

## CURRICULUM VITAE

**James A. Kadin**

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### Education

Ph.D. Computer Science, Cornell University, Ithaca, New York, 1988  
M.S. Computer Science, Cornell University, Ithaca, New York, 1981  
B.A. Mathematics, Summa Cum Laude, Ithaca College, Ithaca, New York, 1978  
Minor: Computer Science

### Experience

#### **2004 - present Senior Research Scientist, The Jackson Laboratory, Bar Harbor, ME**

Co-lead the software/database development and system administration for the Mouse Genome Informatics (MGI) group including the Mouse Genome Database (MGD) project and Gene Expression Database (GXD).

Lead the software/database development for the Knockout Mouse Project (KOMP) Data Coordination Center (DCC) from September 2006 to August 2011 and for the International Data Coordination Center (IDCC) from January 2009 to December 2012.

Represented The Jackson Laboratory and MGI in the NCI caBIG Vocabularies and Common Data Elements (VCDE) work space from its beginning, February 2004, through November 2006. Co-lead the caBIG Architecture/VCDE Best Practices special interest group.

#### **1999 - 2004 Research Scientist, The Jackson Laboratory, Bar Harbor, ME**

Co-lead the software/database development and system administration for the Mouse Genome Informatics (MGI) group including the Mouse Genome Database (MGD) project and Gene Expression Database (GXD).

#### **1996 - 1999 Research Associate, The Jackson Laboratory, Bar Harbor, ME**

Co-lead the software/database development and system administration for the Mouse Genome Informatics (MGI) group including the Mouse Genome Database (MGD) project and Gene Expression Database (GXD).

#### **1994 - 1996 Software Engineering Manager, Alacare Home Health Services, Inc., Birmingham, AL**

Directed software/database development for a system supporting the scheduling, delivery, and billing of home health services for the largest private home health agency in Alabama.

#### **1989 - 1994 Assistant Professor, Dept. of Computer Science, University of Maine, Orono, ME**

Taught graduate and undergraduate computer science courses. Supervised graduate students in compiler construction and theoretical computer science research projects. Continued research in computational complexity theory.

- 1988 - 1989**     **Visiting Scientist, Dept. of Computer Science, Cornell University, Ithaca, NY**  
Continued research in computational complexity theory.
- 1983 - 1989**     **Lead Software Architect, Eloquent Technology, Inc. and Cornell University Phonetics Laboratory, Ithaca, NY**  
Lead the development of a linguistic research system & pattern matching language supporting text to speech synthesis applications.
- 1983**             **Applications Programmer, Wilson Synchrotron Laboratory, Cornell University, Ithaca, NY**
- 1981 – 1988**     **Graduate Student, Dept. of Computer Science, Cornell University, Ithaca, NY**  
Ph.D. research in computational complexity theory focusing on reducibilities between NP-complete problems under the direction of Dr. Juris Hartmanis.
- 1978 - 1982**     **Systems Programmer/Graduate Research Assistant, Dept. of Computer Science, Cornell University, Ithaca, NY**  
Supported the PL/C compiler, an error correcting compiler for PL/1.
- 1975 - 1978**     **Systems Programmer, Academic Computer Services, Ithaca College, Ithaca, NY**

#### **Additional Coursework and Training**

Agile/Scrum Workshop by Dan Mezick of FreeStanding Agility, March 2013  
 Certified Scrum Product Owner, BigVisible Solutions, Inc., May 2012  
 Web Development with Django, Open Technology Group, Inc., September 2011  
 PostgreSQL Administration and Development, Open Technology Group, Inc., June 2011  
 User and System Requirements for Software Development, Learning Tree International, January 2006  
 Productivity Management (Information Technology Project Management), Keane, Inc., June 2000  
 Team Building, Lovoy's Team Works, Inc., March 1995  
 Systems Testing and Quality Assurance Techniques, Advanced Information Technologies, Inc., July 1994

#### **Areas of Expertise**

Software development project management	Data modeling
Software design & engineering	Data structure & algorithm development/analysis
User requirements analysis	Object orientation
Database design	Software quality assurance
Theoretical computer science	

#### **Professional Activities**

Reviewer for *Database* (Oxford University Press)  
 ZFIN Database Advisory Board – 2012, 2014

#### **Student Mentoring (co-mentoring with Joel Richardson)**

Patrick Osterhaus, Jackson Laboratory Summer Student Program, 2014, **Simmer: The Application of Semantic Similarity Measures in Search Result Retrieval**  
 Daniel Galvez, Jackson Laboratory Summer Student Program, 2013, **Evaluation of semantic similarity measures as search tools in the gene ontology and the mammalian phenotype ontology**

#### **Publications**

Smith CM, Finger JH, Kadin JA, Richardson JE, Ringwald M. **The gene expression database for mouse development (GXD): Putting developmental expression information at your fingertips**. *Dev Dyn*. 2014 Oct;243(10):1176-86. doi: 10.1002/dvdy.24155. Epub 2014 Jul 4. PubMed PMID: 24958384.

