



## CONTACT



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721 N 1st Street Unit C  
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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

## SKILLS

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

# Mary Elizabeth Breen-Lyles

PROGRAMMER - ENGINEER - RESEARCHER

## SUMMARY

Fast-learning, critically-thinking, methodical worker with substantial coding/software experience from a wide breadth of engineering and research applications. 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

### 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)

### Panic at the Crisco - Cross Platform Video Game

- Participated in a 48 hour game jam and built a video game for Windows, Mac, and Linux in a team of two
- Learned about event driven programming, graphics, and crafting user experience

### Daily Coding Problems - Algorithms and Data Structures

- Worked on daily coding problems for 2 hours a day in both Java and Python between class and work

## WORK EXPERIENCE

2018

### Graduate Research Assistant, Northern Illinois University DeKalb, IL (January 2018 - present)

- Executed dynamic molecular computations across distributed systems
- Worked with Tcl Scripting and Python to analyze output data
- 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 handmade 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 substantial 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