

# Bryan T. Weinstein

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## Education

- **Harvard University** Cambridge, MA  
*PhD in Applied Physics* Expected May 2018  
– Working Thesis Title: *Experimental Microbial Evolutionary Dynamics and Transport*
- **Harvard University** Cambridge, MA  
*PhD Secondary Field: Computational Science and Engineering (CSE)* Expected May 2018  
– Completed four advanced applied math and scientific computing courses  
– Learned state-of-the-art computational methods used in scientific research and data science  
– **Capstone:** OpenCL GPU-powered Lattice Boltzmann fluid mechanics simulation utilizing OpenGL for real-time visualization.
- **Harvard University** Cambridge, MA  
*S.M. in Applied Physics* November 2014  
– Completed 12 courses: 4 physics core courses, 4 CSE courses, and 4 soft-matter/biophysics electives  
– GPA: 3.95/4.00
- **Case Western Reserve University** Cleveland, OH  
*Bachelor of Science in Engineering, Engineering Physics* May 2012  
– GPA: 4.00/4.00 (Summa Cum Laude)  
– Engineering Concentration: Aerospace Engineering  
– Senior Project: Simulating Interactions between Confined Spins and Ferromagnetic Vortices

## Fellowships and Awards

- **Institute for Applied Computational Science Scholarship** Cambridge, MA  
*Graduate Student* September 2016 - September 2017  
– Wrote proposal and won a \$25,000 student scholarship from Harvard's Institute for Applied Computational Science (IACS)  
– Used funds to develop a GPU-powered Lattice Boltzmann fluid mechanics simulation
- **Department of Energy Office of Science Graduate Fellowship** Washington, D.C.  
*Graduate Student* September 2012 - September 2015  
– Wrote proposal to win competitive fellowship supporting students pursuing training in areas relevant to Department of Energy (DOE)  
– Selected out of 1,300 applicants; 50 fellowships awarded  
– Attended yearly conferences at National Laboratories; presented posters on my active research, networked with other DOE fellows and government officials
- **Harvard University Pierce Fellow** Cambridge, MA  
*Graduate Student* September 2012 - September 2015  
– Won fellowship awarded to the highest caliber PhD students accepted into Harvard's School of Engineering and Applied Sciences (SEAS)  
– Selected out of 150 students; 8 fellowships awarded

## Publications

- [1] Bryan T. Weinstein, Maxim O. Lavrentovich, et al. “Genetic Drift and Selection in Many-Allele Range Expansions”. Submitted. 2017. URL: <http://biorxiv.org/content/early/2017/06/07/145631>.

## Conferences and Invited Presentations

- [1] Bryan T. Weinstein, Severine Atis, et al. “Experimental Population Dynamics in Fluid Flows”. In: Poster Presentation. Annual Meeting of the International Physics of Living Systems (iPoLS) Network. Harvard University, 2016.
- [2] Severine Atis, Bryan T. Weinstein, et al. “Experimental Population Dynamics in Fluid Flows”. In: *American Physical Society March Meeting*. Presentation. American Physical Society. New Orleans Morial Convention Center, 2017.
- [3] Bryan T. Weinstein, Maxim O. Lavrentovich, et al. “Diffusion and Selection in Many-Allele Range Expansions”. In: *American Physical Society, March Meeting*. Presentation. American Physical Society. New Orleans Morial Convention Center, 2017.

## Specialized Skills

- **Computational**
  - Significant experience optimizing programs to run on multiple processors, graphics processing units, and supercomputers.
  - Knowledge of stochastic and probabilistic methods to solve high-dimensional problems
  - Languages for General Scientific Computing:
    - \* Python, Cython, OpenCL, CUDA, C, C++, Java, Matlab, Mathematica
  - Fluid Mechanics Simulations:
    - \* Lattice Boltzmann Method (custom-built code), OpenFOAM, SALOME, gmsh
  - Image Analysis Tools:
    - \* ImageJ, Python, OpenCL, OMERO
- **Analytical**
  - Expert knowledge of Applied Mathematics, especially partial differential equations and stochastic methods
  - Equilibrium and nonequilibrium statistical physics techniques
- **Laboratory**
  - 4 years of research in an experimental biology laboratory; experienced at designing and conducting experiments
  - Significant experience using microscopy to image microbes

## Certifications

- **Engineer in Training (EIT)**

Ohio  
*Active*

September 2012

  - Successfully passed Fundamentals of Engineering Exam, the first step towards becoming a licensed engineer

## Professional Organizations

- Tau Beta Pi Engineering Honor Society
- American Physical Society