- Blake JA, Bult CJ, Eppig JT, Kadin JA, Richardson JE; Mouse Genome Database Group. **The Mouse Genome Database: integration of and access to knowledge about the laboratory mouse.** Nucleic Acids Res. 2014 Jan 1;42(1):D810-7. <http://mouseion.jax.org/stfb2014/10/>.
- Smith CM, Finger JH, Hayamizu TF, McCright IJ, Xu J, Berghout J, Campbell J, Corbani LE, Forthofer KL, Frost PJ, Miers D, Shaw DR, Stone KR, Eppig JT, Kadin JA, Richardson JE, Ringwald M. **The mouse Gene Expression Database (GXD): 2014 update.** Nucleic Acids Res. 2014 Jan 1;42(1):D818-24. PMID: 24163257 <http://mouseion.jax.org/stfb2014/17/>.
- Burns GAPC, Tallis M, Onda H, Cohen K, Kadin J, Blake J. **Supporting Document Triage with the SciKnowMine System in the Mouse Genome Informatics (MGI) Curation Process.** Proceedings of the Fourth BioCreative Challenge Evaluation Workshop, 2013, vol. 1, 234-240. [http://www.biocreative.org/media/store/files/2013/bc4\\_v1\\_32.pdf](http://www.biocreative.org/media/store/files/2013/bc4_v1_32.pdf).
- Bult CJ, Eppig JT, Blake JA, Kadin JA, Richardson JE; the Mouse Genome Database Group. **The Mouse Genome Database: genotypes, phenotypes, and models of human disease.** Nucleic Acids Res 2013 Jan 1; 41(D1):D885-D891. PMID: 23531104 .
- Bradley A, Anastassiadis K, Ayadi A, Battey JF, Bell C, Birling MC, Bottomley J, Brown SD, Bürger A, Bult CJ, Bushell W, Collins FS, Desaintes C, Doe B, Economides A, Eppig JT, Finnell RH, Fletcher C, Fray M, Friendewey D, Friedel RH, Grosveld FG, Hansen J, Héroult Y, Hicks G, Hörlein A, Houghton R, Hrabé de Angelis M, Huylebroeck D, Iyer V, de Jong PJ, Kadin JA, Kaloff C, Kennedy K, Koutsourakis M, Lloyd KCK, Marschall S, Mason J, McKerlie C, McLeod MP, von Melchner H, Moore M, Mujica AO, Nagy A, Nefedov M, Nutter LM, Pavlovic G, Peterson JL, Pollock J, Ramirez-Solis R, Rancourt DE, Raspa M, Remacle JE, Ringwald M, Rosen B, Rosenthal N, Rossant J, Ruiz Noppinger P, Ryder E, Schick JZ, Schnütgen F, Schofield P, Seisenberger C, Selloum M, Simpson EM, Skarnes WC, Smedley D, Stanford WL, Stewart AF, Stone K, Swan K, Tadepally H, Teboul L, Tocchini-Valentini GP, Valenzuela D, West AP, Yamamura KI, Yoshinaga Y, Würst W. **The mammalian gene function resource: the international knockout mouse consortium.** Mamm Genome. 2012 Oct;23(9-10):580-6. PMID: 22968824 DOI: 10.1007/s00335-012-9422-2. PMID: PMC3463800
- Hayamizu TF, de Coronado S, Fragoso G, Sioutos N, Kadin JA, Ringwald M. 2012. **The mouse-human anatomy ontology mapping project.** Database (Oxford) Vol. 2012 published online March 20, 2012, doi:10.1093/database/bar066. PMID: PMC3308156.
- Eppig JT, Blake JA, Bult CJ, Kadin JA, Richardson JE; the Mouse Genome Database Group. 2012. **The Mouse Genome Database (MGD): comprehensive resource for genetics and genomics of the laboratory mouse.** Nucleic Acids Res 40 (Database issue): D881-D886. PMID: PMC3245042.
- Ringwald M, Iyer V, Mason JC, Stone KR, Tadepally HD, Kadin JA, Bult CJ, Eppig JT, Oakley DJ, Briois S, Stupka E, Maselli V, Smedley D, Liu S, Hansen J, Baldock R, Hicks GG, Skarnes WC. 2011. **The IKMC web portal: a central point of entry to data and resources from the International Knockout Mouse Consortium.** Nucleic Acids Res 39(Database issue):D849-D855.
- Finger JH, Smith CM, Hayamizu TF, McCright IJ, Eppig JT, Kadin JA, Richardson JE, Ringwald M. 2011. **The mouse Gene Expression Database (GXD): 2011 update.** Nucleic Acids Res 39(Database issue):D835-D841.
- Blake JA, Bult CJ, Kadin JA, Richardson JE, Eppig JT and the Mouse Genome Database Group. 2011. **The Mouse Genome Database (MGD): premier model organism resource for mammalian genomics and genetics.** Nucleic Acids Res 39 (Database issue):D842-D848.
- Bult CJ, Kadin JA, Richardson JE, Blake JA, Eppig JT; Mouse Genome Database Group. 2010. **The Mouse Genome Database Group. The Mouse Genome Database: enhancements and updates.** Nucleic Acids Res 38 (Database issue):D586-D592.
- Blake JA, Bult CJ, Eppig JT, Kadin JA, Richardson JE; Mouse Genome Database Group. 2009. **The Mouse Genome Database genotypes::phenotypes.** Nucleic Acids Res 37 (Database issue):D712-D719.
- Bult CJ, Eppig JT, Kadin JA, Richardson JE, Blake JA; Mouse Genome Database Group. 2008. **The Mouse Genome Database (MGD): mouse biology and model systems.** Nucleic Acids Res 36 (Database issue):D724-D728.
- Smith CM, Finger JH, Hayamizu TF, McCright IJ, Eppig JT, Kadin JA, Richardson JE, Ringwald M. 2007. **The mouse Gene Expression Database (GXD): 2007 update.** Nucleic Acids Res 35 (Database issue):D618-D623.

