Johnny Jacobs

jjaco16@u.rochester.edu • (505) 500-6866 • Website: jkjk822.github.io

EDUCATION

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

- GPA: 3.8; Major GPA: 3.95
- Rochester Dean's List
- LANL Foundation Bronze Scholar award (for academic performance, leadership, critical thinking, career goals)

Courses

- **The Science of Data Structures** – An introduction to simple algorithms and data structures (graphs, trees, hash tables) in Java
- **Computer Organization** – An overview of computer architecture and the layering of hardware and software systems
- **Computation & Formal Systems** – Investigates influential formal systems in computer science and their applications
- **Design & Analysis of Efficient Algorithms** – Examines various sophisticated algorithms and advanced data structures
- **Artificial Intelligence** – Introduces the central principles of artificial intelligence using real-world applications
- **Computer Models & Limitations** – A study of fundamental computer models and their computational limitations

PROGRAMMING LANGUAGES

Fluent in Java, C, Python, JavaScript, JQuery, CSS, HTML, Unix shell (bash, csh, etc.) 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
Undergraduate Student Intern, **May 2015 – August 2015**

- Sole maintenance (bug fixes, improvements, etc.) developer for a Fortran magneto hydrodynamics code.
- The code was developed by the lab itself and contains ~15k lines of code. It is about two-thirds Fortran 77 with the other third more recent add-ons and improvements using Fortran95. The code outputted data using NetCDF format.
- Also migrated the project's primary source control from CVS (Concurrent Version System) to Stash (git-based)

Los Alamos National Laboratory, Earth and Environmental Sciences Division, Los Alamos, NM
Undergraduate Student Intern, **October 2012 – September 2014**

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

- Created Java tool for visualizing sub-surface material plumes. These plumes were inputted using data files dumped by a full-scale scientific simulation code. This tool was distributed for use at several other National Laboratories.
- Created a second similar, though simplified, tool using JavaFX-2 instead of Swing (just for comparison).
- Converted several Perl scripts to Python for use with a MySQL database.
- Co-authored a paper: Pre-site Characterization Risk Analysis for Commercial-Scale Carbon Sequestration

VOLUNTEER ACTIVITIES

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

AWARDS

National AP Scholar, National Merit Scholar Commended Student, National Honor Society

PROJECTS

- **Dota 2 Stats (DotaBuff Stats Extension)** – Published in the Chrome Web Store (also on GitHub). A chrome extension built using jQuery (JavaScript), HTML, and CSS. Takes stats from the website Dotabuff (which hosts stats for the game DotA 2) and displays them in a cool popup.
- **Personal Website –** My personal website. Acts as a sort of all-encompassing online resume, transcript, and cover letter. It's built from scratch using HTML and CSS. Coded by me, hosted by GitHub.

- **Othello –** On GitHub. A project for Artificial Intelligence class. It involved making an Othello engine (algorithm that plays Othello, a board game). I took our current implementation which used negamax and alpha-beta pruning and rewrote it to use bitboards as well (64-bit number representations of the board) instead of an array-based board.
- **Street Mapper -** Project for The Science of Data Structures class that required us to create a GUI in Java to find the shortest path (using Dijkstra's algorithm) between two points on the real road network in Monroe County, New York. Also calculates the 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.

OTHER SKILLS

I speak German at approximately a professional working proficiency (ILR 3).