

## Robin D. Dowell

36 Curtis St. No 2  
Somerville, MA 02144 USA  
rdd@mit.edu

*Lab:* (617) 253-3031  
*Home:* (617) 718-2855  
*Cell:* (617) 460-9862

### ACADEMIC POSITIONS

#### **University of Colorado**

Assistant Professor, MCD Biology, Fall 2009

#### **Massachusetts Institute of Technology**

Postdoctoral Fellow, 2005-2009

- Adviser: David K. Gifford
- Project: “Deciphering Functional Difference in Closely Related Individuals”
- Project: “Conservation of Transcriptional Regulatory Networks”
- Grant: Ruth L. Kirschstein National Research Service Award (F32 DK076284-01; 2006)

### EDUCATION

#### **Washington University in St. Louis**

D.Sc. Biomedical Engineering, December 2004

- Adviser: Sean R. Eddy
- Dissertation: “Stochastic Context-Free Grammars for RNA Secondary Structure Prediction”

M.S. Computer Science, May 2001

- Advisers: Lincoln Stein, Sean R. Eddy, Michael R. Brent
- Project: “A Distributed Annotation System” (Technical Report wucs-01-07)

#### **Texas A&M University**

B.S. Computer Engineering, May 1997

B.S. Genetics, May 1997

- Honors Thesis: “A Graphical User Interface for Contig Mapping”
- Cum Laude, University Honors, Foundation Honors, Engineering Scholar
- University Undergraduate Research Fellow (Best Presentation Award)

### HONORS

Spencer T. and Ann W. Olin Medical Scientist Fellow, 2005

Mr. and Mrs. Spencer T. Olin Fellowship, 2002-2004

Association of Women Faculty Graduate Student Award, 1999

Howard Hughes Predoctoral Fellowship, 1997-2002

National Science Foundation Fellowship (declined), 1997

### PUBLICATIONS

G.K. Gerber, **R.D. Dowell**, T.S. Jaakkola, and D.K. Gifford. Automated Discovery of Functional Generality of Human Gene Expression Programs. *PLoS*

*Computational Biology*, Aug;3(8):e148, 2007.

D.T. Odom\*, **R.D. Dowell\***, E.S. Jacobsen, W. Gordon, T.W. Danford, K.D. MacIsaac, P.A. Rolfe, C.M. Conboy, D.K. Gifford, and E. Fraenkel. Tissue-Specific Transcriptional Regulation has Diverged Significantly between Human and Mouse. *Nature Genetics*, Jun;39(6):730-2, 2007.

**R.D. Dowell** and S.R. Eddy. Efficient Pairwise RNA Structure Prediction and Alignment using Sequence Alignment Constraints. *BMC Bioinformatics*, 7:400, 2006.

Y. Qi, P.A. Rolfe, K.D. MacIsaac, G.K. Gerber, D. Pokholok, J. Zeitlinger, T.W. Danford, **R.D. Dowell**, T.S. Jaakkola, R.A. Young, and D.K. Gifford. High-resolution Computational Models of Genome Binding Events. *Nature Biotechnology*, 24(8):963-970, 2006.

D.T. Odom, **R.D. Dowell**, E.S. Jacobsen, L. Nekludova, P.A. Rolfe, T.W. Danford, D.K. Gifford, E. Fraenkel, G.I. Bell, and R.A. Young. Core Transcriptional Regulatory Circuitry in Human Hepatocytes. *Nature/EMBO Molecular Systems Biology*, 2:2006.0017, 2006.

**R.D. Dowell** and S.R. Eddy. Evaluation of Several Lightweight Stochastic Context-Free Grammars for RNA Secondary Structure Prediction. *BMC Bioinformatics*, 5:71, 2004.

**R.D. Dowell**, R.M. Jokerst, A. Day, S.R. Eddy, and L. Stein. The Distributed Annotation System. *BMC Bioinformatics*, 2:7, 2001.

**R.D. Dowell**. A Graphical User Interface for Contig Mapping (an abstract). *Texas A&M University Undergraduate Journal of Science*, Spring 1997.

PUBLICATIONS S.L. Bumgarner, **R.D. Dowell**, P. Grisafi, D.K. Gifford, G.R. Fink. Reciprocal  
IN PREPARATION Cis-Interfering Noncoding RNAs control Variegated Gene Expression in Yeast.  
*submitted*

**R.D. Dowell**, O. Ryan, A. Jansen, S. Agarwala, T. Danford, P.A. Rolfe, G.R. Fink, C. Boone, D.K. Gifford. From Genotype to Phenotype: A Functional Comparison of Two Interbreeding Yeast Strains Reveals Complex Genetics of Conditional Essential Genes.

E.O. Mazzone, S. Mahony, S. McCuine, T.W. Danford, P.A. Rolfe, **R.D. Dowell**, R.A. Young, D.K. Gifford, H. Wichterle. Retinoid signaling rapidly initiates domain-wide chromatin changes demarcating the repertoire of Hox genes available for specification of motor neuron identity.

