Emily Hamlin

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Education

- **Oberlin College** — **Oberlin, OH**
  BA, Computer Science; BA, Physics (Materials Concentration) — *(Expected) December 2019*

  Coursework: Advanced Algorithms, Machine Learning, Programming Abstractions, Computer Architecture, Artificial Intelligence, Computer Security, Human Computer Interface, Data Structures, Systems Programming

Technical Skills

- **Programming Languages:** Python, Java, C, Tcl, MIPS, Bash, React, JavaScript, HTML/CSS
- **Other:** GitHub, Igor Pro, LaTeX, Mathematica, Matlab, SolidWorks, NAMD, VMD

Experience

- **Wearable Devices for Characterizing Human Motor-Cognitive Performance** — **Jun – Aug 2019**
  Research Assistant, Florida Atlantic University — *Boca Raton, Florida*
  - Created an application using the Fitbit SDK that collects data from an internal accelerometer and gyroscope
  - Continuously collected and transferred data at a sampling rate of 30 Hz for up to an hour
  - Transferred the data to a server for use in activity recognition and analysis of motor-cognitive performance

- **Inverted Linear Halbach Array for Separation of Magnetic Nanoparticles** — **Jan 2016 – May 2018**
  Research Assistant, Oberlin College — *Oberlin, Ohio*
  - Characterized and performed magnetic nanoparticle separations using a Vibrating Sample Magnetometer
  - Designed, drafted, and oversaw creation of several different channels for use in nanoparticle separation
  - Analyzed results, error, and sensitivity of our theoretical model using Igor Pro and Mathematica
  - Created scripts in Mathematica to determine effectiveness of particle separations and automate analysis

- **Computational Analysis of Global Twisting in DNA Origami Structures** — **Jun – Aug 2017**
  Research Assistant, University of Illinois at Urbana-Champaign — *Champaign, Illinois*
  - Created and ran molecular dynamics (MD) simulations using nanoscale MD to investigate twisting and calculate bond energies in DNA origami structures
  - Created scripts to analyze and visually present data from MD simulations using Tcl and Python
  - Colored DNA structures based on their bond energy and automated the process of exporting visuals from simulation

Projects

- **Human Computer Interface Final Project: TasKat**
  - Developed a Mac OS app using Electron and React that allows users to create, manage, and track progress on tasks
  - Conducted an initial interest survey to guide app development, as well as post-development user testing
  - Created an 'Analytics' tab using React that allows users to enter and track numerical data

- **Artificial Intelligence Final Project: Automated Lab Helper**
  - Developed a program using Pylint to help students in introductory computer science labs find bugs in their code
  - Used information from lab instructors and past student work to determine what students struggle with
  - Created a script that post-processes Pylint output and returns it in a clear form along with suggestions
  - Implemented additional checkers based on common student errors

Other Interests

- Rock climbing, hiking, snowboarding, singing, and playing violin