

Mark Jason Dominus

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PROFESSIONAL SUMMARY

Software Engineer
35 years professional experience
Published writer
Invited conference speaker

CAREER ACHIEVEMENTS

FASTMAIL – Philadelphia, PA

June 2023 – December 2024

Senior Software Engineer

Worked with CTO to migrate 15,000 customers of an acquired company into Fastmail's systems so that the acquired company's legacy systems could be decommissioned. Complex systems programming in Perl and C. Integration of legacy systems from one company with current systems of another.

LEAPYEAR – San Francisco, CA (remote)

2022 - 2023

Senior Software Engineer

I worked on LeapYear's **Algorithms Team**, helping to maintain and improve the company's main product, a differentially private database query platform written in **Python** and **Haskell**. I participated in mathematical research into **differential privacy algorithms** and analyses of methods we were already using. My software projects included: writing the initial framework for a new "market color" application for releasing sensitive financial information; **speeding up automated testing** by migrating low-level algorithms tests farther down the software stack; developing a patch to the standard Haskell "Tasty" test harness to allow it to work better with QuickCheck. I also did analysis of privacy algorithms using **Numpy** and **Pandas**, and did ongoing work to develop a public "Algorithms Glossary" of terminology used by the Algorithms team.

OPENTRONS – New York, NY (remote)

2020 - 2021

Principal Engineer

Core member of Opentrons' **Reopen Labs**, which used Opentrons' OT2 robots to perform up to 40,000 Covid-19 tests per day. I was involved maintenance and development of **DaViD**, our in-house **laboratory information management** software that orchestrated the tests. DaViD was written in **TypeScript**, and ran on a suite of **AWS Lambda** containers, using **Amazon RDS** and **S3** for its back-end storage. Also: release management, extensive review of junior programmers' code, infrastructure planning, tool development.

ZIPRECRUITER, INC. – Santa Monica, CA (remote)

2013 - 2020

Principal Engineer

I worked on the **Marketplace Products** team, developing systems to manage the internal "marketplace" that we used to take jobs from many sources, match them with job-seekers from many other sources, and ensure that everyone was paid the right amounts. This part of ZR accounted for about one-third of the company's revenue. I also did other projects as they presented themselves.

- **Greenlight**, a complex system for **Git branch management** and code review, to ensure compliance with **SOX audit and signoff requirements**, gating code going to production. Greenlight comprised around 10,000 lines of mostly **Python 3.7** code. It interacted with users via SSH and Slack, and with Buildbot, our Jenkins-based deployment pipeline. A separate server, Hestia, communicated with **Gitlab's API** to manage Gitlab merge requests. Partway along I converted it to run in a **Docker** container, and I was engaged in converting it for **Kubernetes** operation when I left ZR. For k8s, its data was stored in **Amazon RDS** and it used **Celery** and **Redis** to manage its job queue. Greenlight was extremely popular with the developer staff; it took most of the pain out of dealing with Git.
- Self-directed visits to the **Account Management** and **Customer Success** teams, to learn what they did and how, and pick low-hanging fruits. My **account management dashboard** is still in use. For Customer Success, my **2banner** system saved hundreds of hours of wasted time by preventing multiple CS reps from vetting the same client at the same time.
- Ongoing project to store, retrieve, and **present "organic" jobs** to job-seekers. Most of ZipRecruiter's jobs were obtained directly from customers, but "organic" jobs were scraped from the Web. The data and storage models were completely different, but I was able to integrate the new organic job system with the existing job-handling system.
- Ongoing project to automatically process bounce and unsubscribe notifications from our Email service providers; integration with **XVerify** address verification service.
- Designed **run-synchronized**, which orchestrated our main data processing and accounting pipeline. I wasn't asked to do this; I saw a problem and solved it. The solution lasted for six and a half years.
- Many large-scale code and database reorganizations to pay off earlier technical debt.
- Ongoing work on **CICD pipeline**, testing, and release tooling.
- Documentation. Mentoring. Code review. Wiki pages. Technical talks.

