Mary Elizabeth Breen-Lyles

PROGRAMMER - ENGINEER - RESEARCHER

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)
Course work in Data Structures
and Algorithms / OO Programming

HONORS

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

Walter S. Haven Physics Prize (2017)
Granted in honor of excellent work with the Physics Department's accelerator.

Departmental Honors (awarded May 2017)
Awarded by Physics Dept of Beloit College

Phi Beta Kappa Member (inducted May 2017)
Oldest and one of the most prestigious academic honor societies in the US

Presidential Scholarship (2014-2017)
Beloit College's prestigious honor awarded for exceptional academic achievement.

SKILLS

- JAVA
- PYTHON
- UNIX / LINUX
- MATLAB
- HTML, CSS, JS
- GIT
- LabVIEW
- SQL
- TCL
- LAMMPS
- VMD
- MS Office

SUMMARY

Fast-learning, methodical worker with substantial coding/software experience from a diverse set of engineering and research applications in both academic and professional settings. Maintains strong mathematical aptitude and a passion for problem-solving. Fantastic communicator and tenacious team member with an appetite for learning and enthusiasm for achieving project goals.

PROJECTS

Extensible Amazon Web Scraper

- Built a modular, well-documented web scraper for harvesting Amazon product page data at regular, managed intervals, storing scraped data as well as comprehensive logs in Redis and within an ELK stack
- Used Python, Selenium ChromeDriver, Redis (databases, queues), Celery (task queue), ELK stack, Pipenv, Github

Vendor Velocity Free Tools

- Created 2 front end web tools leveraging Amazon's Product Advertising API that Amazon vendors could use to improve their marketing strategies.
- Used PHP, Javascript, CSS, HTML, PipEnv, GitHub. Utilized jsGrid to neatly display data to the user.

MindMap - Web Application

- Full stack development to create a web application for intuitively taking and organizing notes
- Used Python and Flask, MariaDB (SQL), Jinja, HTML, CSS, Javascript, and ReactJS for UI design
- Best practices: PipEnv (dependency management), GitHub (version control), and Flyway (database migrations)

WORK EXPERIENCE

2018 **Freelance Web Developer,** Self
Chicago, IL (July 2019 - present)

- Communicate effectively and harmoniously to maintain positive relationships with clients
- Draw up thorough contract documents with detailed descriptions for project plans/estimates
- Independently build web tools and applications for multiple clients while managing both business and technical aspects of the projects.

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

- Designed/executed molecular simulationvs across distributed systems to demonstrate effectiveness of polymer grafting at enhancing mechanical properties of a cellulose nanofiller
- Worked with Tcl Scripting and Python for data analysis, and used MAKE to compile LAMMPS from C++ source code
- Utilized Unix/ Linux as both my development and runtime environment. Interacted extensively with a remote Linux HPC cluster

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)
- 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 computers
- 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

2015 **Sustainability Fellow,** Beloit College
Beloit, WI (September 2015 - May 2016)

- Wrote program to compute thermodynamic properties of new campus building
- Developed in-depth model using thermal FEA to predict HVAC needs
- Presented at 2016 Student Symposium and to Beloit College Board of Trustees