- Eppig JT, Blake JA, Bult CJ, Richardson JE, Kadin JA, Ringwald M and the MGI Staff. 2007. **Mouse Genome Informatics (MGI) resources for pathology and toxicology.** Toxicol Pathol 35:456-457.
- Eppig JT, Blake JA, Bult CJ, Kadin JA, Richardson JE; Mouse Genome Database Group. 2007. **The mouse genome database (MGD): new features facilitating a model system.** Nucleic Acids Res 35 (Database issue):D630-D637.
- Blake JA, Eppig JT, Bult CJ, Kadin JA, Richardson JE; Mouse Genome Database Group. 2006. **The Mouse Genome Database (MGD): updates and enhancements.** Nucleic Acids Res. 34(Database issue):D562-D567.
- Hayamizu TF, Mangan M, Corradi JP, Kadin JA, Ringwald M. 2005. **The Adult Mouse Anatomical Dictionary: a tool for annotating and integrating data.** Genome Biol. 6(3):R29.
- Eppig JT, Bult CJ, Kadin JA, Richardson JE, Blake JA and the members of the Mouse Genome Database Group. 2005. **The Mouse Genome Database (MGD): from genes to mice -- a community resource for mouse biology.** Nucleic Acids Res 33:D471-D475.
- Richardson JE, Kadin JA, Blake JA, Bult CJ, Eppig JT, Ringwald M and the Mouse Genome Informatics Group. 2004. **From sipping on a straw to drinking from a fire hose; data integration in a public genome database.** Proceedings of the 20th IEEE International Conference on Data Engineering, pp. 795-798.
- Hill DP, Begley DA, Finger JH, Hayamizu TF, McCright IJ, Smith CM, Beal JS, Corbani LE, Blake JA, Eppig JT, Kadin JA, Richardson JE, Ringwald M. 2004. **The Mouse Gene Expression Database (GXD): updates and enhancements.** Nucleic Acids Res 32:D568-D571.
- Bult CJ, Blake JA, Richardson JE, Kadin JA, Eppig JT, and the members of the Mouse Genome Database Group. 2004. **The Mouse Genome Database (MGD): integrating biology with the genome.** Nucleic Acids Res 32:D476-D481.
- Blake JA, Richardson JE, Bult CJ, Kadin JA, Eppig JT. 2003. **MGD: the Mouse Genome Database.** Nucleic Acids Res 31(1):193-195.
- Baldarelli RM, Hill DP, Blake JA, Adachi J, Furuno M, Bradt D, Corbani LE, Cousins S, Frazer KS, Qi D, Yang L, Ramachandran S, Reed D, Zhu Y, Kasukawa T, Ringwald M, King BL, Maltais LJ, McKenzie LM, Schriml L, Maglott D, Church D, Pruitt K, Okazaki Y, Hayashizaki Y, Eppig JT, Richardson JE, Kadin JA, Bult CJ. 2003. **Connecting Sequence and Biology in the Laboratory Mouse.** Genome Res 13(6b):1505-1519.
- Blake JA, Richardson JE, Bult CJ, Kadin JA, Eppig JT and the Mouse Genome Database Group. 2002. **The Mouse Genome Database (MGD): The model organism database for the laboratory mouse.** Nucleic Acids Res 30:113-115.
- Ringwald M, Eppig JT, Begley DA, Corradi JP, McCright IJ, Hayamizu TF, Hill DP, Kadin JA, Richardson JE. 2001. **The Mouse Gene Expression Database (GXD).** Nucleic Acids Res 29(1):98-101.
- Blake JA, Eppig JT, Richardson JE, Bult CJ, Kadin JA, and the Mouse Genome Database Group. 2001. **The Mouse Genome Database (MGD): Integration Nexus for the laboratory mouse.** Nucleic Acids Res 29(1):91-94.
- Ringwald M, Eppig JT, Kadin JA, Richardson JE, and the Gene Expression Database Group. 2000. **GXD: A Gene Expression Database for the laboratory mouse: current status and recent enhancements.** Nucleic Acids Res 28:115-119.
- Eppig JT, Blake JA, Davisson MT, Kadin JA, Richardson JE, and the Mouse Genome Database Staff. 2000. **The Mouse Genome Database: A resource for today and tomorrow.** Lab Anim 29:39-43.
- Bult CJ, Richardson JE, Blake JA, Kadin JA, Ringwald M, Eppig JT, and the Mouse Genome Informatics Staff. 2000. **Mouse Genome Informatics in a new age of Biological Inquiry.** Proc of the IEEE International Symposium on Bio-Informatics and Biomedical Engineering pp. 29-32.
- Ringwald M, Mangan ME, Eppig JT, Kadin JA, Richardson JE, and the Gene Expression Database Group. 1999. **GXD: A Gene Expression Database for the laboratory mouse.** Nucleic Acids Res 27:106-112.
- Buhrman H, Kadin J, Thierauf T. 1998. **Functions Computable with Nonadaptive Queries to NP.** Theory of Computing Systems 31:77-92.
- Chang R, Kadin J. 1996. **The Boolean Hierarchy and the Polynomial Hierarchy: a Closer Connection.** SIAM Journal on Computing 25:340-354.
- Chang R, Kadin J, Rohatgi P. 1995. **On Unique Satisfiability and the Threshold Behavior of Randomized Reductions.** J Comput System Sci 50:359-373.
- Chang R, Kadin J. 1995. **On Computing Boolean Connectives of Characteristic Functions.** Math Syst Theory 28:173-198.

