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Tom Ouyang

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Education

MASSACHUSETTS INSTITUTE OF TECHNOLOGY   Cambridge, MA
Candidate for PhD in Computer Science   Expected 1/2012
Master of Science in Computer Science   6/2007
Cumulative GPA: 4.8/5.0
Thesis Committee: Prof. Randall Davis, Prof. William T. Freeman, Prof. Robert C. Miller

Relevant Coursework: Object Recognition and Scene Understanding (Computer Vision), Machine Learning, Statistical Theory and Data Analysis, Database Systems, Computational Genomics, Natural Language Processing, Theory of Computation.

NORTHWESTERN UNIVERSITY   Evanston, IL
Bachelor of Science in Computer Science *with Honors*   6/2005
Graduated *Summa Cum Laude*
Cumulative GPA: 3.95/4.0

Research Interests

Artificial intelligence, machine learning (supervised classification, inference and estimation in graphical models, computer vision), pen and touch based user interfaces, mobile computing, human computer interaction.

Experience

MIT COMPUTER SCIENCE AND AI LAB   Cambridge, MA
Graduate Research Assistant   8/2005 - Present
- Developed ChemInk, a new sketch recognition interface for chemical drawings.
- Researched probabilistic models for sketch and diagram understanding, combining ideas from artificial intelligence, machine learning, and human computer interaction.

GOOGLE RESEARCH   Mountain View, CA
Engineering Intern – Research Division   6/2011 - 9/2011
- Designed and implemented a novel touch-gesture interface for the Android platform, working in areas including machine learning, handwriting recognition, and cloud/crowd computing. Conducted user study evaluations and launched an initial deployment.

CITADEL INVESTMENT GROUP   Chicago, IL
Summer Associate - Statistical Arbitrage Group   6/2008-8/2008
- Developed and implemented a high frequency foreign exchange trading strategy based on time series analysis of historical trading data.

LAWRENCE LIVERMORE NATIONAL LABORATORY   Livermore, CA
Summer Research Fellow - Predictive Knowledge Systems   6/2007-8/2007
- Created a statistical model for predicting new activity in dynamically evolving communication networks.

NORTHWESTERN UNIVERSITY   Evanston, IL
Undergraduate Research Assistant - Qualitative Reasoning Group   8/2003-6/2005
- Developed a computational model that analyzes the use of analogy in problem solving, evaluating how certain strategies can enhance or degrade problem solving performance.

Publications	*Refereed Conferences:*

Tom Y. Ouyang and Randall Davis. ChemInk: A Natural Real-Time Recognition System for Chemical Drawings. In *Proceedings of the International Conference on Intelligent User Interfaces (IUI)*. 2011. ***Best Paper Award Nomination***

Tom Y. Ouyang and Randall Davis. Learning from Neighboring Strokes: Combining Appearance and Context for Multi-Domain Sketch Recognition. In *Advances in Neural Information Processing Systems (NIPS)*. 2009.

Tom Y. Ouyang and Randall Davis. A Visual Approach to Sketched Symbol Recognition. In *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI)*. 2009.

Tom Y. Ouyang and Randall Davis. Visual Recognition of Sketched Symbols. In *International Conference on Intelligent User Interfaces - Workshop on Sketch Recognition*. 2009. ***Best Paper Award***

Tom Y. Ouyang and Randall Davis. Recognition of Hand Drawn Chemical Diagrams. In *Proceedings of the 22nd AAAI Conference on Artificial Intelligence*. 2007.

Tom Y. Ouyang and Kenneth D. Forbus. Strategy Variations in Analogical Problem Solving. In *Proceedings of the 21st AAAI Conference on Artificial Intelligence*. 2006.

Patents:
Tom Y. Ouyang and Randall Davis. Sketch Recognition System. 2010 (provisional)

Other Publications:
Tom Y. Ouyang. Recognition of Hand Drawn Chemical Diagrams. *S.M. Thesis, Massachusetts Institute of Technology*. 2007.

Tom Y. Ouyang and Jack Tumblin. Removing Quantization Artifacts in Color Images Using Bound Interval Regularization. In *Northwestern Undergraduate Research Journal.* 2005.

Honors	**Best Paper Award Nomination**: IUI (2011)

MIT Pokerbots AI Competition (2011)
Second Place: Final Championship (out of 38 teams), Winner: Best Quantitative Approach

Best Paper Award: IUI Workshop on Sketch Recognition (2009)

DHS Graduate Research Fellowship (2006-2009)
Three year fellowship for graduate studies at MIT.

NSF Graduate Research Fellowship Honorable Mention (2006)

National Merit Scholarship (2001-2005)
Four-year scholarship for undergraduate studies at Northwestern University.

Services and Activities	**Co-Chair**, IUI Sketch Recognition Workshop (2011)

Teaching Assistant, 6.835 Intelligent Multimodal User Interfaces, (Spring 2011)
Developed a new project for gesture recognition on the Microsoft Kinect.

Session Chair, IUI Sketch Recognition Workshop, (2009)

Committee Member, MIT CSAIL Student Committee, (2007)