Chung-Wei Hang

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Education

NORTH CAROLINA STATE UNIVERSITY 2006–2011
PhD in Computer Science (GPA: 4.0/4.0)
Advisor: Dr. Munindar P. Singh
Dissertation: Probabilistic Trust Models for Social and Service Networks

NATIONAL CHIAO TUNG UNIVERSITY
Master of Science in Computer and Information Science (GPA: 3.78/4.0) 2002–2004
Advisor: Dr. Chuen-Tsai Sun
Thesis: A Decentralized Multi-agent Service Lookup Mechanism
Bachelor of Science in Computer and Information Science 1998–2002

Research Interests

- Artificial intelligence, multiagent systems, multiagent coordination, probabilistic trust models, trust and reputation systems, recommender systems
- Social networks, social computing, trust propagation
- Service-oriented computing, service selection and composition, quality of service

Publications

JOURNAL PAPERS

[J1] **Chung-Wei Hang**, Zhe Zhang, and Munindar P. Singh. "Generalized Trust Propagation with Limited Evidence." *IEEE Computer*, Accepted.

[J2] **Chung-Wei Hang** and Munindar P. Singh. "Generalized Framework for Personalized Recommendations in Agent Networks." *Journal of Autonomous Agents and Multi-Agent Systems (JAAMAS)*, Volume 25, Issue 3, pages 475–498, 2012.

[J3] Yonghong Wang, **Chung-Wei Hang**, and Munindar P. Singh. "A Probabilistic Approach for Maintaining Trust Based on Evidence." *Journal of Artificial Intelligence Research (JAIR)*, Volume 40, pages 221–267, 2011.

[J4] **Chung-Wei Hang** and Munindar P. Singh. "Trustworthy Service Selection and Composition." *ACM Transactions on Autonomous and Adaptive Systems (TAAS)*, Volume 6, Issue 1, pages 5:1–5:17 plus an online appendix of 6 pages, February 2011.

CONFERENCE PAPERS

[C5] **Chung-Wei Hang**, Anup K. Kalia, and Munindar P. Singh. "Behind the Curtain: Service Selection via Trust in Composite Services." *Proceedings of the* 19^{th} *International Conference on Web Services (ICWS)*. Accepted. Honolulu, Hawaii, June 2012.

[C6] **Chung-Wei Hang** and Munindar P. Singh. "From Quality to Utility: Adaptive Service Selection Framework." *Proceedings of the* 8^{th} *International Conference on Service Oriented Computing (ICSOC)*, pages 456–470. San Francisco, USA, December 2010.

[C7] **Chung-Wei Hang**, Yonghong Wang, and Munindar P. Singh. "Operators for Propagating Trust and their Evaluation in Social Networks." *Proceedings of the* 8^{th} *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, pages 1025–1032. Budapest, Hungary, May 2009.

[C8] **Chung-Wei Hang**, Yonghong Wang, and Munindar P. Singh. "An Adaptive Probabilistic Trust Model and its Empirical Evaluation (Short Paper)." *Proceedings of the* 7^{th} *International Conference on Autonomous Agents and Multiagent Systems (AAMAS)*, pages 1485–1488. Estoril, Portugal, May 2008.

WORKSHOP PAPERS

[W9] **Chung-Wei Hang** and Munindar P. Singh. "Trust-based Recommendation based on Graph Similarity." *The* 13^{th} *AAMAS Workshop on Trust in Agent Societies*. Toronto, Canada, May 2010.

[W10] **Chung-Wei Hang** and Munindar P. Singh. "Selecting Trustworthy Service in Service-Oriented Environments." *The* 12^{th} *AAMAS Workshop on Trust in Agent Societies.* Budapest, Hungary, May 2009.

[W11] **Chung-Wei Hang**. "A decentralized multi-agent service lookup mechanism: cooperation and communication without center agents in RoboCup rescue." *The* 2^{nd} *International Workshop on Collaboration Agents*, pages 21–28, Bejing, China, September 2004.

Research Experience

NORTH CAROLINA STATE UNIVERSITY Raleigh, NC
Postdoctoral Researcher Summer 2011–Present

- Build an agent-based model in stock trading context; study how credibility of information (e.g., instant messages) can affect agents' decision making (i.e., stock trading); evaluate information credibility based on latent topics, causality analysis, sentiment analysis, etc.
- Develop an argumentation with evidence framework; formalize existing trust models as instances of the framework; study theoretical properties of the proposed framework.
- Apply trust models to place-aware applications; recognize and recommend places and activities from locations and social information.

