Brandon Bocklund

(269) 589-8602 • bocklund@psu.edu

Experience

- **Dr. Zi-Kui Liu Research Group, Penn State University** **State College, PA**
  Graduate Research Trainee *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
- **Dr. Jason D. Nicholas Research Group, Michigan State University** **East Lansing, MI**
  Undergraduate Research Assistant *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
- **College of Engineering, Michigan State University** **East Lansing, MI**
  Undergraduate Lab Mentor *2015 – 2016*
  - EGR 100 - Introduction to Engineering Design
    - Mentored one lab section with approximately 45 students
    - Aided students as they completed team projects and professional development activities
    - Responsible for grading projects and assignments
  - EGR 291 - Spatial Visualization
    - Mentored four lab sections with approximately 35 students each
    - Promoted learning by helping students learn to visualize and transform three-dimensional objects
    - Responsible for grading assignments and quizzes
  - EGR 102 - Introduction to Engineering Modeling
    - Mentored three lab sections with approximately 30 students each
    - Help students learn MATLAB through individual assignments and team projects
    - Responsible for grading assignments and proctoring lab exams
- **Dr. Lawrence T. Drzal Research Group, Michigan State University** **East Lansing, MI**
  Undergraduate Research Assistant *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
- **Residence Education and Housing Services, Michigan State University** **East Lansing, MI**
  Resident Assistant *2013 – 2014*
  - Coordinated logistics and performed administrative duties for my floor community
  - Responded to and reported incidents in the residence hall while on duty, about two nights per week
  - Planned and executed programs that promote resident support, academic success, intercultural engagement, and health and wellness
  - Assisted and supported residents in their learning, multicultural development, character building, community development, and well-being
- **Jetech, Inc.** **Battle Creek, MI**
  Fabrication Assistant *Summer 2013*
- **Lakeview Youth Association** **Battle Creek, MI**
  Little League Baseball Umpire *Summer 2013, 2014*
- **Irish Pub** **Battle Creek, MI**
  Dishwasher *2011 – 2012*

Education

- **Pennsylvania State University** — **State College, PA**
  Ph.D. Materials Science and Engineering; Graduate Minor, Computational Materials — *2016 – Present*
  - NSF National 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 (MSES) (2015 – 2016)
  - Redesigned the MSES website (`http://egr.msu.edu/msesoc`) using HTML and CSS, conformed with MSU Brand Standards (2015)

Presentations

- "Performance of A-site deficient ($La_{0.6-x}Sr_{0.4}Co_{0.8}Fe_{0.2}O_{3-\delta}, x = 0.02, 0.1, 0.25$) infiltrated nanoparticles as MIEC materials for SOFC cathodes" (2015)
- "Graphene Membranes for Desalination of Seawater by Capacitive Deizonization" (2014)
- "Determining Iron Content of Water: How iOS Devices Can Indicate Water Quality" (2012)
- "Comparison of Protein Powders Using the Kjeldahl Method" (2011)

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