

Yuqing Tang

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Education

- Ph.D. in Computer Science, the Graduate Center, City University of New York, 2009 (expected)
- M.Phil. in Computer Science, the Graduate Center, City University of New York, 2008
- B.Eng. in Computer Science, Shenzhen University, China, 1999

Expertise

- Argumentation-based reasoning and multiagent dialogues on inconsistent information
- Non-deterministic and hierarchical task network planning using Binary Decision Diagrams (BDDs)
- Distributed problem solving using multiagent paradigms
- Knowledge on machine learning, Markov decision process (reinforcement learning), support vector machine, kernel methods, genetic programming, and Bayesian networks

Research Experience

- **Research Assistant (August 2007–present)** New York, NY
Assisted Professor Simon Parsons in Models of Hybrid Human Agent Teams: Agent support for ad hoc adaptive collaboration
 - Cooperated with researchers from Boeing Inc. (US), Carnegie Mellon University (US), Honeywell Inc. (US), IBM UK, University of Aberdeen (UK) of artificial intelligence, sensor data processing, and social science backgrounds
 - Created formal models of multiagent (machine) dialogues for aiding human collaborative planning and plan execution
 - Applied argumentation-based reasoning to resolve inconsistent information
 - Applied non-deterministic state transition model to handle uncertain information
 - Applied hierarchical task networks to represent human’s knowledge on coalition planning and execution
 - Applied symbolic model checking techniques (implicit set and relation manipulations using Binary Decision Diagrams) to reduce the computation complexity
 - Initiated the implementation of the theory using BuDDy package in C++
 - Analyzed data collected from human dialogues during team plan executions
 - Published papers in conferences
- **Research Assistant (August 2003–present)** New York, NY
Worked under the supervision of Professor Simon Parsons on dissertation research — Using Argumentation-based Dialogues for Multiagent Planning
 - Developed an argumentation reasoning system to reason about multiple agents’ goals, action policies, perceptions and models of external world dynamics
 - Developed a dialogue mechanism which achieves flexibility and ease of engineering by decomposing conversation policies from the underlying argumentation reasoning theories
 - Constructed an argumentation-based dialogue for multiagent planning
 - Published papers in conferences

- **Research Assistant (May 2008–August 2008)** New York, NY
 Assisted Professor Simon Parsons in Evolution and Co-Evolution of Auction Mechanisms and Trading Strategies (Economic Paradigms in Multiagent Systems)

 - Implemented genetic algorithms to evolve auction mechanisms
 - Implemented genetic algorithms to co-evolve auction mechanisms and trading strategies (both are in JAVA using JASA and ECJ packages)
- **Research Assistant (August 2004–August 2007)** New York, NY
 Assisted Professor Simon Parsons and Professor Elizabeth Sklar in Agent-based Modeling Simulation of Education and Human Capital

 - Translated equation-based models of education, human capital and economics into agent-based models
 - Demonstrated the possibility of simulating the interaction effects of non-equational social dynamics (drawn from data) and non-equational social policies
 - Implemented and analyzed the models in Java with RePast (a Java based agent simulation platform)
 - Published papers in conferences and workshops
- **Research Assistant (August 2003–August 2005)** New York, NY
 Assisted Professor Vitor Pan in Matrix Eigen Problems and Polynomial Root-finding

 - Implemented matrix eigen solving algorithms using C++ and Matlab
 - Implemented polynomial root-finding algorithms using C++ and Matlab
 - Published papers in conferences and journals

Programming Experience

- **Graduate Assistant** June 2005–August 2005
 New York State Banking Department New York, NY

 - Designed and developed a computer program to collect and process banking data into a data warehouse
- **Programmer** August 2002–May 2005
 CUNY Institute for Software Design and Development New York, NY

 - Designed and developed the career-center website using with PostgreSQL, JSP, and JAVA
 - URL: <http://career.cisdd.org>
- **Software Engineer** March 2001–August 2002
 Billion Online INT'LTD Shenzhen, China

 - Integrated email systems (include webmail, mailing list, etc.) with qmail, ezmlm and sqwebmail, etc; rewrote part of them with C++
 - Co-led the first phase development of the EIM (Enterprise Instant Messenger) and ETALK (Voice over Internet) project with OpenH323, C++ and pplib
- **Software Engineer** January 2000–January 2001
 Vinside Information Technology INC. Shenzhen, China

 - Formed a core technical team to initiate a distributed instant messaging system from scratch within 3 months
 - Participated in fund raising to start up the company
 - Designed a software architecture which later had more than 50 programmers work on it

- Implemented the core of a multi-server instant messaging system targeting a huge number of users with C++, OpenLDAP, MYSQL on hybrid FreeBSD and Linux systems which later had about 0.5 million registered users
- Led a team to integrate instant messaging technology into office automation systems

