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Objective

- To contribute my computational and analytical skills to an initiative involved with the research AND the implementation of solutions to problems arising in information retrieval, financial mathematics and economics, and/or data mining.
- To increase my exposure to difficult modeling and algorithm development problems utilizing my analytical, mathematical, engineering, and communication skills.

Summary of Skills

- Experience in both design and analysis of mathematical models in physics, theoretical biology, operations research and baseball.
- Software development experience, both in exploratory academic settings as well as in cutting-edge information management, data mining algorithm development, business intelligence reporting, and interactive computer graphics. (UNIX, Perl, C/C++, MySQL, php,...)
- Communication skills that separate me from most other engineers and mathematicians.

In The Press

- [Brian Walton's Exclusive Interview \(thestlcardinals.com\)](#)
- [Indiana Daily Student Alumni Profile](#)
- [Baseball Prospectus Q&A](#)
- [San Francisco Giants Magazine and San Francisco Giants Pregame Show](#)
- Advisor to the Science Channel's Summer 2006 show "Baseball's Secret Formula"

Work Experience

[Netflix, Inc.](#)

Operations Analyst
Los Gatos, CA
July 2005 - present

- Supply-chain demand modeling

[Danger, Inc.](#)

Senior Software Engineer, Reporting and Analytics
Palo Alto, CA
December 2004 – July 2005

[St. Louis Cardinals Baseball Club](#)

Senior Baseball Analyst
St. Louis, MO
January 2004 – November 2004

- Developed statistical player evaluation models: amateur draft, minor and major league free agent evaluation.
- Designed and developed internal data warehouses and data marts for "business" intelligence reporting, as it applies to player and roster management at the collegiate, minor league and major league levels.

[SportMetrika, Inc.](#)

Founder
October 2003 - present

- Statistical consultant to Major League Baseball

[Rapt, Inc.](#)

Decision Engineer (contract)
San Francisco, CA
May 2003 - July 2003

- Participate with clients in on-site analytic services for pricing and supply-chain business decisions.
- Restate and remap client business challenges into the existing mathematical and software framework.
- Technologies: Perl, Excel, Matlab, Proprietary software.

[Yahoo!, Inc.](#)

Business Analyst, Yahoo! Commerce
Sunnyvale, CA
September 2002 - April 2003

- Design, implementation and analysis of early phases of Online Traffic Arbitrage system -- a system for the automated management of advertising campaigns via search distribution channels (Overture, Google, etc...).
- Work with production, engineering, business development, and marketing teams in devising processes for the systematic experimentation of online experiments for Yahoo! Shopping.
- Develop data collection and analysis requirements for business intelligence

initiatives.

- Technologies: MySQL, MicroStrategy, C/C++, Perl, PHP, Oracle, Excel

Yahoo!, Inc.

Technical Lead, Yahoo! Commerce Data

Sunnyvale, CA

February 2001 - September 2002

- Primary engineering point person for the collection and mining of user purchase and clickstream data across multiple Yahoo! Commerce properties.
- Interaction with multiple teams from Production, Data Mining, Engineering, Marketing, Business Development.
- Mathematical algorithm development and tuning: collaborative filtering and affinity calculations.
- Some 'freelance' work within the company to further promote mathematical analysis of business models and user behavior toward maximizing revenues.
- Evaluation of patents and third-party companies for partnership and acquisition.
- Technologies: FreeBSD, Perl, Apache module development (C/C++), SQL, Oracle.

Yahoo!, Inc.

Technical Lead, Yahoo! Classifieds

Santa Clara, CA

November 1999 - February 2001

- Technical Lead, Yahoo! Classifieds. Interaction with members of engineering, production, human-computer interaction, and customer care teams. Main technical point person for Classifieds.
- Acted as the leader for a team of 5 engineers developing product for multi-lingual international launches, billing, and enhanced search capabilities.
- Designed and implemented scalable and robust architecture solutions for several high-traffic websites.
- Focus on the operational stability, architectural robustness, and search technologies on the backend of Yahoo! Classifieds and Yahoo! Personals, 10,000,000+ pageviews daily.
- Technologies: FreeBSD, Apache, Perl, C/C++, Python, in-house (PHP-like) templating languages.

