Brandon Bocklund

(269) 589-8602 • bocklund@psu.edu

Research Experience

- **Phases Research Lab, Pennsylvania State University** — **University Park, PA**
  NSF Research Trainee (Advisor: Dr. Zi-Kui Liu) — *2016 – Present*
  - Developed computational tools for high-throughput ab-initio materials calculations
  - Used VASP to make first principles predictions for metallic alloys
  - Created phase diagrams from ab-initio and experimental data using the CALPHAD method
- **Solid State Ionics Laboratory, Michigan State University** — **East Lansing, MI**
  Undergraduate Research Assistant (Advisor: Dr. Jason D. Nicholas) — *2015 – 2016*
  - Fabricated and tested Solid Oxide Fuel Cells
  - Characterized fuel cells with EIS, XRD, and SEM
  - Developed a Python application for data analysis and visualization using Matplotlib and Tkinter
  - Participated in a 10 week professional development course
- **Composite Materials & Structures Center, Michigan State University** — **East Lansing, MI**
  Undergraduate Research Assistant (Advisor: Dr. Lawrence T. Drzal) — *2014 – 2015*
  - Designed a graphene nanoplatlet-based capacitive deionization cell
  - Characterized graphene nanoplatelet papers using scanning electron microscopy
  - Used Solidworks to create a 3D printed model for the deionization cell apparatus
  - Participated in a 10 week professional development course

Teaching Experience

- **College of Engineering, Michigan State University** — **East Lansing, MI**
  Undergraduate Lab Mentor — *2015 – 2016*
  - Mentored 3 classes, interacting with over 250 students
  - Responsible for grading assignments and quizzes, promoting learning, and proctoring exams
    - EGR 100 - Introduction to Engineering Design
    - EGR 102 - Introduction to Engineering Modeling
    - EGR 291 - Spatial Visualization

Education

- **Pennsylvania State University** — **University Park, PA**
  Ph.D. Materials Science and Engineering; Graduate Minor, Computational Materials — *2016 – Present*
  - NSF Research Trainee in the CoMET Program (http://dftcomet.psu.edu)
- **Michigan State University** — **East Lansing, MI**
  B.S. Materials Science and Engineering — *2012 – 2016*
  - 3.56 GPA
  - Dean's List, 5 semesters
  - MSU College of Engineering Endowed Opportunity Fund scholarship recipient (2015 – 2016)
  - Webmaster for the Materials Science and Engineering Society (http://egr.msu.edu/msesoc) (2015 – 2016)

Technical Skills

Computational Tools: Python, MATLAB, C++, VASP, Thermo-Calc, Solidworks, VESTA, LaTeX

Materials Characterization Techniques: Differential Scanning Calorimetry (DSC), Electrical Impedance Spectroscopy (EIS), Hardness Analysis, Optical Microscopy, Thermal Gravimetric Analysis (TGA), Scanning Electron Microscopy (SEM), X-Ray Powder Diffraction Spectroscopy (XRD), Profilometry