

## Eric S. Harper

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## Education

2018: Ph.D. in Materials Science and Engineering, University of Michigan

- Thesis Topic: *The Nature of the Entropic Bond* (Defended Sept. 22, 2017)

2014: M.S. in Materials Science and Engineering, University of Michigan. GPA: 3.774/4.000

2011: Bachelor of Chemical Engineering, University of Dayton. GPA: 3.92/4.00

## Skills

- Simulation Techniques: Molecular Dynamics, Monte Carlo, Genetic Algorithms/Optimization, Rigorous Coupled Wave Analysis, Finite Element Analysis
- Machine Learning: Scikit-Image, Scikit-learn, Keras, Tensorflow
- Programming: Python, C++ (CUDA, MPI, OpenMP, Intel Thread Building Blocks), Julia, Haskell
- Remote Unix/Linux system usage and administration including Flux at UM, Blacklight at Pittsburgh, Stampede at UT-Austin, and Comet at SDSC

## Experience

2018 - Present: *STFP Postdoctoral Fellow*, Air Force Research Labs, Dayton, OH

- Modeling and design of anisotropic dielectric metamaterials and photonic devices

2017 - 2018: *Computational Scientist*, Azimuth Corporation at Air Force Research Labs, Dayton, OH

- Modeling non-linear mechanical properties in liquid-crystalline elastomers (LCEs)

2011 - 2017: *Graduate Student Research Assistant*, Glotzer Group, University of Michigan

- Lead Developer of analysis software suite Freud
- Junior system administrator for group computational resources
- Instructor, MSE 365 Undergraduate Lab

2010 - 2011: *Teaching Associate*, University of Dayton, Chemical Engineering

- Chemical Engineering Computations; Separation Techniques; Process Dynamics and Control

2010 - 2011: *Consultant*, Composite Technical Services, Dayton, OH

- Conducted Life Cycle Assessments on composite and foam product lines
- Developed rigid foam formulations and conducted flame tests on foam samples

2008 - 2009: *Undergraduate Research Assistant*, Air Force Research Labs, Dayton, OH

- Presented photovoltaic research at American Chemical Society CeRMACS Conference (6/2010)

## Selected Publications and Presentations

- Nature of the Entropic Bond in Particle Assemblies, submitted to Nature, 2018
  - Oral Presentation, APS March Meeting
- Freud: a software suite for high-throughput simulation analysis (<https://bitbucket.org/glotzer/freud/>)
  - Oral Presentation, AIChE Fall Meeting, APS Spring Meeting
- Shape Allophiles Improve Entropic Assembly, Soft Matter, 2015. DOI: 10.1039/c5sm01351h
  - Oral Presentation, MRS Fall Meeting, APS Spring Meeting

## Grants, Honors, and Awards

2018 – 2020: STFP Postdoctoral Fellowship Program (formerly NRC Research Associate Program)

2016 – 2017: MICDE Fellowship, University of Michigan

2012 – 2014: NSF Open Data IGERT Fellow, University of Michigan

2011 – 2012: William F. Hawkins Fellow, University of Michigan

2010 – 2011: Tau Beta Pi Geico Scholar