David Swartout

Software Engineer

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Work Experience:

Mango Micro Inc

Software Engineer 08/2024 – Present

- Simulated instruments: Integrated system for simulating behavior of lab instruments in order to perform rapid tests on software changes. Software iteration cycle for the department went from hours to minutes, and improved time coordination of physical instruments with other stakeholders.
- On-prem migration: Reworked code base to be database-agnostic, which involved abstracting database, storage, and authentication services. This accommodated client requirements to deploy a compute cluster and instrument array without steady internet access.

Spatial Genomics

Software Engineer 05/2022 – 01/2024

- Organized networked compute cluster using Ray to task onsite resources for computationally intensive work, and adapted application code, resulting in significant speed improvements.
- Built pared-down, lightweight version of analysis software for viewing analysis results. Reduced load times and disk requirements for simpler workflows.
- Utilized experience with application development to use effective design patterns and improve long term maintainability of code.
- Developed analysis software designed to complement output from imaging devices, primarily in Python. Analysis software implements numerous statistical models and machine learning to define cell boundaries and detect fluorescent gene markers in tissue slides.
- Designed and modified user interface for complex desktop applications using PyQt, and its version of CSS, QSS.
- Maintained client-facing desktop application used to operate lab-based florescent in-situ hybridization imaging devices, including troubleshooting devices in lab using sterile technique.
- Used Jira, Github to prioritize work and conduct code review as part of Agile development process. Worked in a small, fast-paced, results-driven engineering team as part of a startup.

Ambry Genetics

Software Engineer II 11/2018 – 4/2022

- Containerised existing APIs in Docker to aid in scalability and portability, resulting in improved uptime.
- Participated in the development of full stack, Docker-native applications.
- Developed within a suite of full stack applications to manage large scales of PHI for creating medical reports, curating genetic information, and tracking laboratory specimens through sampling workflows.
- Utilized various languages (PHP, Python, Javascript ES6) and frameworks (Symfony, Flask, React) in said applications, adhering to strict quality control standards and HIPAA compliance.
- Worked through business analysts and stakeholders to architect applications as MVP, with iterative feature additions.

Pacific Coast Ironworks, Inc.

Information Technology Lead / Project Estimator 8/2016 – 11/2018

- Built full stack inventory management database to track steel detail within firm, and between vendors and clients.
- Moved business practices online to increase operational efficiency, developed project estimation workflow.
- Administered Information Technology needs of firm including email accounts, technical troubleshooting, and automated computer backup.

Work Experience (cont'd):

Research Square

Software Developer 8/2013 – 3/2016

- Assisted in the development and maintenance of a business scale production website, involving large numbers of users and significant data management on MySQL and Elastic Search databases.
- Built sites in semantically-versioned modules to drive an array of goals across multiple teams of developers.
- Used Slim and Zend frameworks to enforce Domain Driven Design principals and encourage beneficial long-term infrastructural practices.

University of California, Santa Cruz Genome Technology Center

Research Assistant 7/2008 – 7/2012

- Wrote software platform to perform differential expression analysis on whole-transcriptome sequencing data.
- Enabled the efficient management of lab supplies by building an inventory web server using MySQL database and custom-built front end interface.
- Automated biological assays using liquid handling robots.

Technical Skills:

Programming:	Bash, C++, Git, Javascript, MySQL, Perl, PHP, Python, QT, R, React (MobX, Redux), Typescript
Software:	Jira, Office Suites, Adobe Creative Suite, Blender (3D animation)
Wet Lab:	Agarose gel visualization, DNA quantification, DNA recombination, Nanodrop, PCR, Protein culturing and purification, Programming liquid handling robots, Western blot.

Education:

University of California, Santa Cruz

Graduated 6/2012

B.S. in Bioengineering, Concentration in Biomolecular Engineering
Minor in Bioinformatics

Thesis: "Gendiff: Software Pipeline for Single-Nucleotide Differential Expression Analysis" (Available on request.)

Relevant Courses:
Computational Biology Tools, Genetics, Logic Design, Programming (C, Java, Perl, Python), Protein Biomechanics, Technical Writing.

Other Accolades, Hobbies, & Skills:

- Treasurer, Biomedical Engineering Society, UCSC Chapter (2011-2012)
- Eagle Scout
- Photography, image manipulation, 3D animation
- Piano playing, tuning, repair
- Beer brewing