Noah M. Daniels

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Professional Interests

Machine learning and knowledge mining; Computational biology; Web application development and software development in Ruby, Ruby on Rails and Objective-C; Algorithms.

Skills

- Algorithms and Machine Learning - adapting and implementing clustering, backpropagation neural networks, association rule learning, graph-theoretic algorithms, and other algorithms related to machine learning and data mining.
- Ruby programming - deep understanding of the language, enterprise integration, Ruby on Rails, mathematical programming in Ruby-GSL and statistics libraries, database interfaces, RubyInline
- Ruby on Rails development - business logic, model design, view development, RJS, deployment on Unix and Unix-like operating systems, scaling, ferret.
- SQL programming - Proficient in developing queries for highly normalized as well as denormalized databases, joins, subqueries, schema design.
- Programming languages - Ruby, SQL, Perl, C, C++, Objective C, Common Lisp, Java, Prolog, Progol, REALBasic, Visual Basic, FORTRAN-77, Pascal, BASIC, csh, bash, others.
- Unix system and network administration - Solaris, Linux, Mac OS X, SunOS 4, and others. System security auditing and hardening, server management, system policy development, Cfengine, routing, firewalling, DNS.
- Project management - project plans, dependency analysis, collaboration, resource management.

Professional Experience

PatientsLikeMe, Inc.,
Cambridge, MA USA

Research Analyst **July, 2008 - November, 2008**

- Designed and implemented a predictive model of disease progression in Amyotrophic Lateral Sclerosis (ALS).
- Designed and implemented a control-matching algorithm for associating treatment-arm patients with control patients in an online observational study.
- Conducted a study of the efficacy of lithium carbonate as a treatment for ALS. Poster presentated at International ALS Symposium, Birmingham, England, November 4th, 2008.
- Developed a framework, in Ruby and Ruby/GSL, for conducting analysis of patient data from the PatientsLikeMe database.
- Developed strategy for building an analytics group and identified necessary technologies to develop.
- Co-authored a patent application (currently pending).

Panjiva, Inc.,
New York, NY USA

Director of Data Analysis **November, 2006 - July, 2008**

- Responsible for designing and implementing entire architecture, using PostgreSQL and Ruby on Rails, for warehousing, processing, and analyzing US Customs import data.
- Designed and implemented a ratings platform for overseas suppliers, including novel methodologies for determining factors such as customer loyalty and specialization.
- Developed strategy for expanding existing business model across additional industries.
- Designed and implemented a rule-based system for anomaly detection to flag suspicious suppliers.

- Developed Ruby on Rails back-end tied into data warehouse, production data push system, and search engine using Ferret.
- Contributed to Ruby on Rails front-end web interface, including sophisticated AJAX and other Javascript functionality and data visualization.
- Implemented and refined numerous string comparison algorithms, such as Damerau-Levenshtein, Jaro-Winkler, and SoftTFIDF in Ruby and C for corporate approximate record matching.
- Co-authored a provisional patent application (currently pending).
- Collaborated in interviewing and hiring process to build technology team.

IntrinsiQ Financial, LLC.,
Waltham, Massachusetts USA

Vice President - Research **October, 2004 - March, 2007**

- Designed and implemented an artificial neural network (regression) learning system for forecasting the oncology pharmaceutical revenues based on internal usage data. Developed a web interface, in Ruby on Rails, for running and automating pdf output of forecasting reports.
- Performed quantitative analysis and research in the oncology pharmaceutical marketplace, applying machine learning and statistical techniques.
- Designed and implemented a neural network learning system, in Ruby, C, and SQL, for automating the monthly 'scrubbing' of patient line-of-therapy data previously performed by trained oncology nurses.
- Maintained and enhanced a Java-based application for processing XML data from oncology sites into a data warehouse.
- Collaborated in interviewing and hiring process to build analytics team.

Red Horse Development,
Waltham, Massachusetts USA

Co-Principal **August, 2005 - present**

Designed and developed Exposure, a workflow-oriented web photo gallery application for professional photographers, in Ruby on Rails.

Analog Devices, Inc.,
Wilmington, Massachusetts USA

Systems Engineer **May, 2001 - October, 2004**

- Supported a large (100+ systems) Unix network centered around a microchip testing and probing operation.
- Implemented Cfengine for centralized management of all Unix systems, improving standardization of system configurations.
- Led the development of a system for automation of data uploads to a legacy manufacturing database. Designed and implemented fail-safe upload mechanism and data parser in Perl, and managed all aspects of the project.
- Managed several large Perl-based software projects including automation of a software release process.
- Collaborated with engineers from other departments on the development of IS systems, including worldwide test data automation, DNS migration, and system utilization tracking.
- Taught a Perl programming class to engineers at Analog.
- Supervised and mentored one direct report.

Interliant Consulting (formerly Net Daemons Associates),
Woburn, Massachusetts USA

Network Engineer **January, 1999 - December, 2000**

D.M. Hoffer Consulting,
Brookline, Massachusetts USA

Network Administrator **August, 1996 - January, 1999**

Education

Tufts University, Medford, Massachusetts USA
Department of Computer Science

M.S. Computer Science, December, 2006

- Masters Project in the application of a graph-theoretic learning algorithm to predicting protein function on an interaction map.
- Classes and research in machine learning, advanced algorithms, advanced C++ programming and compiler internals, and computational biology.

Graduate Certificate, Computer Science, December 2003

B.S. Computer Science, *cum laude*, May 2001

Publications

- Wicks P, Daniels N, Massagli M, Frost J, Macedo H, Felzer K, Heywood J. 2008. *Patient-led Trial of Lithium in ALS.* Poster session presented at: 19^{th} International Symposium on ALS/MND; November 3-5, 2008; Birmingham, England.
- Dr. Alva L. Couch, Noah M. Daniels. 2001. *The Maelstrom: Network Service Debugging via "Ineffective Procedures".* Proceedings of LISA 2001, San Diego, CA.
- Wenting Zhou, Weichen Wu, Nathan Palmer, Emily Mower, Noah Daniels, Dr. Lenore Cowen, Dr. Anselm Blumer. *Microarray Data Analysis of Survival Times of Patients with Lung Adenocarcinomas Using ADC and K-Medians Clustering.* Proceedings of CAMDA 2003, Durham, NC.