Stanford University

Software Engineer/Data Analyst

Stanford, CA

March 1999 - September 1999

- Statistical Analysis of frequency of Single Nucleotide Polymorphisms (SNP) in a lab devoted to studying human population genetics (P. Oefner and L. Cavalli-Sforza)
- Simple development of Perl/CGI web interface to database of SNPs.

Entelos, Inc

Research Engineer, Biological Systems Modeling

Menlo Park, CA

August 1998 - February 1999

- Constructed mathematical models of the human immune system.

- Focused on the differentiation of T-cells into T1/T2 types, based on initial antigen exposure.
- Performed extensive research of scientific literature in applied and theoretical immunology.
- Used proprietary systems modeling software in an NT environment.
- Mathematica, Windows NT.

Institute for Mathematics and its Applications, University of Minnesota
Postdoctoral Fellow
Minneapolis, MN
September 1997 - June 1998

- Continued doctoral thesis research in mathematical visualization of complex geometric objects arising in the study of differential equations.
- Prepared research papers, delivered seminars and tutorial sessions.
- Developed tools using IRIX (flavor of UNIX), C, OpenGL, Makefile, Shell scripting.

Education

PhD, Princeton University, Princeton, NJ
Applied and Computational Mathematics
March 1998

- Computational Dynamics
- Dependence of long-time dynamics on spatial inhomogenities
- Computers and mathematical visualization in the teaching and research of differential equations.

MA, Princeton University, Princeton, NJ
Applied and Computational Mathematics
May 1995

- Asymptotics, Probability
- Ordinary and Partial Differential Equations
- Approximate Inertial Manifolds

MA, Indiana University, Bloomington, IN
Mathematics
May 1993

- Numerical Analysis
- Chaos Theory
- Partial Differential Equations
- Complex Anaylsis

BS (honors), Indiana University, Bloomington, IN
Computer Science
May 1993

- Interactive Computer Graphics and Spatial Intuition
- Scientific Computing
- Operating Systems

Publications

- The Oseberg Transition: Visualization of Global Bifurcations for the Kuramoto-Sivashinsky Equation. *Int. J. Bifurc. Chaos*, 11, 1, 2001 [with M.S. Jolly and I.G. Kevrekidis].
- Ph.D. Thesis. Computer-Assisted Studies and Visualization of Nonlinear Phenomena: Two-dimensional Invariant Manifolds, Global Bifurcations, and Robustness of Global Attractors. Princeton University, March 1998.
- Two-Dimensional Invariant Manifolds and Global Bifurcations: Some Approximation and Visualization Studies. *Numerical Algorithms*, 14, 125, 1997 [with M.S. Jolly and I.G. Kevrekidis].

Presentations

- [Seminar in Applied Mathematics, E4901: Columbia University](#). October 2005.
- Additional available upon request

Software Engineering experiences

- Data mining of web server logs.
- Design and implementation of business intelligence reporting tools.
- Internet architecture design experience: designing robust and scalable solutions to high traffic internet sites.
- 10+ years UNIX experience, to the system administration level.
- 10+ years C experience.
- 4 years Perl experience.
- A few years or more experience in each of the following: Python, C++, Unix shell scripting, FreeBSD, Linux, Apache Web Servers, OOD.
- Computer graphics and OpenGL. Development of interactive computer graphics tools.
- Project management experience; great people skills and ability to communicate complicated ideas to both technical and non-technical-oriented people alike.

Athletics

- Ironman Triathlete and Bike Racer.
 - Selected as a member of U.S. Nationals Team for competition at the 2002 ITU Long Course World Championships, Nice, France, September, 2002, and the 2001 ITU Long Course World Championships, Denmark, August, 2001.
 - Two-time sub-11 hour Ironman triathlon finisher. Six years of triathlon experience.
 - Completed 6 marathons, including Boston.
 - Member of E'Quipe Le Matin Bike Racing Team, Menlo Park, California.
- Student Manager of Indiana University Men's Basketball Team, 1988-1992.
 - Volunteer job at 30-40 hours/week.
 - Mentored by Coach Bob Knight.