Jeffrey **Hafner**

Physicist & Unix Engineer

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

Experience

Wilderness Guide and Camp Counselor
East Orland, ME

Flying Moose Lodge — *2005*

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

Research Assistant
Buffalo, NY

University at Buffalo — *2008–2011*

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

Postdoctoral
Baltimore, MD

University of Maryland — *2012*

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

Adjunct Physics Professor
Towson, MD

Towson University — *2013-2014*

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

Physics Teacher
Baltimore, MD

Baltimore City Public Schools — *2014–2015*

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

Physics Teacher
Dobbs Ferry, NY

Masters School — *2015–2016*

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

Unix Linux Systems Engineer
Manhattan, NY

IPsoft Inc — *2016–2018*

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

Education

Andrews University
Berrien Springs, MI

B.S./M.S. in Biophysics and Mathematical Studies — *Aug. 2001 – Aug. 2006*

3.31 GPA

University at Buffalo
Buffalo, NY

Ph.D in Physics — *Aug. 2006 – Feb. 2012*

3.50 GPA

Projects

NSF REU *University Park, PA*

Penn State University *Summer 2004*

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

PHY447: Advanced Lab 2 *Berrien Springs, MI*

Andrews University *Spring 2005*

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

PHY506: Computational Physics 2 *Buffalo, NY*

University at Buffalo *Spring 2008*

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

PHY515: High Performance Computing 1 *Buffalo, NY*

University at Buffalo *Fall 2008*

Parallelized my dissertation utilizing ScaLAPACK.

PHY551: Grad Physics Laboratory 1 *Buffalo, NY*

University at Buffalo *Fall 2007*

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

CSE536: Computational Biology *Buffalo, NY*

University at Buffalo *Fall 2011*

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

Doctoral Dissertation *Buffalo, NY*

University at Buffalo *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 *PhysicsAMC*

Physics Teacher *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 LaTeX, lua, lpeg, and tikz for graphics, and contains more than a 100,000 lines of code.
- sample-exam

Publications

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

Awards and Certifications

2013–2014	**Intramural Champion**, University of Maryland	*Baltimore, MD*
2016	**Red Hat Certified System Administrator**, License 130-172-497	*RHCSA*
2016	**Cisco Certified Entry Networking Technician**, License CSCO12981391	*CCENT*