arduino, HTML/CSS, Autodesk Eagle, Autodesk Fusion 360, Autodesk Inventor, Linux, Windows, Subversion, Git, LaTeX
- Technical Skills**
Circuit design, signal processing, programming, marketing, circuit analysis (oscilloscope and multi-meter), troubleshooting, entrepreneurship, soldering

PROJECT HIGHLIGHTS

- Audio Denoising** Apr 2017
- Wrote MATLAB programs to visualize frequency components of music in a spectrogram
 - Made a Parks McClellan FIR software filter to remove noise almost entirely
- AM Radio** Nov 2016
- Created envelope detecting, filtering, and amplifying circuits for an AM radio
 - Graphed frequency components at test points using oscilloscope to debug
- Maze Creator and Solver** Apr 2017
- Utilized disjoint sets and arrays to create a traditional NxN grid maze using C++
 - Developed a breadth first search algorithm to solve the maze and produce the solution as a PNG
- 4x2 Shift Register Memory** Aug 2017
- Implemented a memory system of 4 Address by 2 bits with loading, fetching, and storing capabilities
 - Determined multiplexor I/O with Karnaugh maps to implement the 3 instructions