Johnny Jacobs

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EDUCATION

University of Rochester — Rochester, NY

Bachelor of Science in Computer Science, Minor in Optical Engineering — **Expected May 2017**

- GPA: 3.8; Major GPA: 3.95; Rochester Dean's List
- LANL Foundation Bronze Scholar Award for Academic Performance, Leadership, Critical Thinking, Career Goals
- *Selected Courses:* The Science of Data Structures, Computer Organization, Computation & Formal Systems, Design & Analysis of Efficient Algorithms, Artificial Intelligence, Computer Models & Limitations.

PROGRAMMING LANGUAGES

Fluent in Java, C, Python, JavaScript, JQuery, CSS, HTML, Unix shell (bash, csh, etc.), and Fortran. Proficient in MatLab and C++. Experience with Ruby, Prolog, Scheme (Lisp), and MySQL. Eager and able to learn new ones.

EMPLOYMENT HISTORY

Los Alamos National Laboratory, Computational Physics Division — Los Alamos, NM

Software Development Intern — **May 2015 – August 2015**

- Sole maintenance developer (bug fixes, improvements, updates) for a Fortran magneto-hydrodynamics code.
- Code was developed in-house and is ~15k lines. Two-thirds is Fortran 77 while the other third is more recent add-ons and improvements using Fortran 90. It outputs data in NetCDF format.
- Migrated the project's primary version control from CVS (Concurrent Version System) to Stash (git-based).

Los Alamos National Laboratory, Earth and Environmental Sciences Division — Los Alamos, NM

Software Development Intern — **October 2012 – September 2014**

Part-time intern during the 2012-2013 school year and full-time during the summers of 2013 and 2014.

- Created Java Swing tool for visualizing movement of sub-surface plumes. Plumes were created by interpolating through time and space using data points created by a full-scale scientific simulation code. Tool was distributed to several other national laboratories.
- Created similar, simplified tool using JavaFX-2 instead of Swing, for comparison.
- Converted several Perl scripts to Python for use with a MySQL database. GitLab was used for version control.
- Co-authored a paper: Pre-site Characterization Risk Analysis for Commercial-Scale Carbon Sequestration

SOFTWARE PROJECTS

- **Dota 2 Stats (DotaBuff Stats Extension)** – Chrome extension built using jQuery (JavaScript), HTML, and CSS. Takes stats from website Dotabuff (which hosts stats for the game DotA 2) and displays them in popup. Published in the Chrome Web Store (also on GitHub).
- **Personal Website –** Acts as an all-encompassing online resume, transcript, and cover letter. Built from scratch using HTML and CSS. Coded by me, hosted by GitHub.
- **Othello –** Project for Artificial Intelligence. Made an Othello engine (algorithm that plays Othello, a board game). Took our current implementation which used negamax and alpha-beta pruning and rewrote it to use bitboards (64-bit number representations of the board) instead of an array-based board.
- **Street Mapper –** Project for The Science of Data Structures. Created GUI in Java to find shortest path (using home-rolled Dijkstra's algorithm) between two points on real road network in Monroe County, New York. Also calculates minimum spanning tree for the network.

PUBLICATIONS

Zhenxue Dai, Philip H. Stauffer, J. William Carey, Richard S. Middleton, Zhiming Lu, **John F. Jacobs**, Ken Hnottavange-Telleen, and Lee H. Spangler. Pre-site Characterization Risk Analysis for Commercial-Scale Carbon Sequestration. Environmental Science & Technology. 2014, 48 (7), 5854–5861.

VOLUNTEER WORK

2015: Los Alamos Triathlon
2010-13: Jemez Mountain Trail Run

OTHER INTERESTS

Applied physics, applied chemistry, green energy, robotics, electric vehicles, engineering.

OTHER SKILLS

Proficient in written/spoken German. (ILR 3)