TRAGER JOSWIG-JONES

509.339.3132 | joswitra@uw.edu
https://www.linkedin.com/in/tragerjj

SUMMARY

Undergraduate pursuing a BSEE degree at the University of Washington with a concentration in power electronics & drives, and sustainable power systems. Experienced in programming, power system research, and project management. Interested in helping achieve higher levels of renewable energy integration in power systems by developing a deeper understanding of the impacts of high renewable energy penetration on system reliability and developing methods for robust power system operation.

- Programmed in Python, Julia, Java, MATLAB
- Experienced in leading and collaborating on complex engineering problems
- Applied programming in power system research
- Developed power system design plans and created reports for capstone course projects

EDUCATION

University of Washington (Seattle WA) *Expected Graduation **Spring 2021***

Major GPA - 3.98; Overall GPA – 3.94

Bachelor of Science in Electrical Engineering: *Power Electronics & Drives, Sustainable Power Systems*

Relevant Coursework

Energy Systems,	Probability & Statistics (IP),	Object-Oriented Programming
Power System Analysis,	Engineering Economics,	Data Structure & Algorithms,
Power System Dynamics,	Technical Communications,	Digital Circuits & Systems
Power System Design,	Control System Analysis,	Power Electronics Design (IP)

RESEARCH EXPERIENCE

Undergraduate Research Assistant, REAL Lab *Spring 2019 - Present*

Professor Daniel Kirschen, University of Washington

- Utilizing the NREL Probabilistic Resource Adequacy Suite to evaluate the effects of cost minimizing versus shortfall minimizing energy storage dispatch assumptions on resource adequacy risk metrics
- Created a Julia script, using JuMP to define optimization problems, to determine the profit maximizing and peak load shaving dispatches of storage units for a given power system model

Undergraduate Research Assistant, SEAL Lab *Fall 2019*

Professor Alexander Mamishev, University of Washington

- Recreated a simulation in Multisim that modeled the discharge current of a plasma actuator and altered this model for use in the optimization of the actuator's electrical efficiency

TECHNICAL EXPERIENCE

Propulsion System Integration Lead, UW EcoCAR *Spring 2018 - Present*

- Leading a group of 25 members on the design and integration of the team's hybridized powertrain for a Chevrolet Blazer by delegating projects, and managing the integration timeline
- Co-authored a technical paper describing the teams hybrid design and integration plans, which received third place in the competition

Electronics Subteam Member, Husky Robotics *Fall 2017 - Spring 2018*

- Designed an H-Bridge Motor controller PCB in EAGLE
- Tested Circuits and Motor Encoders with an Arduino Microcontroller

WORK EXPERIENCE

Electrical Hardware EXCEL Intern, General Motors *Summer 2020*

- Adapted and executed the hybrid powermoding test suite for a vehicle program with a new serial architecture, identifying potentially unsafe and incorrect operations in vehicle controls
- Analyzed vehicle data from WLTP drive cycles to validate that calibrations were robust in ensuring auto stops at all stops in the drive cycle in order to assure improved fuel economy results
- Updated hybrid systems feature documentation to include the latest learnings and controls changes

Product Engineering Intern, Micron Technology, Inc. *Summer 2019*

- Created a Python plotting application that can visualize trends over multiple sets of data, pulled from a database, to facilitate the identification of premature device failures and errors in test flows

Electrical Engineering Grader, University of Washington *Spring 2019*

- Gained experience in GridLAB-D, a powerflow simulation software, in order to run lab sessions for the EE457, Electrical Energy Distribution Systems, course

R&D Engineering Intern, Schweitzer Engineering Laboratories *Summer 2018*

- Implemented a black-box global optimization algorithm in Python to identify sine wave functions through signal processing and evaluate the algorithm's potential for use in a digital relay element
- Reviewed the software review specifications for a potential digital relay element and coded this software for testing with TI microcontrollers.

PROJECTS

Wind Farm Collector System Design, *EE 456:* Planned the design of a collector system for a theoretical 120 MW wind farm by considering routing, protection, and relevant standards to create an economical design that balanced capital costs, reliability, and losses.

7-Year Transmission System Plan, *EE 456:* Created a 7-Year transmission reinforcement plan for a theoretical utility company to economically meet an N-1 contingency case criteria with the addition of a 120 MW wind farm and projected load growth in the system.

Western US System Stability Design, *EE 456:* Developed a plan for the expansion of the Total Transfer Capacity of the interconnection of power system networks in a modified Western United State power system in order to reduce congestion costs and maintenance system stability

Python Fault Analysis Script, *EE 455:* Wrote a Python script that was capable of determining fault currents for a given power system network and fault description

Python Power Flow Solver, *EE 454:* Developed a program in Python that was capable of solving the power flow of a given power system network using the Newton-Raphson method

Audio Mixer, *EE 233:* Designed and built an audio equalizer circuit using second-order bandpass filters to adjust the volume of particular frequency ranges

AC/DC Adjustable Voltage Regulator, *EE 331:* Created a AC/DC converter using a full-bridge rectifier, 555 oscillator, and boost converter that was capable of outputting variable 10-20V DC

HONORS & AWARDS

Electrical Energy Industrial Consortium Scholarship Recipient *(Fall 2018, Win 2019, Spr 2019)*
Grainger Foundation Scholarship Recipient *(Fall 2019, Win 2020)*
Dean's List, University of Washington *(Fall 2017 - Spr 2020)*
Tau Beta Pi Honors Society *(Spr 2020 - Present)*
Eagle Scout *(Fall 2016)*