T. Danford, **R. Dowell**, S. Agarwala, G. Papachristoudis, G.R. Fink, D.K. Gifford. Dissecting Overlapping Architecture of Transcription in *Saccharomyces cerevisiae*.

J. Wolf, **R.D. Dowell**, M. Rabani, D.K. Gifford, G.R. Fink. Cross-Linking Reveals Direct Targets of a Key RNA-Binding Protein.

O. Ryan, Todd. Reynolds, **R.D. Dowell**, G.R. Fink, D.K. Gifford, C. Boone. Comprehensive Analysis of Fungal Dimorphism in *Saccharomyces cerevisiae*

CONFERENCE PRESENTATIONS From Genotype to Phenotype with Whole Genome Comparisons. 2008 Yeast Genetics & Molecular Biology Meeting. July 2008 (Toronto, Ontario)

High Resolution Models of Eukaryotic Transcriptional Regulation. 2006 Nebraska Research Expo. March 2006 (Lincoln, NE)

Probabilistic Models of RNA Secondary Structure. Howard Hughes Predoctoral Fellows and Postdoctoral Physicians Meeting. September 2002 (Chevy Chase, MD)

Development of a Distributed Annotation System. Chemo\*Bio Informatics Conference. February 2001 (San Diego, CA)

A Distributed Annotation System Client. Bioinformatics Open Source Conference (BOSC). August 2000 (San Diego, CA)

ACeDB and DAS: a Distributed Annotation System. A *C. elegans* Database (ACEDB) Conference. June 2000 (Vancouver, British Columbia)

TEACHING EXPERIENCE Massachusetts Institute of Technology, Cambridge, Massachusetts USA  
**Mentor** (Undergraduate Research Opportunities Program) Feb 2005 - Aug 2009  
Scientific research adviser for three separate undergraduate research projects.

**Guest Lecturer** Spring 2007  
Computational Systems Biology; Gave "Models of Genotype to Phenotype" lecture.

Washington University in St. Louis, St. Louis, Missouri USA  
**Guest Lecturer** Fall 2000-2003  
Introduction to Biomedical Engineering; Gave "Medical and Bioinformatics" lecture.

**Teaching Assistant** Spring 1999  
Introduction to Computational Molecular Biology; Duties included regular office hours, grading homework, and holding tutorials on Linux and Perl.

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| UNIVERSITY<br>SERVICE       | <p>Massachusetts Institute of Technology, Cambridge, Massachusetts USA<br/> <b>Reviewer</b> Feb 2005 - Present<br/>         PLoS Computational Biology, Bioinformatics, BMC Bioinformatics, RECOMB Conference, and ISMB Conference</p> <p>Washington University in St. Louis, St. Louis, Missouri USA<br/> <b>Spencer T. Olin Conference Planning Committee</b> Jan 1998 - Nov 2004<br/>         Help to organize and plan topic, speaker, and panelists for annual conference.</p> <p><b>Graduate Student Research Symposium Judge</b> March 2003<br/>         Student representative on judging panel.</p> <p>Texas A&amp;M University, College Station, Texas USA<br/> <b>Undergraduate Journal of Science</b> April 1996 - May 1997<br/>         Served on the Organizational Committee, the Editorial Committee, and as the Webpage Manager.</p> <p><b>University Undergraduate Research Program</b> May 1995 - May 1996<br/>         Built a graphical user interface for the rapid drawing of contig maps. (Extension of prototype developed at Baylor College of Medicine).</p>     |
| EMPLOYMENT<br>EXPERIENCE    | <p>Texas A&amp;M University; Dept. of Biochemistry and Biophysics, College Station, Texas USA<br/> <b>Webpage Manager</b> Oct. 1995 - May 1997<br/>         Revitalized and maintained website for both Department of Biochemistry and Biophysics and the Intercollegiate Faculty of Genetics.</p> <p>Baylor College of Medicine, Houston, Texas USA<br/> <b>Intern Programmer</b> May 1995 - August 1995<br/>         Built a prototype graphical user interface for the rapid drawing of contig maps, under supervision of Mark Graves.</p> <p>Texas A&amp;M University; Computer Information Services, College Station, Texas USA<br/> <b>Computer Technician</b> July 1994 - Oct. 1995<br/>         Responsibilities included help desk hours, installation of new hardware and software, and printer maintenance.</p> <p>Post Oak Willowbend Animal Clinic, Houston, Texas USA<br/> <b>Veterinary Technician</b> June 1990 - June 1994<br/>         Duties included assisting veterinary staff in appointments, minor lab work, care of boarding facilities, and secretarial work.</p> |
| PROFESSIONAL<br>MEMBERSHIPS | <ul style="list-style-type: none"> <li>● Association of Computing Machinery</li> <li>● Biomedical Engineering Society</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

- Institute of Electrical and Electronics Engineers
- International Society for Computational Biology