

Andrew M. McNutt

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Work

Collaborative Drug Discovery

Scientific Visualization Developer *April 2015 - Present*

Project leader on a browser based modular visualization platform for high dimensional drug discovery data. Designed and implemented a modern javascript framework based on reactive principles. Developed a wide variety of publication quality visualizations whose performance scales up into the hundreds of thousands of points. Implemented unit, integration, and performance test suites.

Software Developer *November 2014 - April 2015*

Acted as a software developer on a wide variety of projects on all ends of a Rails based stack. Founded and ran a lunch and learn collaborative educational program for the team. Selected projects include: optimizing machine learning protocols, and retrofitted user interface to support an arbitrarily high dimensional data, and technical writing for scientific publication.

Reed College

Research Assistant *May 2013 - August 2013*

Studied computational simulations of Quantum Gravity as part of Joel Franklin's research. Worked in collaboration with a research team to construct a coherent set of numerical solutions to the coupled Newton-Schrodinger with self-interaction problem. Specialized in the development of bound states for this system. Developed parallel model for the Klein-Gordon system. These efforts culminated in a paper published in the Journal of Classical and Quantum Gravity.

Physics Computation Lab Manager *August 2012 to May 2013*

Selected by faculty to manage a Mac based computation cluster. Duties included management of software updates and other technical issues. Assisted other students with research that required the use of parallel systems. Principle technologies included Grid Mathematica and Radmind.

Skills

General Technologies	Javascript, Ruby, Ruby on Rails, SQL (postGRES, mySQL), Backbone.js, jQuery Node, git, CSS3, Sass, HTML5, Mocha, Casper, rspec, gulp
Data Visualization	d3.js, Pixi.js, Processing (p5/.js/java)
Scientific Computing	Mathematica, Grid Mathematica, Matlab, Lab View, Tracker
Other	Latex, Omnigraffle, Photoshop

Education

Reed College, Portland, Oregon

Bachelor of Arts, Physics, May 2014, Overall GPA: 3.26/4.00, STEM GPA 3.7/4.00

Senior Thesis: *Non-equivalent Lagrangian Mechanics*, advised by [Nelia Mann](#)

App Academy, San Francisco, California

August 2014 Cohort: Perfect Score

A highly selective (less than 5% acceptance rate) full stack web development course.

Projects

Teacup · [Source](#)

A microblogging platform for viewing the collective unconscious. Single page Backbone app based on RESTful practices. Features data visualizations including trending topics and user population, a dynamic jQuery based user search, and extensive use of the Google maps API. Technologies include *Rails API*, *Backbone.js*, *jQuery*, *Nokogiri*, and *D3*.

N-Hydron

A computational exploration of a variety of techniques for constructing the three dimensional shape with n vertices, which are selected by forcing each of them to be maximally far apart on a sphere. Built in Mathematica, the project included implementations of a modified Steepest Descent, a traditional Monte Carlo optimization (with some Las Vegas style analysis), and the Golden Spiral algorithm.

Why Not Ipsum? · [Source](#)

A Lorem Ipsum generator populated by Zoidberg quotes, built following RESTful design practices. The data was scraped from a [Futurama fan site](#) using Nokogiri, which was then processed in Ruby, which was then passed to Rails to form the Backend. Technologies include *Rails backend API*, *Backbone.js*, *Bootstrap*, and *Nokogiri*.

Publications

AM Clark, K Dole, A Coulon-Spektor, A McNutt, G Grass, JS Freundlich, RC Reynolds, & S Ekins. “Open Source Bayesian Models: I. Application to ADME/Tox and Drug Discovery Datasets.” *Journal of chemical information and modeling* (2015).

J Franklin, Y Guo, A McNutt, & A Morgan. “The Schrödinger-Newton system with self-field coupling.” *Classical and Quantum Gravity* 32, no. 6 (2015): 65010-65024.