NORTH CAROLINA STATE UNIVERSITY Raleigh, NC
Graduate Research Assistant Fall 2008–Spring 2011

- Build probabilistic trust and reputation models to facilitate decentralized coordination in multiagent systems.
- Develop approaches for agents to infer trustworthiness of others based on direct interaction and referrals from third parties.
- Propose parameter-free trust model that enables autonomous agents to dynamically update trustworthiness of others with changing behavior.
- Enhance existing trust-based applications in terms of flexibility (e.g., personalization and customization) and applicability (e.g., incorporating sparse information).
- Implement and evaluate proposed approaches on real datasets including social networks: PGP, FilmTrust, Advogato, and rating networks: Epinions, MovieLens, Jester.
- Design trustworthy service selection approach that formalizes service composition, infer trustworthiness of constituent services behind compositions based on composite quality, and evaluate services based on preferences and service quality.

MICROSOFT RESEARCH Redmond, WA
Research Intern Summer 2008
Explore a semantic approach of improving recommendations by combining multiple semantic graphs, e.g., improving movie recommendations on MSN Movies by combining semantic graphs from MSN Movies and IMDB.

Teaching Experience

NORTH CAROLINA STATE UNIVERSITY Raleigh, NC
Teaching Assistant Fall 2006, Spring 2007, Fall 2007, Spring 2008
Course: CSC513 E-Commerce Technologies (graduate)
Design and grade programming assignments, lead discussion, hold office hours.

NATIONAL CHIAO TUNG UNIVERSITY Hsinchu, Taiwan
Teaching Assistant Fall 2003
Course: Evolutionary Computation (graduate)
Grade assignments and projects

Professional Services

PROGRAM COMMITTEE

National Conference on Artificial Intelligence (AAAI), 2012
International Conference on Mobile Web Information Systems (MobiWIS 2012)
International Workshop on Trustworthy Multi-Agent Systems (TruMAS 2012)
International Conference on Privacy, Security and Trust (PST 2012)
Int'l Conference on Principles and Practice of Multi-Agent Systems (PRIMA 2010, 2011)
IEEE Fourth International Workshop on Scientific Workflows (SWF 2010)

JOURNAL REVIEWER

ACM Transactions on Intelligent Systems and Technology (TIST)
ACM Computing Surveys
Advances in Complex Systems (ACS)
Ad Hoc Networks
AI Communications
Artificial Intelligence (AIJ)
IEEE Internet Computing
IEEE Transactions on Systems, Man, and Cybernetics (SMC), Part C
IEEE Transactions on Services Computing
Information Science (INS)
Journal of Ambient Intelligence and Humanized Computing (AIHC)
Mobile Networks and Applications (MONET)
User Modeling and User-Adapted Interaction (UMUAI)

CONFERENCE/WORKSHOP REVIEWER

International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2012
AAMAS Workshop on Trust in Agent Societies (Trust), 2009, 2010, 2011
International Conference on Service Oriented Computing (ICSOC), 2010
IEEE Conference on Commerce and Enterprise Computing (CEC), 2010
International Conference on Web Services (ICWS), 2009
International Conference on Reputation (ICORE), 2009

Honors

Phi Kappa Phi Collegiate Honor Society
North Carolina State University Outstanding Teaching Assistant Award
NC State UGSA Travel Fund
Cisco Travel Grant
AAMAS 2009 Scholarships

Industry Experience

APLIX CORPORATION Taipei, Taiwan
Intern Summer 2006
Develop a Blu-ray Disc Java (BD-J) benchmark library for one of the largest JVM companies in Asian industry; implement a BD-J baseball broadcast application, which supports interactive features such as picture-in-picture playing, network and local storage access.

INSTITUTE FOR INFORMATION INDUSTRY Taipei, Taiwan
Software Engineer (part-time) Fall 2005–Spring 2006
Participate in J2EE-based ticket and financial management systems for Taipei Rapid Transit Corporation. The distributed system is deployed in more than 60 subway stations across Taipei urban areas, to provide ticket flow management, parking management, employee management, and auditing process for the metro system which has more than 1M passengers every day.

iaSOLUTION INC. Hsinchu and Taipei, Taiwan
Software Engineer (part-time) Fall 2000–Spring 2003
Develop AQUA (Java GUI framework and application front-end for PDA devices), J2EE-based and J2ME mobile applications for hand-held devices. iaSolution Inc., a start-up in 2000 and then acquired by Aplix Corp. in 2004, provides Java solutions for handheld devices.