

## Curriculum Vitae - Jin Tian

Department of Computer Science  
226 Atanasoff Hall  
Iowa State University  
Ames, IA 50011

Phone: (515) 294-8433  
Fax: (515) 294-0258  
Email: [jtian@cs.iastate.edu](mailto:jtian@cs.iastate.edu)  
Web: <http://www.cs.iastate.edu/~jtian/>

### Research Interests

Artificial Intelligence and Machine Learning: graphical models, Bayesian networks, probabilistic reasoning, causal inference.

### Education

<b>Ph.D.</b>	Computer Science, University of California, Los Angeles	2002
	<i>Advisor:</i> Judea Pearl	
	<i>Dissertation:</i> Studies in Causal Reasoning and Learning	
<b>M.S.</b>	Physics, University of California, Los Angeles	1997
<b>B.S.</b>	Physics, Tsinghua University, P. R. China	1992

### Employment

Aug 2002 - present	Assistant Professor, Department of Computer Science, Iowa State University
Fall 1997 – Spring 2002	Graduate Student Researcher, Computer Science department, University of California, Los Angeles.
Summer 1999	Java programmer, Crump Institute for Biological Imaging, University of California, Los Angeles

### Teaching Experience

Spring 2008, 2009	ComS 573 Machine Learning, ISU
Fall 2007, 2008, 2009	ComS 472 Principles of Artificial Intelligence, ISU
Spring 2006, 2007	Com S 363: Introduction to Database Systems, ISU
Fall 2003, 2004, 2006	ComS 474 Elements of Neural Computation, Iowa State University
Spring 2003, 2005, 2007	ComS 673 Probabilistic and Causal Reasoning with Bayesian Networks, Iowa State University
Spring 2004	ComS 672 Computational Models of Learning, Iowa State University
Fall 1998	Teaching Assistant, Computer Science department, UCLA. CS 33 Systems Programming – Assembly language
Summer 1997	Teaching Assistant, Physics and Astronomy department, UCLA. Physics 6C Lab
Spring 1997	Teaching Assistant, Physics and Astronomy department, UCLA. Physics 6A Lab

## **Research Grants**

- *CAREER: Reasoning with Cause and Effect: Model Testing, Axiomatization, and Identification.* Jin Tian. National Science Foundation, 2004-2009. \$455,452.

## **Publications**

### **Journals**

- C. Kang and J. Tian, Markov Properties for Linear Causal Models with Correlated Errors, *Journal of Machine Learning Research (JMLR)*, Vol. 10, 41-70, 2009.
- Z. Cai, M. Kuroki, J. Pearl, and J. Tian, Bounds on Direct Effects in the Presence of Confounded Intermediate Variables, *Biometrics*, Vol. 64, 695-701, 2008.
- J. Tian and J. Pearl, Probabilities of causation: bounds and identification, *Annals of Mathematics and Artificial Intelligence*, Vol. 28, 287-313, 2000.

### **Refereed Conference Papers**

- J. Tian, Parameter Identification in a Class of Linear Structural Equation Models, in *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*, July 11-17, 2009. Pasadena, California. pp. 1970-1975.
- J. Tian and R. He, Computing Posterior Probabilities of Structural Features in Bayesian Networks, in *Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI)*, June 18-21, 2009. Montreal, Canada.
- J. Tian, Identifying Dynamic Sequential Plans, in *Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI)*, July 9-12, 2008. Helsinki, Finland. AUAI Press, pp. 554-561.
- J. Tian, On the Identification of a Class of Linear Models. *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, July 22-26, 2007. Vancouver, Canada. AAAI Press, pp. 1284-1289.
- J. Tian, A Criterion for Parameter Identification in Structural Equation Models, in *Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI)*, July 19-22, 2007. Vancouver, Canada. AUAI Press, pp. 392-399.
- C. Kang, J. Tian, Polynomial Constraints in Causal Bayesian Networks, in *Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI)*, July 19-22, 2007. Vancouver, Canada. AUAI Press, pp. 200-208.
- J. Tian, C. Kang, and J. Pearl, A Characterization of Interventional Distributions in Semi-Markovian Causal Models. *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, July 16-20, 2006. Boston, Massachusetts. AAAI Press, pp. 1239-1244.