- Buhrman H, Kadin J, Thierauf T. 1994. **On Functions Computable with Nonadaptive Queries to NP**. Proc 9th Structure Complex Theory Conf, IEEE Comput Soc Press.
- Chang R, Kadin J, Rohatgi P. 1991. **Connections between the Complexity of Unique Satisfiability and the Threshold Behavior of Randomized Reductions**. Proc 6th Structure Complex Theory Conf, IEEE Comput Soc Press 255-269.
- Kadin J. 1989. **P NP[O(log n)] and Sparse Turing Complete Sets for NP**. J Comput Syst Sci 39:282-298.
- Kadin J. 1988. **The Polynomial Time Hierarchy Collapses if the Boolean Hierarchy Collapses**. SIAM J Comput 17:1263-1282.
- Hartmanis J, Chang R, Kadin J, Mitchell S. 1988. **Some Observations about Relativization of Space Bounded Computations**. Bull Eur Assoc Theoret Comput Sci 35:83-92.
- Hertz S, Kadin J, Karplus K. 1985. **The Delta Rule Development System for Speech Synthesis from Text**. Proc IEEE, Spec Iss Man-Machine Speech Commun 73:1589-601.

### Books, Book Chapters and Reviews

- Eppig JT, Richardson JE, Blake JA, Davisson MT, Kadin JA, Ringwald M. 1999. **Genotype to Phenotype: The Mouse Genome Database and The Gene Expression Database**. In: *Bioinformatics: Databases and Systems*, Stanley I. Letovsky (ed.), Kluwer Academic Press, pp. 119-128.