Teaching Experience

- **Adjunct Instructor** July – August 2006
Brooklyn College, CUNY New York, NY
- Lectured course CIS 1.0 – Computing: Its Nature, Power, and Limits

Computer Skills

- Programming Languages: C++, C, JAVA, PASCAL, PROLOG, LISP
- Operating Systems: LINUX, FREEBSD, Windows
- Tools and Libraries: Matlab, LAPACK, Repast, TOMCAT, C++ STL, PostgreSQL, MYSQL, Open LDAP, JSP, Oracle, MS SQL Server, Lex/Yacc

Honors and Supports

- Graduate Center Technology Fellowship CUNY-GC, 2006 – 2007
- University Fellowship CUNY-GC, 2002 – 2007
- Excellent Degree Project Award Shenzhen University, 1999
- First-class Scholarship, Excellent Student Shenzhen University, 1995 – 1998

Publications

Autonomous Agents and Multiagent Systems

- Y. Tang, T. Norman, and S. Parsons. Agent-based Dialogues to Support Plan Execution by Human Teams. *Annual Conference of ITA*, September 2008.
- S. Parsons, S. Poltrock, H. Bowyer, and Y. Tang. Analysis of a Recorded Team Coordination Dialogue. *Annual Conference of ITA*, September 2008.
- Y. Tang, and S. Parsons. A dialogue mechanism for public argumentation using conversation policies. In *the 7th International Conference on Autonomous Agents and Multi-Agent Systems, Estoril, Portugal*, May 2008.
- Y. Tang, S. Parsons, and E. Sklar. An agent-based model that relates investment in education to economic prosperity. In *the 6th International Conference on Autonomous Agents and Multi-Agent Systems, Honolulu, Hawaii, USA*, May 2007 (poster).
- Y. Tang, S. Parsons, and E. Sklar. An agent-based model that relates investment in education to economic prosperity. In *Proceedings of the Workshop on Multiagent-based Simulation*, Honolulu, 2007.
- Y. Tang, and S. Parsons. Using Argumentation-Based Dialogues for Distributed Plan Management. In *AAAI 2006 Spring Symposium on Distributed Plan and Schedule Management*, March 2006 (position paper).
- Y. Tang, S. Parsons, and E. Sklar. Agent-based modeling of human education data. *the 5th International Conference on Autonomous Agents and Multi-Agent Systems, Hakodate, Japan*, May 2006 (short paper).

- Y. Tang, S. Parsons, and E. Sklar. Modeling human education data: From equation-based modeling to agent-based modeling. In *Seventh International Workshop on Multi-Agent-Based Simulation, Hakodate, Japan, May 2006*.
- Y. Tang, and S. Parsons. Argumentation-based Dialogues for Deliberation. In *the 4th International Conference on Autonomous Agents and Multi-Agent Systems, Utrecht, Netherlands, July 2005*.
- Y. Tang, and S. Parsons. Argumentation-Based Multi-agent Dialogues for Deliberation. In *Proceedings of Second International Workshop on Argumentation in Multiagent Systems*. Springer-Verlag, 2005 (invited paper).

Polynomial Root-findings and Matrix Eigen Problems

- V. Y. Pan, D. Ivolgin, B. Murphy, R. E. Rosholt, Y. Tang, X. Wang, and X. Yan. Root-finding with Eigen-solving. In Dongming Wang and Lihong Zhi, editors, editors, *Symbolic-Numeric Computation*, pages 185 – 210. Birkhauser, Basel/Boston, 2007.
- V. Y. Pan, G. Qian, B. Murphy, R. E. Rosholt, and Y. Tang. Real Root-finding. In Jan Vershelde and Stephen Watt, editors, *Proceedings of the Third International Workshop on Symbolic-Numeric Computation (SNC 2007)*, pages 161 – 169, ACM Press, London, Ontario, Canada, New York, July 2007.
- V. Y. Pan, B. Murphy, R. E. Rosholt, Y. Tang, X. Yan, and W. Cao. Linking the TPR1, DPR1 and Arrow-head Matrix Structures. In *Computers and Mathematics with Applications*, 52, 10-11, 1603-1608, 2006.
- V. Y. Pan, D. Ivolgin, B. Murphy, R. E. Rosholt, I. Taj-Eddin, Y. Tang, and X. Yan. Additive Preconditioning and Aggregation in Matrix Computations. In *Computers and Mathematics with Applications*, in press.
- V. Y. Pan, B. Murphy, R. Rosholt, Y. Tang, X. Wang, and A. Zheng. Eigen-solving via Reduction to DPR1 matrices. In *Computers and Mathematics with Applications*, in press.
- V. Y. Pan, D. Ivolgin, B. Murphy, G. Qian, R. E. Rosholt, I. Taj-Eddin, Y. Tang, and X. Yan. Additive Preconditioning in Matrix Computations. In *Proceedings of Mathematics and Mechanics*, in press.