Charles McEachern

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Skills

Languages Bash, C++, Fortran, Python, some experience with HTML/CSS and JavaScript

Tools BeautifulSoup, git, LaTeX, Linux, Matplotlib, MPI, NumPy, OpenMP

Experience

University of Minnesota Physics Department **Minneapolis, MN**
Research Assistant *05/2009–04/2016*

- Designed and implemented a simulation of electromagnetic waves in Earth's magnetosphere.
- Performed serial and parallel benchmarks in C++ and Fortran. Restructured execution to increase speed and decrease memory use.
- Analyzed hundreds of gigabytes of output to identify novel patterns. Created clear, handsome plots and animations using Matplotlib.
- Presented methods and results through posters, colloquia, and workshops.

Cray Inc **St Paul, MN**
Performance Intern *11/2014–12/2015*

- Deployed an ensemble of nightly tests to detect bugs in Cray's performance tools suite.
- Created a multi-process Python harness to configure programming environments, dynamically generate source code, compile and run tests, and parse performance reports.
- Isolated bugs in the performance tools, as well as in Cray, Gnu, and Intel compilers.
- Brainstormed test features with other members of the performance tools team. Improved test usefulness and efficiency in response to feedback.

University of Minnesota Physics Department **Minneapolis, MN**
Teaching Assistant *01/2011–12/2014*

- Communicated detailed concepts to audiences with varied technical backgrounds. Adapted coaching strategies to the individual needs of at-risk students.
- Supported students outside of class through office hours, tutoring, and pizza review sessions.
- Coordinated work flow between professors, graduate teaching assistants, and undergraduate tutors as Head TA.
- Developed exams, laboratory exercises, and other instructional materials.

Education

University of Minnesota **Minneapolis, MN**
PhD, Space Physics, Burlaga/Arctowski Medal Fellow *05/2009–04/2016*

St Olaf College **Northfield, MN**
BA, Math (Distinction), Physics (Distinction), Magna Cum Laude *09/2005–05/2009*