### Research Support

#### ONGOING

- |  |                         |
|--|-------------------------|
| <p>2 U41 HG000330-23 Eppig (PI)<br/>NIH/NHGRI<br/>Mouse Genome Database<br/>The fundamental mission of the Mouse Genome Database (MGD) is to facilitate the use of the laboratory mouse as a model system for understanding human biology and disease through its role as the premier online resource for high-quality integrated information for mouse, supporting the link between mouse models and human disease.<br/>Role: Co-Investigator</p> | <p>9/26/11-2/28/16</p>  |
| <p>1 P41 HD062499-01 Ringwald (PI)<br/>NIH/NICHD<br/>Gene Expression Database for Mouse Development<br/>The major goal of this grant is to develop the Gene Expression Database for Mouse Development (GXD) to provide the scientific community with a vehicle for exploring gene function during embryonic development.<br/>Role: Co-Investigator</p>   | <p>12/2/10-11/30/15</p> |

### Research Support

#### COMPLETED

- |   |                        |
|---|------------------------|
| <p>HEALTH-F4-2009-22359 Ringwald (PI)<br/>European Commission<br/>I-DCC: The International Data Coordination Centre<br/>The objective of this proposal is to establish an International Data Coordination Center (IDCC) for the International Knockout Mouse Consortium (IKMC).<br/>Role: Co-Investigator</p> | <p>1/1/09-12/31/12</p> |
| <p>3 R01 HD033745-11S1Z Ringwald (PI)<br/>NIH/NICHD<br/>Gene Expression Database for Mouse Development – ARRA Administrative Supplement<br/>Role: Co-Principal Investigator</p>   | <p>5/1/10-10/31/11</p> |
| <p>5 P41 HG000330-19 Eppig (PI)</p>   | <p>9/29/06-7/31/11</p> |

NIH/NHGRI

Mouse Genome Informatics - Hardware & System Support

The major goal of this project is to provide hardware and system support for the Mouse Genome Informatics Program Project.

Role: Core Leader

5 P41 HG000330-19 Eppig (PI)

9/29/06-7/31/11

NIH/NHGRI

Mouse Genome Informatics - Database and Software Development

The major goal of this project is to provide software and database development for the Mouse Genome Database Program Project and its functions.

Role: Co-Core Leader

5 U01 HG004074-02 Ringwald (PI)

9/7/06-8/31/11

NIH/NHGRI

Data Coordination Center for the Knockout Mouse Project (KOMP)

The objective of this proposal is to establish a Data Coordination Center (DCC) for the Knockout Mouse Project (KOMP).

Role: Co-Prin. Inv.

5 R01 HD033745-10 Ringwald (PI)

9/1/06-7/31/09

NIH/NICHHD

Gene Expression Database for Mouse Development

The major goal of this grant is to develop the Gene Expression Database for Mouse Development (GXD) to provide the scientific community with a vehicle for exploring gene function during embryonic development.

Role: Co-Prin. Inv.

### **Science Technology Engineering Mathematics (STEM) Educational Outreach**

The Jackson Laboratory 2<sup>nd</sup> Grade Bacteriology Unit

- Trenton Elementary School: 2007 – present
- Conners-Emerson School, Bar Harbor: 2011

Middle School First Lego League Robotics Team at the Conners-Emerson School in Bar Harbor

- Fall 2013-Spring 2014 – Co-coached (with David Gallup). Won Maine State Competition and received First Place Award in Robot Design Strategy & Innovation and Third Place for Robot Performance at the First Lego League World Festival in St. Louis, MO, April 23-26, 2014
- Fall 2012-Spring 2013 – Co-coached (with David Gallup). Won Maine State Competition and received First Place Award for Robot Performance and Second Place in Robot Design Strategy & Innovation at the First Lego League North American Open Championship Tournament in Carlsbad, CA, May 17-19, 2013
- Fall 2011-Spring 2012 – Co-coached (with David Gallup). Won Maine State Competition and competed at the First Lego League World Festival competition in St. Louis, MO, April 25-28, 2012
- Fall 2010-Spring 2011 – Co-coached (with David Gallup). Competed at the Maine State Competition.
- Spring 2010 – ran a robotics club, taught students to build and program Lego robots

Mount Desert Island High School Computer Science Mentoring

- Tutored a student taking AP Computer Science, 2012-2013 school year.
- Mentored a high school senior exhibition project in computer programming, Spring 2013.