

TAJ MORTON

Email: mortont@onid.oregonstate.edu

Education:

Oregon State University, Corvallis, OR
Degree: M.S. in Computer Science (Machine Learning)
September 2012 – Present
GPA: 3.82/4.0
Expected Graduation: Fall 2014

Oregon State University, Corvallis, OR
Degree: B.S. in Computer Science
September 2008 – June 2012
GPA: 3.73/4.0

Academic Research Experience:

- **Megraw Lab, Department of Botany and Plant Pathology, Oregon State University**
Graduate Research Assistant (February 2013 – Present)
 - ◆ PREDICTIVE MACHINE LEARNING MODELS FOR TRANSCRIPTION START SITE IDENTIFICATION: Developed and improved an existing TSS machine learning model to predict a variety of spatially distinct TSS initiation patterns in mammals with high accuracy from DNA sequence content alone.
 - ◆ ANALYSIS OF GENE PROMOTERS AND TRANSCRIPTION START SITES IN *ARABIDOPSIS*: Analyzed the promoter architecture of TSSs in *Arabidopsis thaliana* using a variety of computational methods, including a TSS prediction machine learning model to better understand how Transcription Factors regulate transcription in plants.
 - ◆ BIOINFORMATICS LAB TRAINING: Performed TSS-Seq and other genomics data analysis, presented projects and papers in regular lab meetings, audited genetics and biology courses, installed and maintained bioinformatics software packages, and performed Linux server system administration duties.
- **VLSI Lab, School of Electrical Engineering and Computer Science, Oregon State University**
Graduate Research Assistant (September 2012 – February 2013)
Undergraduate Research Assistant (September 2011 – June 2012)
 - ◆ SCALABLE DATA STORAGE WEB SERVICE: Designed and implemented cloud-based time-series data storage web service based on Amazon Web Services tools for storage and analysis of generic sensor data. Developed desktop and Android applications for streaming sensor data to database and analysis tools for activity and location tracking from accelerometer data. Developed library to interface data storage service to MATLAB for data analysis. Created web-based front-end for real-time plotting of data.

Industry Experience:

- **Space Exploration Technologies, Los Angeles, CA**
Flight Software Intern (June – September 2011 and 2012)

Developed flight software for Dragon cargo transport capsule. Maintained and added features to internal web-based tools for configuration verification. Developed testing harness to automate verification of configuration files and meet customer requirements for testing. Wrote tools and scripts for performing hardware testing to meet customer requirements and perform software verification. Documented results of testing in report delivered to customer.
- **WET Labs, Philomath, OR**
Firmware Development Intern (June 2009 – October 2010)

Developed 802.11 wireless capabilities for underwater optical scientific instruments. Implemented firmware for aggregating data from multiple wireless instruments. Wrote firmware to perform statistical and mathematical analysis on data, and transmit results via Iridium satellite modem. Developed Java applications for displaying data and configuring instruments remotely. Wrote documentation for software and guides for using instruments. Assisted with field deployments and performed in-field repairs and troubleshooting of instruments.

Teaching Experience:

- **School of Mechanical, Industrial, and Manufacturing Engineering, Oregon State University**
Graduate Teaching Assistant (September 2012 – Present)
Courses: MATLAB, Applied Robotics (Mechatronics), Introduction to Engineering.
 - **School of Electrical Engineering and Computer Science, Oregon State University**
Graduate Teaching Assistant (June 2014 – Present)
Courses: Social and Ethical Issues in Computer Science.
- Undergraduate Teaching Assistant (September 2009 – March 2011)*
Courses: Introduction to Computer Science I and II (C/Java/OOP/Data Structures).

Leadership and Activities:

- **OSU Robotics Club, Oregon State University**
Various Positions. including President (September 2008 – Present)
Responsible for running weekly meetings to organize club activities, fund raising, recruitment, publicity, teaching introductory robotics courses and workshops, recruiting and organizing volunteers for local *FIRST* robotics competitions, and maintaining the club's website.
- **OSU Robotics Club Mars Rover Team, Oregon State University**
Lead Programmer (September 2008 – June 2011)
Led a team of programmers to develop C and C++ firmware and software for OSU's entry into the University Rover Challenge. Established deadlines, assigned tasks, and ran weekly update meetings for team. Wrote firmware for custom USB devices, designed communication protocols, and wrote user interface (C++/Qt) controlling rover over wireless serial link.
- **FIRST Robotics Team 847, Philomath High School**
Mentor (November 2009 – March 2010)
Taught high school students programming languages and software design techniques for programming autonomous robots. Organized workshops, led brainstorming and design review meetings, and worked with other mentors and students to build a robot in a six week time frame.

Technical Skills:

- Proficient in Java, Python, SQL, PHP, C, C++, CSS, HTML, Bash, R, Ruby On Rails, Javascript, Qt, SGE
- Experience with Software Engineering methods, version control (SVN/Git), continuous integration tools
- Linux Server Administration Experience
- Experience with Amazon Web Services Tools: EC2, DynamoDB, SimpleDB, Elastic Beanstalk, SNS, SQS
- Experience With Microcontrollers, Embedded Linux, and Robotics

Publications:

- **T. Morton, A. Weeks, S. House, P. Chiang, C. Scaffidi (2012).** Location and Activity Tracking With The Cloud. **Engineering in Medicine and Biology Society (EMBC), 2012 Annual International Conference of the IEEE.**
- **T. Morton, J. Petricka, D.L. Corcoran, S. Li, C.M. Winter, A. Carda, P.N. Benfey, U. Ohler, & M. Megraw (2014).** Paired-End Analysis of Transcription Start Sites in *Arabidopsis* Reveals Plant-Specific Promoter Signatures. **The Plant Cell**, In press.
- **T. Morton, W. Wong, & M. Megraw.** A general model for Transcription Start Site identification. **Bioinformatics**, In preparation.

References:

- *Available Upon Request*