Jared Rafferty

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EDUCATION

LOYOLA UNIVERSITY CHICAGO
B.S. PHYSICS
2019 | Chicago, Illinois
Minor in Computer Science
Minor in Math

SKILLS

PROGRAMMING
Python • Labview • Matlab
C++ • Mathematica • Javascript •
HTML/CSS • LaTeX

APPLICATIONS
Comsol Multiphysics • Solidworks • Matlab •
LTspice • Labview • AutoDesk Eagle •
Anaconda Spyder • Onshape• Front Panel
Express
Familiar with:
• Git • Tableau • OriginLab• Trello • Excel •
Github

HARDWARE
DAQs • Source Meter • Oscilloscope
Function Generators • Lasers• PXI • NI
FGEN• Position Detectors• Spectrometer •
MKS flowmeter • Raspberry Pi • ESP32

RELEVANT COURSEWORK

Object Oriented Programming• Data
Structures • Electronics • E&M • Optics •
ODE's• Physical Design and
Fabrication•Multi-variable Calc.• Quantum
Mechanics

INTERESTS/HOBBIES

Drones• Raspberry Pi • Front-End Web
Design • Hiking • Machine Learning •
Biking• 3D printing • Embedded Systems •
Pizza Making

RELEVANT EXPERIENCE

CONTROLS ENGINEER | *Materials Development Inc*
2020-Present | Evanston, IL
- Designed an acoustic control algorithm for a multi-I/O system that utilizes frequency modulation and phase tracking to dampen sample motion using labview and c code.
- Refactored legacy code by using an object oriented design pattern driven by a custom consumer demand.
- Created python scripts to expedite data analysis using pandas, numpy, and scipy libraries.Used digital signal processing libraries to compare gain of control variables.
- Designed custom PCB boards and tested/debugged passive circuits using oscilloscopes and multimeters
- Experience with various measurement and control devices such as CO_2/YAG Lasers, mks gas controllers, vaccum pumps, and servo motors. Familar with RS232, TCP, serial communication, and National Instruments DAQs.
- Implemented iterative development model and provided on-going customer service with software updates.
- Used Git command line and Github for version control of software.

RESEARCH ASSISTANT | *Materials Development Inc*
2019-2020 | Evanston, IL
- Automated electrical testing of high voltage ultrasonic transducers using usb oscilloscope and labview. Used fourier analysis to determine optimal transducers for commercial use.
- Ran molecular dynamics simulations to compare against experimental data. Made bash shell scripts to automate simulation and data collection.

TEST ENGINEER INTERN | *Knowles Electronics and Audio*
2018 | Itasca, IL
- Created and designed acoustical cavities to test physical properties of microphones using Comsol and Solidworks. Analyzed data and gave analysis using python scripts.
- Measured acoustical and electrical properties of receivers(microphones) relative to reference microphone. Created a spice model to compare against. .

TEACHING ASSISTANT | LOYOLA UNIVERSITY CHICAGO
2018 | Chicago, IL
- Assisted Students in developing and executing programs /code in Labview, Matlab, Solidworks , and LaTeX .

RESEARCH ASSISTANT | LOYOLA UNIVERSITY CHICAGO
2016 – 2019 | Chicago, IL
- Developed introductory physics laboratory experiment to determine Young's Modulus of music wire using a guitar and a cellular phone. Method presented at national AAPT conference and published in the **Physics Teacher**.

RESEARCH | FIRST YEAR RESEARCH EXPERIENCE
2016 – 2017 | Chicago,IL
- Student researcher for the REAL project(Renewable Energy At Loyola), a project to find the feasibility of having a wind turbine on campus.

EXTRACURRICULAR ACTIVITY
2019	Regis Dougherty Memorial Award for Excellence in Research
2019	Sigma Pi Sigma (physics honors)
2019	Loyola Darkwing Ultimate Frisbee
2015-18	Physics Club
2016-17	Volunteer Tutor, Immanuel Lutheran Church