

## Jeremiah Faith

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## Education

Boston University, PhD, Bioinformatics Program  
Sept 2003 - Jan 2008

Louisiana State University, B.S. Zoology  
Aug 1997 - May 2001 (GPA 3.75)

University of Wales, Swansea (study abroad)  
Sept 1999 - July 2000

## Research Experience / Positions Held

*Postdoctoral Fellow, WashU. [Gordon Lab](#)* (Mar 08 - present)

- Developing software and experimental technologies for exploring the metatranscriptomic landscape of mammalian gut flora under different diets.

*Graduate Student, Boston University. [Gardner Lab](#)* (Sept 03 - Jan 08)

- Developed algorithms, statistical experimental designs, and high-throughput experimental techniques for large-scale determination of bacterial regulatory pathways. Achievements include:
  - (experimental) used factorial and response surface methods to optimize the enrichment and throughput of a ChIP protocol for experimental determination of transcriptional regulatory interactions
  - (computational) developed the  $M^{3D}$  website for downloading and visualizing microbial microarray data; improved algorithms for inferring regulatory networks and quantifying network inference performance

*Scientific Programmer, Cold Spring Harbor Laboratory. [Sachidanandam Lab](#)*  
(Feb 02 - Aug 03)

- Contributed to the computational pipeline for constructing a human/mouse genome-wide RNAi gene knockdown library and developed the *lightweight genome viewer*

**Research Associate 2, Louisiana State University. Pollock Lab** (May 01 - Jan 02)

- Created the *EGenBio* database, website, and pipeline for large-scale phylogenetic analysis of vertebrate mitochondrial genomes
- Developed a quantitative model to characterize the asymmetrical skew of neutrally evolving base-pairs in vertebrate mitochondrial genomes

## Publications

- J.J. Faith**, M.E. Driscoll, V.A. Fusaro, E.J. Cosgrove, B. Hayete, F.S. Juhn, S.J. Schneider, and T.S. Gardner. *Many Microbe Microarrays Database: uniformly normalized Affymetrix compendia with structured experimental metadata*. Nucleic Acids Research, Jan 2008. doi:10.1093/nar/gkm815
- J.J. Faith**, A.J. Olson, T.S. Gardner, and R. Sachidanandam. *Lightweight Genome Viewer: portable software for browsing genomics data in its chromosomal context*. BMC Bioinformatics. Sept 2007
- J.J. Faith\***, B. Hayete\*, J.T. Thaden, I. Mogno, J. Wierzbowski, G. Cottarel, S. Kasif, J.J. Collins, and T.S. Gardner. *Large-scale computational mapping and experimental validation of Escherichia coli transcriptional regulatory interactions from a compendium of expression profiles*. PLoS Biology. Jan 2007
- L.A. Nahum, M.T. Reynolds, Z.O. Wang, **J.J. Faith**, R. Jonna, Z.J. Jiang, T.J. Meyer, and D.D. Pollock. *EGenBio: A Data Management System for Evolutionary Genomics and Biodiversity*. BMC Bioinformatics. Sept 2006
- S.Z. Raina, **J.J. Faith**, H. Seligmann, T. Disotell, C-B. Sewart, and D.D. Pollock. *Evolution of base substitution gradients in primate mitochondrial genomes*. Genome Research. May 2005
- T.S. Gardner and **J.J. Faith**. *Reverse-engineering transcription control networks*. Physics of Life Reviews. 2005
- J.J. Faith** and D.D. Pollock. *Likelihood analysis of asymmetrical mutation bias gradients in vertebrate mitochondrial genomes*. Genetics. Oct 2003.
- M.S. Philips, R. Lawrence, R. Sachidanandam, A.P. Morris, D.J. Balding, M.A. Donaldson, J.F. Studebaker, W.M. Ankener, S.V. Alfisi, F.S. Kuo, A.L. Camisa, V. Pazorov, K.E. Scott, B.J. Carey, **J.J. Faith**, G. Katari, H.A Bhatti, J.M. Cyr, V. Derohannessian, C. Elosua, A.M. Forman, N.M. Grecco, C.R. Hock, J.M. Kuebler, J.A. Lathrop, M.A. Mockler, E.P. Nachtman, S.L. Restine, S.A. Varde, M.J. Hozza, C.A. Gelfand, J. Broxholme, G.R. Abecasis, M.T Boyce-Jacino, and L.R. Cardon. *Chromosome-wide distribution of haplotype blocks and the role of recombination hot spots*. Nature Genetics. Feb 2003.

