Adam Stewart

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Education

2017 - Present **Ph.D., Computer Science**, *University of Illinois at Urbana-Champaign, College of Engineering*.

2010 - 2014 **B.S., Science of Earth Systems**, *Cornell University, College of Engineering*, Graduated *magna cum laude* with Honors, Cumulative GPA: 3.94, Major GPA: 4.04.

Honors Thesis: Monitoring Glacial Velocity Variation in the Russian High Arctic Using Remote Sensing

Research Experience

2013 - 2014 **Department of Earth and Atmospheric Sciences, Cornell University**, *Ithaca, NY*, Undergraduate Research Assistant, with Prof. Matthew E. Pritchard.

- Investigated the effects of climate change on glacial velocities, calving rates, and ice shelf breakup using remote sensing techniques such as feature tracking
- Processed ASTER and Landsat satellite imagery using Python, MATLAB, and Bash scripts

2012 - 2013 **Department of Earth and Atmospheric Sciences, Cornell University**, *Ithaca, NY*, Undergraduate Research Assistant, with Prof. Larry D. Brown.

- Studied the application of seismic interferometry to monitor magma reservoir inflation at Montserrat
- Researched the effects of seismic attenuation on aftershocks by analyzing records from dense station arrays

Professional Experience

2015 - 2017 **Argonne National Laboratory**, *Lemont, IL*, Assistant HPC System Administrator.

- Collaborated on the development of Spack, a Supercomputing PACKage manager written in Python and hosted on GitHub, enabling the installation of scientific software with multiple compilers and MPI libraries
- Managed a supercomputing cluster composed of 720 36-core Intel Broadwell nodes, each with 128 GB of RAM, and 360 64-core Intel Knights Landing nodes, each with 96 GB of RAM, with a peak theoretical performance of 1.5 PFlops

2014 - 2015 **Lockheed Martin**, *Owego, NY*, Associate Software Engineer.

Infrastructure Analytics program (IA)

- Worked on a NYSEG/Iberdrola contract to develop software to detect downed power lines and flooding
- Enhanced simulator for modeling LiDAR data of a town with houses, trees, poles, and power lines
- Programmed primarily in C# in a .NET Framework using Microsoft Visual Studio
- Investigated several different Continuous Integration (CI) software tools for build and test automation

Remote Computer Reader program (RCR)

- Worked on the machine learning software used by the USPS to sort and deliver mail
- Enhanced Performance code (C) and overhauled internal testing tools (Perl, Bash, Python)
- Performed a Failure Mode and Effects Analysis to track down bugs and discover monetary potential
- Wrote Expect script to run Makefiles, ssh into remote machine, and ftp tar files to test bench
- Cleared for a Secret Security Clearance in order to access classified address databases

2010 - 2012 **Paleontological Research Institution**, *Ithaca, NY*, Collections Assistant.

- Renovated and reorganized upper collections under NSF grant, allowing for easier access for researchers
- Inventoried and relabeled older, more delicate specimens for organization and preservation
- Cataloged Zinsmeister collection and updated master database of specimens
- Photographed and documented Syracuse University collection journals

Teaching Experience

2017 - 2018 **Department of Computer Science, University of Illinois at Urbana-Champaign**, *Urbana, IL*, Teaching Assistant.

- Served as a Teaching Assistant for Numerical Methods I course of over 500 students
- Held office hours, wrote homework assignments and exam questions, and answered course questions on Piazza
- Presented a crash course lecture on Python, specifically for working with Numpy, Scipy, and Matplotlib
- Managed course website through Relate framework, including reference pages summarizing course content

2014 **Department of Earth and Atmospheric Sciences, Cornell University**, *Ithaca, NY*, Teaching Assistant.

- Served as a Teaching Assistant for Satellite Remote Sensing Training for Biological Oceanographers course
- Taught an intensive graduate-level course composed of 20 oceanographers from around the world
- Wrote Python lesson plan from scratch and answered questions about Python and IDL programming
- Debugged satellite image processing scripts and managed Python module installation from source code

2014 **Department of Computer Science, Cornell University**, *Ithaca, NY*, Undergraduate Python Consultant.

- Helped teach Introduction to Computing using Python and Transition to Object-Oriented Programming
- Facilitated learning in a weekly lab session of 36 students, troubleshot assignments, and graded exams
- Held weekly consulting hours, working one-on-one with students to help clarify course material

2012 - 2013 **Department of Physics, Cornell University**, *Ithaca, NY*, Undergraduate Teaching Assistant, PhysTEC Program.

- Taught course material for Introduction to Mechanics, Heat/Electromagnetism, and Oscillations, Waves, and Quantum Physics courses to 50+ students
- Led cooperative discussion and laboratory sections to promote understanding of physics material
- Coordinated homework study groups to encourage collaboration on homework assignments

2008 - 2012 **Camp Barton, Boy Scouts of America**, *Trumansburg, NY*, Nature Director.

- Managed a department of 6 staff members, training them to become ecology counselors as well as leaders
- Instructed between 3 and 5 weekly merit badges to up to 30 boy scouts ranging in age from 10 to 18
- Rewrote lesson plans for all 20 merit badges, working with counselors to address various shortcomings
- Established new off-site ecology program, introducing scouts to advanced topics at outside organizations
- Maintained Camp Conservation Plan and oversaw conservation projects led by each Boy Scout troop

Publications

Papers

[1] Andrew K. Melkonian, Michael J. Willis, Matthew E. Pritchard, and Adam J. Stewart. Recent changes in glacier velocities and thinning at Novaya Zemlya. *Remote Sensing of Environment*, 174:244–257, 2016.

Tutorials

[2] Argonne National Laboratory. *Managing HPC Software Complexity with Spack*, Lemont, IL, June 2017.

[3] SuperComputing 2017. *Managing HPC Software Complexity with Spack*, Denver, CO, November 2017.

Grants, Honors, and Awards

2014	Frank H. T. Rhodes Award
2010 - 2014	Dean's List
2013	Michael W. Mitchell Prize
2012 - 2013	Engineering Learning Initiatives Research Grant
2011	Gertrude Spencer Prize Honorable Mention
2010	Lockheed Martin Foundation Scholarship
2008	Eagle Scout

Outreach and Leadership Experience

2015	Mentor for New Visions Job Shadowing Program at Lockheed Martin
2015	Test Proctor for Cornell Science Olympiad Invitational
2012 - 2014	President of Science of Earth Systems Student Association
2011 - 2012	Tae Kwon Do Team
2010 - 2012	Executive Board of Cornell Ski and Snowboard Club
2002 - 2012	Boy Scouts of America
2010 - 2011	Volunteer in Collections Department of Paleontological Research Institution

Computer Skills

Programming	Python, Bash, Perl, Ruby, Java, C, C#, MATLAB, OCaml, JavaScript, Make, Expect, Tcl, IDL
Markup	LaTeX, Markdown, reStructuredText, YAML, HTML, CSS, XML, XPath, XSLT, Graphviz
VCS	Git (GitHub, GitLab, Bitbucket), Mercurial (Bitbucket), Subversion, CVS
Soft. Eng.	Travis CI, Codecov, Coveralls, PyTest, Flake8, Sphinx, GNU Debugger, Jira, Confluence, Crucible
Sys. Admin.	Spack, Lmod, Environment Modules, SoftEnv, Torque, Maui, Slurm, GPFS
IDEs	Vim, Sublime Text, Visual Studio, Eclipse, WordPress
Platforms	Linux (Fedora, RHEL, CentOS, Ubuntu, Mint), macOS, Windows