

## Research Experience

- **Phases Research Lab, Pennsylvania State University** **University Park, PA**  
*NASA Space Technology Research Fellow (Advisor: Zi-Kui Liu)* 2016 – Present
    - Contributed to pycalphad, a library for computational thermodynamics using the CALPHAD method
    - Contributed to atomate, a computational tool for high-throughput ab-initio materials calculations with VASP
    - Developed NanoGrain, which uses thermodynamic models to predict the stability of nano-sized alloys
  - **Solid State Ionics Laboratory, Michigan State University** **East Lansing, MI**  
*Undergraduate Research Assistant (Advisor: Jason D. Nicholas)* 2015 – 2016
    - Fabricated and improved the performance of solid oxide fuel cells
    - Characterized fuel cells with EIS, XRD, and SEM
    - Developed Rp Plotter, a GUI-based Python application for data analysis and visualization
    - Participated in a 10 week professional development course
  - **Composite Materials & Structures Center, Michigan State University** **East Lansing, MI**  
*Undergraduate Research Assistant (Advisor: 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
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## Teaching Experience

- **Department of Materials Science and Engineering, Penn State University** **State College, PA**  
*Teaching Assistant* 2017
    - MatSE 404/BME 444: Surfaces and the Biological Response to Materials
      - Developed and graded problems for homework and exams
    - MatSE 462: General Properties Laboratory in Materials
      - Independently taught and graded assignments for two lab sections of 5 students
      - Instructed students on using techniques for characterizing mechanical, electrical and optical properties
  - **College of Engineering, Michigan State University** **East Lansing, MI**  
*Undergraduate Lab Mentor* 2015 – 2016
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## Education

- **Pennsylvania State University** **University Park, PA**  
*Ph.D. Materials Science and Engineering; Graduate Minor, Computational Materials* 2016 – Present
    - 3.86 GPA
    - NASA Space Technology Research Fellow (2018 – Present)
    - Honorable Mention, National Science Foundation Graduate Research Fellowship Program (2018)
    - NSF Research Trainee in the CoMET Program ([dftcomet.psu.edu](http://dftcomet.psu.edu)) (2016 – 2018)
    - Helen R. and Van H. Leichter Graduate Fellowship recipient (2016)
  - **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)
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## Technical Skills

**Software Developed:** pycalphad ([pycalphad.org](http://pycalphad.org)), atomate ([pythonhosted.org/atomate](http://pythonhosted.org/atomate)), NanoGrain, ESPEI

**Computational Tools and Software:** Python, MATLAB, C++, VASP, Thermo-Calc, MongoDB, Solidworks, L<sup>A</sup>T<sub>E</sub>X

**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