

# Jeffrey Hafner

PHYSICIST & UNIX ENGINEER

125 Radford St, Yonkers NY USA

+1-315-532-0278 | [jeffrey.p.hafner@gmail.com](mailto:jeffrey.p.hafner@gmail.com) | [jphafner.github.io](https://github.com/jphafner) | [jphafner](https://www.linkedin.com/in/jphafner) | [jphafner](https://www.linkedin.com/in/jphafner)

*"Before you leave the house, look in the mirror and take one thing off."—Coco*

## Experience

### Wilderness Guide and Camp Counselor

FLYING MOOSE LODGE

- Was responsible for taking boys, aged 8–16, on 10 day excursions throughout the state of Maine.

East Orland, ME

2005

### Research Assistant

UNIVERSITY AT BUFFALO

- Produced three peer reviewed publications, and was chosen for one conference presentation.
- One publication was chosen as an editor's pick

Buffalo, NY

2008–2011

### Postdoctoral

UNIVERSITY OF MARYLAND

- Implementation of Particle Mesh Ewald Electrostatics for Continuous Constant pH Molecular Dynamics in CHARMM.

Baltimore, MD

2012

### Adjunct Physics Professor

TOWSON UNIVERSITY

- Teaching Light and Color, a non-major physics course

Towson, MD

2013–2014

### Physics Teacher

BALTIMORE CITY PUBLIC SCHOOLS

- Teaching physics first at Mervo
- Utilized a unique assessment system that allowed infinite redos

Baltimore, MD

2014–2015

### Physics Teacher

MASTERS SCHOOL

- Teaching 11<sup>th</sup> and AP Physics B Mechanics
- An example lesson plan and lab report template used
- Utilized a unique assessment system that allowed infinite redos

Dobbs Ferry, NY

2015–2016

### Unix Linux Systems Engineer

IPSOFT INC

- Manage IT infrastructure of high profile clients.
- Create automation to resolve issues.
- Monitor client environments.

Manhattan, NY

2016–2018

## Education

### Andrews University

B.S./M.S. IN BIOPHYSICS AND MATHEMATICAL STUDIES

3.31 GPA

Berrien Springs, MI

Aug. 2001 – Aug. 2006

### University at Buffalo

PH.D IN PHYSICS

3.50 GPA

Buffalo, NY

Aug. 2006 – Feb. 2012

## Projects

## NSF REU

PENN STATE UNIVERSITY

University Park, PA

Summer 2004

Implemented a monte carlo modeler in Matlab to make falsifiable predictions concerning kinesin processivity under William Hancock.

## PHY447: Advanced Lab 2

ANDREWS UNIVERSITY

Berrien Springs, MI

Spring 2005

Validated predicted reverberation times based on blue prints of the Howard Performing arts center

## PHY506: Computational Physics 2

UNIVERSITY AT BUFFALO

Buffalo, NY

Spring 2008

Implemented a cellular automata traffic modeler in Python to investigate phase transitions in traffic

## PHY515: High Performance Computing 1

UNIVERSITY AT BUFFALO

Buffalo, NY

Fall 2008

Parallelized my dissertation utilizing ScaLAPACK.

## PHY551: Grad Physics Laboratory 1

UNIVERSITY AT BUFFALO

Buffalo, NY

Fall 2007

- Created Josephson junctions for use in super conductive conditions
- Utilized a Scanning Tunneling Microscope to investigate surface electron structure

## CSE536: Computational Biology

UNIVERSITY AT BUFFALO

Buffalo, NY

Fall 2011

Implemented a 2D Hydrophobic-Hydrophilic Protein folder utilizing an Ant Colony Optimization Algorithm in Python.

## Doctoral Dissertation

UNIVERSITY AT BUFFALO

Buffalo, NY

2008–2011

- titled: *Validation and Refinement of Course Grained Protein Models*
- About a 100 pages of text, Over 5000 lines of C, and over 1000 lines of Python.
- Work was performed on the computing resources of UB Center for Computational Research

## physicsAMC

PHYSICS TEACHER

PhysicsAMC

multiple locations

2014–2016

- A comprehensive physics exam bank that utilizes an lpeg parser for question selection.
- This project enabled me to use an infinite redo policy on all assessments, without punishment, which was an important motivation for this project, and created some of my favorite memories.
- this project utilizes  $\text{\LaTeX}$ , lua, lpeg, and tikz for graphics, and contains more than a 100,000 lines of code.
- sample-exam

## Publications

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2009	<b>Approximate normal mode analysis based on vibrational subsystem analysis with high accuracy and efficiency</b> , Journal of Chemical Physics	Hafner J. & Zheng W.
2010	<b>Optimal modeling of atomic fluctuations in protein crystal structures for weak crystal contact interactions</b> , Journal of Chemical Physics	Hafner J. & Zheng W.
2011	<b>All-atom modeling of anisotropic atomic fluctuations in protein crystal structures</b> , Journal of Chemical Physics	Hafner J. & Zheng W.

## Awards and Certifications

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2013–2014	<b>Intramural Champion</b> , University of Maryland	Baltimore, MD
2016	<b>Red Hat Certified System Administrator</b> , License 130-172-497	RHCSA
2016	<b>Cisco Certified Entry Networking Technician</b> , License CSC012981391	CCENT