

## Education

- **Harvard University** Cambridge, MA  
*PhD in Applied Physics* *Expected May 2018*
  - Working Thesis Title: *Microbial Evolutionary Dynamics and Transport*
  - Developed over 30 GitHub repositories and wrote thousands of IPython/Jupyter notebooks to analyze experimental data and to create scientific simulations (see my website)
  - Applied stochastic, random-walk methods (spatial stochastic differential equations) to model the evolutionary dynamics of growing microbial colonies
  - Utilized fluid and solid mechanics to model and simulate colony morphology
- **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:** Wrote proposal and won a \$25,000 student scholarship to develop a 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, Valedictorian
  - 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*
- **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.

## Specialized Skills

- **Computational**
  - Over 8 years of experience optimizing programs to run on multiple processors, graphics processing units (GPUs), and supercomputers
  - Expert 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
  - Selected Python Packages and Tools:
    - \* IPython/Jupyter Notebook, matplotlib, seaborn, numpy, scipy, pandas, scikit-image, pymc3, cython, cython\_gsl, PyOpenCL, PyCuda
  - Fluid and Solid Mechanics Simulations:
    - \* Lattice Boltzmann Method (custom-built code), OpenFOAM, SALOME, gmsh
  - Image Analysis Tools:
    - \* ImageJ, Python, OpenCL, OMERO
- **Analytical**
  - Over 7 years of experience creating simple mathematical models to describe physical phenomena
  - Expert knowledge of Applied Mathematics, especially stochastic modeling involving the Master equation, the Fokker Planck equation (PDEs), and (spatial) stochastic differential equations
- **Laboratory**
  - 4 years of research in an experimental molecular 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 Professional Engineer (PE)

## 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: *Annual Meeting of the International Physics of Living Systems (iPoLS) Network*. Poster Presentation. Harvard University, July 2016.
- [2] Severine Atis, Bryan T. Weinstein, et al. “Experimental Population Dynamics in Fluid Flows”. In: *American Physical Society, March Meeting*. Presentation. New Orleans Morial Convention Center, Mar. 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. New Orleans Morial Convention Center, Mar. 2017.

## Professional Organizations

- Tau Beta Pi Engineering Honor Society
- American Physical Society