Gene Shuman

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Education

Massachusetts Institute of Technology: Fall 2001 - Spring 2006
Theoretical Mathematics & Electrical Engineering / Computer Science

Experience

SOLE DEVELOPER, EPIMORPHISM - 2016

Spent 2016 working on personal projects, traveling, and making music. The major personal project in development has been Epimorphism, a digital video feedback simulation written in Purescript, a dialect of Haskell which compiles to Javascript. Epimorphism uses high performance computing techniques(GPGPU) via webgl & pixel shaders to render its simulation in real time in users web browsers. The project was presented at the Farm workshop of the 2016 ICFP

SENIOR SOFTWARE ENGINEER, SCRIBD — 2014-2015

Scribd's current product is a 'Netflicks for books' like service and is currently one of the largest production Ruby on Rails codebases as well as one of the top 500 sites in the world by traffic. Developed and supported algorithms & infrastructure for the recommendation system, successfully recommending ~10000 read books per day. Owner of data analysis on success/performance of the system. Owner of tracking & analytics for the recommendation system across all platforms(web/mobile). Owner of A/B testing infrastructure for the entire company.

SENIOR SOFTWARE ENGINEER, EMPOWER INTERACTIVE — 2012-2013

Empower Interactive develops online software for cognitive behavioral therapy via Ruby on Rails. Full stack web developer, working across all levels of the project. Telecommuting position in which I traveled around the world extensively.

TECHNICAL LEAD, ECERT SYSTEMS — 2010-2012

eCert Systems was a small startup founded in 2007 as a tool for corporations and large businesses to counter attempts at phishing. Business partners included Google, Yahoo, Bank of America and Wells Fargo. Functioned as the lead developer(Ruby on Rails) on the technical side of the project, maintaining and developing the web application. Over a year and a half, was promoted from engineer -> senior engineer -> technical lead, leading a small team of 4 developers.

COFOUNDER, TENSEGRITY SYSTEMS — 2006-2010

With several colleagues from MIT, co-founded Tensegrity Systems a web design/development contracting firm. Spent four years doing back end web development, as well as sporadic mobile development. Major focus was Ruby on Rails, although other technologies were regularly used.

MISC, MIT — 2001-2006

MOPS - Worked with post doc Ioana Dumitriu and mathematics professor Alan Edelman on MOPS: A Maple Package for Computing Orthogonal Polynomials Symbolically. Was responsible for creating and maintaining a Maple package consisting of a collection of algorithms for manipulating and generating highly complex multivariate symmetric polynomials used to approximate solutions of Schrodinger's equation and other differential equations. Published in the Journal of Theoretical Mathematics, vol. 104.
http://arxiv.org/abs/math-ph/0409066

Emonic Environment - Worked with Paul Neimrovsky under the supervision of Gloriana Davenport on the Emonic Environment at the MIT Media Lab. The Emonic Environment is a novel method of musical composition and synthesis using genetic algorithms to evolve musical

structures out of primitive components known as Emons. Was personally responsible for extending the environment beyond musical components to include video and graphical elements.

Cricket - Worked with the Lifelong Kindergarten Group at the MIT Media Lab on the 'Cricket' project. The Cricket is a noncommercial version of the Mindstorm robots sold by Lego. Was personally responsible for implementing changes and adding features to the LogoBlocks application. LogoBlocks is a graphical programming language used to create programs that are uploaded onto the robotic device.

Languages (expertise on a scale from 1-10)

Ruby(9), Python(7), Javascript(7.5), OpenCL & CUDA(7), C(6), C++(4), Java(4), Scala(3), Objective C(3), Lisp(3), Haskell(4), Purescript(7)

Technologies

Linux, OSX, Ruby on Rails, jQuery, Prototype, Scalding, Meteor, Coffeescript, Backbone, Brunch, Chaplin, GPGPU, WebGL, MySQL, Mongo, CouchDB, Redis, Hive, Impala, Hadoop, Memcached, GIT, Mercurial, SVN, Apache, Nginx, AWS, Heroku, Emacs, etc..

Github

https://www.github.com/geneshuman

pure_morph - A very complex and intricate video feedback simulation that runs in users web browsers, using GPGPU(WebGL). In development for ~10 years. Written in Purescript, a dialect of Haskell which compiles to javascript. Makes pretty animations.
http://www.epimorhpism.com

epimorphism_old - A previous version of the epimorphism software, written in python. Here for reference.

TGS - A generalization of the game of Go to arbitrary graphs. Written using Meteor.