Mary Elizabeth Breen-Lyles

ENGINEER - RESEARCHER - PROGRAMMER

CONTACT

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EDUCATION

M.S. MECHANICAL ENGINEERING
Northern Illinois University
August 2019 (GPA: 3.9)

B.S. PHYSICS
Beloit College
May 2017 (GPA: 3.9)

ACHIEVEMENTS

Thesis Publication (2019)
Direct Polymer Grafting as a Method of Preserving the Mechanical Properties of Cellulose Nanocrystals in the Presence of Moisture

Co-author of ASME Publication (2017)
Performance of Supercharged Engine Fueled with CTI Binary Mixture at Different Injection Pressures

Walter S. Haven Physics Prize (2017)
Granted in honor of excellent research project on the Physics Department accelerator

Departmental Honors (awarded May 2017)

Presidential Scholarship (2014-2017)
Beloit College honor awarded for exceptional academic achievement

SKILLS

Ruby on Rails	Python
VS Code	Java
Celery, RabbitMQ	PHP
Redis	ReactJS
ElasticSearch	jQuery
MySQL, Postgres	Git
Test Driven Development	Docker
Project Estimation	Postman
API construction/consumption	Jira
Client Communication	Patience

SUMMARY

Fast-learning, critically-thinking, conscientious worker with design and programming experience from a broad set of research and web development projects. Lover of people, sincere communication, math, problem-solving, and peanut butter. Genuine enthusiasm for learning and growth!

WORK EXPERIENCE

2020

Software Engineer, Fooda, Inc.
Chicago, IL (July 2019 - February 2020)

- Frontend and backend development for scalable, distributed e-commerce and scheduling management platform used by customers, restaurant partners, and internal team members
- Wrote clean code + tests in Ruby on Rails with documentation and participated in code reviews
- Collaborated with designers and engineers to build APIs and web services, using an agile development methodology with a focus on test-driven development
- Ensured my contributions met high performance standards

2019

Freelance Web Developer, Self
Chicago, IL (July 2019 - February 2020)

- Communicate effectively and harmoniously to maintain positive client relationships
- Draw up thorough contract documents with detailed descriptions for project plans/estimates
- Independently build web tools and applications for clients while managing both business and technical aspects of projects, always delivering high-quality production code

2018

Graduate Research Assistant, Northern Illinois University
DeKalb, IL (January 2018 - August 2019)

- Designed and executed molecular dynamics (MD) simulations to demonstrate the effectiveness of polymer grafting at enhancing mechanical properties of a cellulose nanofiller
- Executed dynamic molecular computations across distributed systems, applying Tcl and Python scripting to analyze output data
- Compiled LAMMPS from C++ source code with MAKE, using Linux as both development and runtime environment
- Ancillary use of a remote Linux HPC cluster for simulation processing
- Learned an assortment of MD simulation/visualization software, with Tcl/Python3 scripts and Excel for data analysis and acquisition.

2017

Research Assistant, Beloit College
Beloit, WI (August 2016 - May 2017)

- Repaired proton accelerator via machining and configurational planning for new/existing instrumentation
- Extensive work on electromagnet (cooling system, Faraday cup implementation, electrical load and bending angle calculations, development of predictive models)
- Tuned magnet based on initial predictions and later testing. Used MATLAB, thermal imaging, and thermocouple, voltmeter, ammeter data for analysis

2016

Undergraduate Research Fellow, Georgia Southern University
Statesboro, GA (June 2016 - August 2016)

- Wrote programs in LabVIEW to pass data from sensors on a diesel engine to a computer for analysis
- Developed LabVIEW programs for pressure transducers, accelerometers, and flow meters on a jet turbine engine
- Gained experience in sensor calibration, instrumentation, advanced data acquisition and programming