GRANT STREET GROUP - Pittsburgh, PA (remote)

2012 - 2013

Senior Developer

Worked with three other developers to maintain and improve **Payment Express**, the company's e-payment processing system.

- New features included: payment size limitation feature; read-only access to reports; removal of voided credit card transactions from reports, etc.

IC GROUP - Philadelphia, PA

2009 - 2012

Senior Developer

Part of small elite team with complete responsibility for maintenance of 15-year-old codebase and development of new software to serve 18,000 customers.

- With another senior developer, designed and implemented a **complete replacement** for IC Group's **internal billing and accounting** system
- Completely **rewrote email filtering** feature, a major customer-facing service; the rewrite was backward-compatible with the legacy customer filter database
- With another senior developer, designed and implemented a replacement for the company's **core product**, an **email queuing and delivery** system

PENN GENOME FRONTIERS INSTITUTE – Philadelphia, PA 2006 - 2009

Senior Programmer

Part of a four-person team of developers of [TreeBase 2](#), with principal responsibility for the development of search features and oversight of migration for several hundred million legacy records. Programming in **Java 5** with **Spring, Maven, Hibernate**.

- Design and development of a web-based accounting system for the Beowulf supercomputing cluster.
- Planned and delivered summer classes in **bio-informatics Perl programming**

UNIVERSITY OF PENNSYLVANIA - Philadelphia, PA 2004 - 2006

Senior Programmer – Information Systems and Computing

Responsible for development and maintenance of software used to manage accounts, email services and network security for 14,000 students and 10,000 staff and faculty

- Lead in project to start regularly using a revision control system and in developing automated regression tests for our software
- Developed new modules to manage the user name functionality for the student e-mail system. My new system ran a ***hundred times*** faster than the one it replaced.

PLOVER SYSTEMS - Philadelphia, PA 1995 - 2004

Principal – Information Systems and Computing

TIME WARNER – New York City, NY (partly telecommuting) 1994 - 1995

Senior Systems Engineer

UNIVERSITY OF PENNSYLVANIA - Philadelphia, PA 1990 - 1994

Systems Programmer

LECTURING AND TEACHING EXPERIENCE

- Keynote address at the ACM 2008 OOPSLA Conference
- Invited residency at the **Recurse Center**, April 2015
- Developed and delivered classes on Perl worldwide for corporate and government clients: Morgan Stanley, IBM, U.S. Air Force, Schering Drug, Nortel, British Telecom, National Center for Biotechnology Information, Space Telescope Science Institute, Fleet Bank, etc.
- Three and six-hour tutorials at Usenix, LISA, OSCON conferences
- Perennially popular speaker at many conferences including YAPC, !!Con
- University of Pennsylvania – Taught full-credit C programming class summer 1992

WRITING AND EDITING EXPERIENCE

- [Higher-Order Perl](#) – (2005, Morgan Kaufmann) “One of the best books on programming I have read for a long time.” (Martin Schweitzer, *Computing Reviews*)
- [The Universe of Discourse](#) – My widely-read blog has published over 900 articles since 2006.
- Math StackExchange – My answers are among the all-time top-rated posts. ([1](#) [2](#))
- Managing Editor – www.perl.com – edited articles by myself and others
- Columnist – *The Perl Journal* – contributed 14 feature articles; most reprinted in *Computer Science & Perl Programming: Best of the Perl Journal*. (O’Reilly and Associates)
- Published articles also in *WIRED*, *IEEE Software*, *PerlMonth*

COMPUTER SKILLS

Operating Systems: Unix / Linux

Programming languages: Python, Perl, Java, C, Javascript / TypeScript, Haskell, Golang, sh / bash

Databases: MySQL, Amazon RDS, Postgres, SQLite

AWS: DynamoDB, S3, SQS, Lambda, EC2

EDUCATION

Degree Program: Mathematics, Rensselaer Polytechnic Institute

Graduate Coursework at University of Pennsylvania – Mathematics and Computer Science

Graduate Coursework at Columbia University – Mathematics and Computer Science