

## 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.

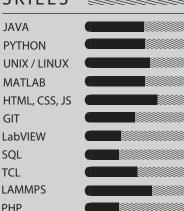
**Departmental Honors** (awarded May 2017) Awarded by Physics Dept of Beloit College

**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

React



# Mary Elizabeth Breen-Lyles

PROGRAMMER - ENGINEER - RESEARCHER

#### 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 simulations 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