

Yathiraj B. Udupi

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Objective

To apply my engineering, research and analytical skills in a challenging industry environment.

Areas of Interest

Policies, Policy-based Management, Multiagent Systems, Artificial Intelligence, Service Networks and Organizations, Contracts and Agreements Governance, Web Services, Service-Oriented Computing, Semantic Web, Social Networks, Trust and Privacy, Peer-to-Peer Service Networks, Knowledge Management; Convergence of these areas for novel applications in Services, Distributed Systems, and Grid/Cloud Computing research.

Education

North Carolina State University (NCSU), Raleigh, NC, USA

PhD, Computer Science

- *Dissertation:* Modeling Service Engagements in Dynamic Service Organizations: Multiagent Model and Architecture for Policy-Based Governance
- *Advisor:* Dr. Munindar P. Singh, Professor, NCSU
- *Graduation date:* May 2008
- *GPA:* 3.74/4.00

Master of Science, Computer Science

- *Graduation date:* Dec 2005
- *GPA:* 3.74/4.00

Indian Institute of Technology (IIT-Madras), Chennai, India

Bachelor of Technology, Computer Science

- *Graduation date:* July 2002
- *GPA:* 8.53/10.00

Academic Work Experience

North Carolina State University, Raleigh, North Carolina USA

Instructor and Graduate Teaching Assistant, Aug 2007 – Dec 2007

Instructor for a graduate level course CSC513: E-Commerce Technologies which broadly covers the areas of Information systems Architecture, Web Programming including Ruby on Rails, JSP, Servlets, XML Representations covering XML Schema, XPATH, XQuery, XSLT, etc., and Auction Theory.

Graduate Teaching Assistant, Jan 2004 – May 2004, Jan 2006 – May 2006

Assisted for graduate courses titled “Service-Oriented Computing” and “Web Services”.

Graduate Research Assistant, Aug 2002 – Dec 2003, Jan 2005 – Dec 2005, Aug 2006 – May 2007

Conducting research in the area of Policy-based governance architectures, Virtual Organizations, Multiagent trustworthy P2P service networks, Referral Systems and Trust.

Indian Institute of Technology, Chennai, India

Teaching Assistant, Jan 2002 – May 2002

Assisted for an undergraduate course - “Introduction to Computing”.

Professional Work Experience

Cisco Systems Inc., NMTG CTO Office, Software Group, San Jose, CA.

Software Engineer, Jun 2008 – present

Participation in various projects involving investigation, evaluation, design, and prototyping in the Network Management domain. Projects included:

- “Constraints-based resource management and traffic engineering”: Exploring distributed constraints solving techniques using ECLiPSe constraint logic programming.
- Investigation of several models using the Tigerstripe model-driven engineering framework for Eclipse IDE, and an effort to arrive at a common high-level semantic model, mapping the various models.

- Investigation of xDE diagnostic engine and workflows in a troubleshooting scenario.
- Investigation of Shibboleth Identity Federation framework for single sign-on and identity federation scenarios.

IBM T.J. Watson Research Labs, Hawthorne, NY.

Research Intern, Jun 2007 – Aug 2007

Worked on a project titled “MashQua: A Quantification framework for Mashups”. The project is in the area of Web 2.0, specifically Mashups, implemented (using Ruby on Rails (RoR)) a quantification framework capturing important internals of mashups, their creation, as well as their community generated quality aspects. Skill set included: Ruby on Rails (RoR).

Hewlett Packard Labs (HP Labs), Palo Alto, USA.

Research Associate (Intern), May 2006 – Aug 2006

Worked on a project titled “A Classification-Based Approach to Policy Refinement” as applicable for system design and monitoring. The objective of this approach is to create an automated approach to derive low-level system design and monitoring policies so that the high-level SLA goals are satisfied. Used a combination of data mining classification and test-and-dev approaches. Published as a HPL Tech. report and as a conference paper. Skill set included: Java, Weka Data Mining toolkit, Rubis benchmarking tool.

Hewlett Packard Labs (HP Labs), Bristol, UK.

Research Intern, Jun 2004 – Nov 2004

Worked on a research project titled “Agent Front End to a Semantic Web Service”. Responsibilities included the development of an agent-based mediator, using the NUIN Agent framework, as an experimental front-end for the HP Software Marketplace, a B2B web-service. It enabled syntax independent interaction by lifting XML message data into, and out of, RDF. This work was presented at a workshop. Required skill set included: Java, XML, RDF, Nuin scripting framework, JENA, XPATH, XSLT, Javascript.

Cognizant Technology Solutions (CTS), Chennai, India.

Summer Intern, May 2001 – Jul 2001

Worked on a project titled “Extraction of Business Rules from Legacy Systems”. Responsibilities included transforming the code written in a legacy system of COBOL code to a higher level language by extracting important business rules. The project skill set included Mysql, JDBC, Java, JSP, HTML.

Research and Academic Projects

- Dissertation Project: A Java J2EE project “MAVOS – A Multiagent Policy-based Governance Architecture” to demonstrate the concepts from my PhD research on practical usecases. Implementation involved using JESS rule engine, JBoss AS, EJBs including MDBs and JMS support, Mysql, JDBC.
- Used the SAS Data Miner on a course project titled “Trends in Referral Systems”.
- Co-authored course project and report titled “An Agent Based P2P Approach for Data Discovery using Referrals and Rankings”.
- Co-authored survey paper titled “TRUST: A Soft Security Technique” as course term paper.
- Deployed, published, and used Web Services using WSDL, SOAP, AXIS, UDDI, XML, Java.
- 3-D Tic-Tac-Toe and Vacuum cleaning agent applications as projects for the AI course built using Java.
- Using a distributed environment to simulate the Travel Agent Problem, built an intelligent Travel Agent using C++ which competed with other travel agents.
- Built a Compiler for a subset of the grammar of Pascal using Lex and Yacc.
- Implemented a Web Enabled Database System using JSP, MySQL, Java, JDBC.