\* = authors contributed equally

## Patents

- B. Hayete, J.J. Faith, J.J. Collins, T.S. Gardner. *Method to determine transcriptional regulation pathways in organisms*. (patent-pending)

## Talks and Posters

**Talk** *Defining a prokaryotic life: systems biology approaches to the complete demarcation of a prokaryotic genome sequence and its regulation.* New England Society for Microscopy, *May 2007*; Woods Hole, MA.

**Poster** J.J. Faith, R. Sachidanandam, T.S. Gardner. *A web-based tool for visualizing Shewanella gene expression profiles in their chromosomal context.* DOE Genomes to Life Grantees Conference, *Feb 2007*; Bethesda, MD.

**Talk** *Shotgun mapping of E. coli transcriptional regulation from a compendium of expression profiles.* BMES, *October 2006*; Chicago, IL.

**Poster** J.J. Faith, B. Hayete, J.T. Thaden, I. Mogno, J. Wierzbowski, G. Cottarel, S. Kasif, J.J. Collins, T.S. Gardner. *Genome-scale identification of Escherichia coli regulatory pathways.* International Conference on Systems Biology, *October 2005*; Boston MA.

**Talk** *Inferring regulatory networks from expression data.* TIGEM (Telethon Institute of Genetics and Medicine), *Settembre 2005*; Napoli, Italia.

## Honors, Awards, and Service

Graduated with honors, 2001

LSU Wind Ensemble Scholarship (\$1250), 2000-01

Study Abroad Scholarship (\$3000), 1999-2000

Louisiana Music Award (\$650), 1999

LSU Tuition Exemption Scholarship (\$27,000), 1997-2001

Ad hoc reviewer for: *Bioinformatics*, *Source Code for Biology and Medicine*, *RECOMB*, *Molecular Biology and Evolution*, *Journal of Molecular Evolution*

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## Computer / Programming Skills

### Favorite / Fluent Languages

C, Perl

### Moderately Fluent Languages (occasionally need a reference)

php, Matlab, javascript

### Other Languages (definitely need a reference)

C++, Java, R

### Miscellaneous computer tools I've used extensively

Qt, SQL, CGI, HTML, CSS, ajax, Apache, Automake, Autoconf, Libtool, lex, yacc, vim, GD, gnuplot, GSL, latex, prototype.js

### Miscellaneous software I've used extensively

Microsoft Office, Linux, Mac OS X, Photoshop, Illustrator, After Effects, Sonar

### **Websites I currently contribute to**

[m3d.bu.edu](http://m3d.bu.edu) (*M<sup>3D</sup>*: Many Microbe Microarrays Database)

[www.ilariamogno.com/photo/](http://www.ilariamogno.com/photo/) (Personal photo album using my custom software)

[www.jeremiahfaith.com](http://www.jeremiahfaith.com) (Personal homepage)

### **Websites I started (or helped start) but other people now maintain**

[egenbio.lsu.edu](http://egenbio.lsu.edu) (EGenBio: Evolution, Genomics, and Biodiversity)

<http://katahdin.cshl.org:9331/chr19/> (A human chromosome 19 linkage viewer)

<http://katahdin.cshl.org:9331/RNAi/html/rnai.html> (An RNAi oligo designer)

### **Open source software I developed**

<http://lwg.v.sourceforge.net/> (a biological sequence viewer written in C using lex, yacc, cgic, and GD; no database required)

<http://libwebplot.sourceforge.net/> (a C library for generating dynamic plots on the web)

### **Open ideas**

I believe unpublished and unexplored ideas should be published on the web to promote scientific advancement via a free exchange of ideas. I put my ideas on [J's Blog](http://blog-di-j.blogspot.com/) (<http://blog-di-j.blogspot.com/>).

### **Open notebook**

I believe published and unpublished lab notebook data should be published on the web in real time to promote scientific advancement and integrity via a free exchange of raw data - good and bad. [J's Lab Notebook](http://www.jeremiahfaith.com/open_notebook_science/) ([http://www.jeremiahfaith.com/open\\_notebook\\_science/](http://www.jeremiahfaith.com/open_notebook_science/)) is updated nightly.

### **Other Stuff**

I play trumpet and string bass (I've gigged with the Baton Rouge Little Theater, the Acadiana Symphony Orchestra, Natchez Opera Festival, and *many* churches across the Southern US; I've toured the Southeast and Texas with various groups; and I've started a few little music groups over the years.). In high school I was in All-State Band (trumpet), All-State Jazz Band (trumpet soloist), and All-State Orchestra (string bass). I can play most instruments at a basic level. I like to travel. I'm trying to learn Italian. I like making things from scratch (bread and food). I'm learning how to brew my own beer.