- C. Kang and J. Tian, Inequality Constraints in Causal Models with Hidden Variables, in *Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI)*, July 13-16, 2006. Cambridge, Massachusetts. AUAI Press, pp. 233-240.
- C. Kang and J. Tian, A Hybrid Generative/Discriminative Bayesian Classifier. *Proceedings of the 19th International Florida Artificial Intelligence Research Society Conference (FLAIRS)*, May 11-13, 2006. Melbourne Beach, Florida. AAAI Press, pp. 562-567.
- C. Kang and J. Tian, Local Markov Property for Models Satisfying Composition Axiom. *Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI)*, July 26-29, 2005. Edinburgh, Scotland. AUAI Press, pp. 284-291.
- J. Tian, Generating Markov Equivalent Maximal Ancestral Graphs by Single Edge Replacement. *Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI)*, July 26-29, 2005. Edinburgh, Scotland. AUAI Press, pp. 591-598.
- J. Tian, Identifying Direct Causal Effects in Linear Models. *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, July 9-13, 2005. Pittsburgh, Pennsylvania. AAAI Press, pp. 346-352.
- J. Tian, Identifying Conditional Causal Effects. *Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI)*, July 9-11, 2004. Banff, Canada. AUAI Press. pp. 561-568.
- J. Tian, Identifying Linear Causal Effects. *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, July 25-29, 2004. San Jose, California. AAAI Press. pp. 104-110.
- J. Tian and J. Pearl, On the Testable Implications of Causal Models with Hidden Variables, in *Proceedings of the Conference on Uncertainty in Artificial Intelligence (UAI)*, August 1-4, 2002, Edmonton, Alberta, Canada. Morgan Kaufmann, 2002, 519-527.
- J. Tian and J. Pearl, A general identification condition for causal effects, in *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, July 28 - August 1, 2002, Edmonton, Alberta, Canada. AAAI Press, 2002, 567-573.
- J. Tian and J. Pearl, A new characterization of the experimental implications of causal Bayesian networks, in *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, July 28 - August 1, 2002, Edmonton, Alberta, Canada. AAAI Press, 2002, 574-580 .
- J. Tian and J. Pearl, Causal Discovery from Changes, in Jack S. Breese, Daphne Koller (Eds.), *Proceedings of the 17th Conference in Uncertainty in Artificial Intelligence (UAI)*, University of Washington, Seattle, Washington, USA, August 2-5, 2001. Morgan Kaufmann, 2001, 512-521.
- J. Tian and J. Pearl, Probabilities of causation: bounds and identification, in Craig Boutilier, Moisés Goldszmidt (Eds.), *Proceedings of the 16th Conference in Uncertainty in Artificial Intelligence (UAI)*, Stanford University, Stanford, California, USA, June 30 - July 3, 2000. Morgan Kaufmann 2000, 589-598.

- J. Tian, A branch-and-bound algorithm for MDL learning Bayesian networks, in Craig Boutilier, Moisés Goldszmidt (Eds.), *Proceedings of the 16th Conference in Uncertainty in Artificial Intelligence (UAI)*, Stanford University, Stanford, California, USA, June 30 - July 3, 2000. Morgan Kaufmann 2000, 580—588.

### **Technical Reports**

- J. Tian, I. Shpitser, and J. Pearl, On the identification of causal effects, *Cognitive Systems Laboratory Technical Report R-290-L*, Computer Science department, UCLA, 2009.
- J. Tian and J. Pearl, Causal Discovery from Changes: a Bayesian Approach, *Cognitive Systems Laboratory Technical Report R-285*, Computer Science department, UCLA, February 2001.
- J. Tian, A. Paz, and J. Pearl, Finding Minimal D-separators, *Cognitive Systems Laboratory Technical Report R-254*, Computer Science department, UCLA, 1998.

### **Invited Talks**

- Causal Inference and Algebraic Methods, *SAMSI Workshop on Algebraic Statistical Models*, 2009
- Causal inference with graphical models, *WNAR/IMS annual meeting 2007*.
- Tutorial: Causal inference and graphical models. *Conference on Uncertainty in Artificial Intelligence (UAI) 2006*.

### **Scholarships & Honors**

Faculty Early Career Development Award, National Science Foundation	2004
Microsoft Graduate Student Fellowship	1999-2001
Department of Physics and Astronomy Fellowship, UCLA	1996-1997

### **Professional Service**

- Program committee member, the Conference on Uncertainty in Artificial Intelligence (UAI) 2002-2005, 2009. Senior program committee member, 2006-2008.
- Program committee member, the Midwest Artificial Intelligence and Cognitive Science Conference (MAICS) 2003-2007, 2009.
- Program committee member, the International Joint Conference on Artificial Intelligence (IJCAI) 2009.
- Reviewer, the International Conference on Machine Learning (ICML) 2009.
- Program committee member, SIAM International Conference on Data Mining (SDM) 2008.
- Proposal review panel, National Science Foundation (NSF), 2005, 2008.
- Program committee member, the National Conference on Artificial Intelligence (AAAI), 2002, 2006.

- Program committee member, the Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD) 2009.

### **Referee**

- Journal of Artificial Intelligence, 2004, 2007, 2009
- Journal of Machine Learning Research (JMLR), 2005, 2007, 2008, 2009
- Information Technology and Management, 2009
- Acta Mathematica Sinica, 2009
- Annals of Mathematics and Artificial Intelligence, 2003, 2008
- Machine Learning Journal, 2008
- IEEE Transactions on Information Theory, 2008
- NIPS Workshop on Causality, 2008
- Annals of Statistics, 2007
- IMA volume on Emerging Applications of Algebraic Geometry, 2007
- The Economic Journal, 2007
- International Joint Conference on Artificial Intelligence (IJCAI), 2005, 2007
- Biometrika, 2006
- Management Science, 2006
- Risk Analysis, 2005
- Journal of Multivariate Analysis, 2005
- Book review for Cambridge University Press, 2005
- The International Conference on Knowledge Based Computer Systems (KBCS), 2004
- Journal of Artificial Intelligence Research, 2003, 2004
- Journal of the Royal Statistics Society Series B, 2003

### **Doctoral Dissertations Supervised**

Changsung Kang (now at Yahoo! Labs), Model Testing for Causal Models, 2008.