

Profile

Professional, congenial software engineer with background in physics and a passion for quality in code and infrastructure thrives on unique and challenging adventures in data processing, analysis, visualization, and simulation.

Skills

items in bold are relatively stronger and/or my preference

Languages	Clojure / ClojureScript, Python , JavaScript, C , Java, Perl, Ruby, Lisp, bash
Databases	MySQL , ElasticSearch , Postgres , MongoDB
AWS/Ops	Lambda, EC2, API Gateway, DynamoDB, CloudFormation/ Terraform , S3, Route 53, Ansible
VCS/SCM	Git (GitHub) , SVN, CVS
OS	Linux (incl. kernel level development), OS-X
Agile Practices	TDD , Continuous integration, refactoring, collective code ownership
Data analysis	Simulation / Monte Carlo techniques, machine learning.

Values

Always learning new ways to increase simplicity and elegance in design and implementation, combined with operational, coding, and testing discipline to improve reliability and deliver repeatable value. Respectful, honest and clear communication with clients, customers and colleagues.

Experience

Sr. Software Engineer

OpinionLab, A Verint Company,
Chicago, IL, 2014 - present

Helped craft modern ETL pipeline in Clojure for OpinionLab's Next Generation Voice of Customer (VoC) reporting and analysis platform. Modular system uses RabbitMQ for data transfer and PostgreSQL and Elasticsearch for data persistence.

Helped design, build, operate and maintain a high availability, public-facing caching and buffering layer in front of legacy VoC feedback collection system. New system is based on Clojure, AWS EC2/ELB/S3/DynamoDB/CloudWatch and Terraform. Uptime has exceeded four nines in the first eight months of operation.

Ran weekly Clojure study group. Mentored junior developers. Helped over a dozen engineers master Clojure.

Consultant and President

NPX Designs, Inc., Chicago, IL, 2002 - 2014 (clients shown below):

The Wisconsin IceCube Particle Astrophysics Center
at the University of Wisconsin,
Madison (2007 - 2014)

Designed and implemented a web-based, distributed experiment control system for IceCube, a \$270M neutrino detection experiment deployed from 2005-2011 at the Geographic South Pole. System is based on Python, with Django / JavaScript in the front end and ZeroMQ as the primary data transfer mechanism. Brought system from initial concept to working system on my own in roughly 18 months, with many subsequent upgrades. Supervised contributions of other developers. Test coverage surpassed 70%, with uptime at the South Pole exceeding 99%.

Helped overhaul an \$8M Java-based data acquisition system for IceCube. Re-implemented control system in Python and streamlined the existing Java components, reducing the size of the code base by 60%, resulting in a scalable design with increased uptime. Wrote comprehensive operator documentation for the system.

The University of Maryland
Department of Physics, College Park, Maryland (2010 - 2014)

Designed and created (in Python / Meteor.js) high-level experiment control system for detector prototype for the Long Baseline Neutrino Experiment, now called DUNE, to be constructed at the Fermi National Accelerator Laboratory (IL) and the Sanford Laboratory (SD).

E. O. Lawrence Berkeley National Laboratory, Berkeley, California (2003-2007)

Created Linux device driver for custom 64-channel FPGA-based interface to embedded sensors deployed in ice beneath the South Pole station. Driver supports simultaneous control and communications (including error correction).

Created embedded C application for 5500 optical sensors deployed in the ice at the South Pole. Created supporting regression test suite and complete documentation package.

The Pennsylvania State University
Department of Physics, State College, Pennsylvania (2011)

Assisted new group of physicists and developers to establish best software practices (automated testing, revision control, issue tracking, coding standards, code reviews, and continuous integration).

Pragma Securities, LLC, New York, New York (2011)

Assisted financial trading firm in establishing their Chicago data center.

Experience, continued

Computer Systems Engineer

Lawrence Berkeley National Laboratory, Berkeley, CA
1998 - 2002

Created Linux device driver and Perl-based client / server application to configure, test and operate an array of 40 sensors deployed in the AMANDA experiment at the South Pole. Success of this prototype led to adoption of the deployed technology for the successor project, IceCube.

Created a data handling system (in Perl) for moving files from the AMANDA detector at South Pole and shipping data via TDRS satellite to northern hemisphere.

Postdoctoral Research Associate

University of Wisconsin – Madison
1997 - 1998

Created a Perl-based data mining system on a massively-parallel Cray supercomputer at LBNL to reduce a multi-terabyte data set down to a small sample of events enriched in neutrinos, resulting in the discovery of the first “gold-plated” neutrino events at the South Pole. Wrote additional data processing programs in C.

Education

University of Wisconsin – Madison:
Ph.D., Physics, 1996
BS, Physics, 1990

Recent Coursework

Stanford / Coursera University Machine Learning Class (perfect score), 2012
Stanford / Coursera Design and Analysis of Algorithms, 2014
“Write a Compiler” Python master class, David Beazley, DaBeaz, LLC, 2012

Publications

Co-author of over 50 publications in refereed journals and conference proceedings (see 2012 list at github.com/eigenhombre/cv).

Significant contributor to [Clojure Cookbook](#) (O'Reilly media, 2014)

Recent Conferences

Clojure/conj, 2012, 2014, 2015 and 2016
Clojure/West, 2012, 2013, 2014
O'Reilly Open Source Conference, Portland 2010
PyCon, Chicago, 2008
O'Reilly Open Source Conference, Portland 2008

Associations

Participant in the Chicago Clojure Meetup. Registered Clojure contributor (Clojure CA signatory).

Other Interests

Running, meditation, creating visual art (johnj.com); exhibited in Chicago, San Francisco, Wisconsin and elsewhere.

Links

Technical blog

eigenhombre.com. Popular recent posts describe advanced workflows for Clojure, use of Clojure for bioinformatics, and tools for continuous testing in Python.

GitHub

github.com/eigenhombre. Popular projects: [toolz](#), [PyClojure](#), [i3d3](#), [lein-script](#), [jenome](#)

StackOverflow

stackoverflow.com/users/611752/johnj (top 14% of users)

LinkedIn

linkedin.com/in/eigenhombre