Relevant Courses

Database Security(Fall 2005), Automated Learning and Data Analysis(Spring 2005), Data Integration and the Web (Spring 2004), Information Systems Security, Computer Networks(Fall 2003), Web Services, ECommerce, Automata, Languages and Computability Theory(Spring 2003), Artificial Intelligence, Design and Analysis of Algorithms (Fall 2002), Database Management, Network Management Systems, Engineering Project Management, Operations Research, Project Finance.

Skill Set

Java, C++, JSP, XML, XSLT, Ruby on Rails, Shibboleth Identity Federation framework, WSDL, SOAP, RDF, OWL, OWLS, JENA Semantic Web toolkit, XPATH, WSDL, SOAP, UDDI, JDBC, MySQL, Apache Web Server, Jboss AS, J2EE, EJBs, Ponder, XACML, Rei, Jess, Prolog, CIM, UML, Tigerstripe MDE framework for Eclipse, xDE diagnostic engine, ECLiPSe Constraint Logic Programming Language, NUIN Agent Scripting Framework, Axis Web Services Tools, SAS Data Miner, Rubis Benchmarking Tools, Weka Data Mining Toolkit, Eclipse IDE.

Honors and Activities

- Student travel scholarship to AAAI'06 conference held in Boston, MA, AAMAS'07 conference held in Honolulu, Hawaii.
- Awarded full tuition waiver and graduate research assistantship to pursue my PhD at NCSU.
- Ranked among the top candidates in the Joint Entrance Examination'98 to get admission into the Indian Institute of Technology (IIT), the top ranked school in India.
- Held the post of an official in the Computer Science Graduate Student Association (CSCGSA) of NCSU.
- Held the post of Branch Counselor, an official in the student council at IIT-Madras.

References

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Dr. Stefan Tai
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Dr. Akhil Sahai
Senior Product Manager, VMware Inc,
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Research Publications

Academic Publications:

1. "Modeling Service Engagements in Dynamic Service Organizations: Multiagent Model and Architecture for Policy-Based Governance", *Ph.D. Dissertation*, Department of Computer Science, North Carolina State University, March 2008.
2. Trustworthy Service Networks. Ph.D. Qualifier Document, Department of Computer Science, North Carolina State University, Raleigh, Nov 2003.

Refereed Conference and Workshops Publications:

1. "Formal Aspects of Classifying and Selecting Business Services" Yathiraj Udupi and Munindar P. Singh. In Proceedings of the 8th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), Budapest, Hungary, May 2009. To Appear.
2. "Design Patterns for Policy-Based Governance" Yathiraj B. Udupi and Munindar P. Singh. In Proceedings of the IEEE International Workshop of Policies for Distributed Systems and Networks (POLICY), Palisades, NY, June 2008.
3. "Governance of Cross-Organizational Service Agreements: A Policy-Based Approach" Yathiraj B. Udupi and Munindar P. Singh. In Proceedings of the 4th IEEE International Conference on Services Computing (SCC), pages 36–43, Salt Lake City, Utah, July 2007.
4. "Information Sharing among Autonomous Agents in Referral Networks" Yathiraj B. Udupi and Munindar P. Singh. In Proceedings of 6th International Workshop on Agents and Peer-to-Peer Computing (AP2PC), Honolulu, Hawai'i, May 2007.
5. "Dynamics of Contract-Based Organizations: A Formal Approach Based on Institutions" Yathiraj B. Udupi and Munindar P. Singh. In Proceedings of 6th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), Honolulu, Hawai'i, May 2007.
6. "InterPol: A Policy Framework for Managing Trust and Privacy in Referral Networks" Yathiraj B. Udupi and Munindar P. Singh. In Proceedings of 6th International Conference on Autonomous Agents and Multi-Agent Systems (AAMAS), Honolulu, Hawai'i, May 2007.
7. "A Classification-Based Approach to Policy Refinement" Yathiraj B. Udupi, Akhil Sahai and Sharad Singhal. In Proceedings of the 10th IFIP/IEEE Symposium on Integrated Management (IM), pages 785–788, Munich, Germany, May 2007.
8. Multiagent Policy Architecture for Virtual Business Organizations Yathiraj B. Udupi and Munindar P. Singh. In Proceedings of the 3rd IEEE International Conference on Services Computing (SCC), Chicago, pages 44–51, September 2006.
9. Contract Enactment in Virtual Organizations: A Commitment-Based Approach Yathiraj B. Udupi and Munindar P. Singh. In Proceedings of the 21st AAAI National Conference on Artificial Intelligence (AAAI), Boston, Massachusetts, pages 722–727, July 2006, AAAI.
10. Agent-based Mediation in Semantic Web Service Framework Renato de Freitas Bulcao Neto, Yathiraj B. Udupi, and Steve Battle. In Proceedings of the First AKT Workshop on Semantic Web Services (AKT-SWS04), KMi, UK, Dec 2004.
11. Agent-Based Peer-to-Peer Service Networks: A Study of Effectiveness and Structure Evolution Yathiraj B. Udupi, Pinar Yolum and Munindar P. Singh. In Proceedings of the AAMAS'04 Conference, NY, USA, pages 1336–1337, July 2004.
12. Trustworthy Service Caching: Cooperative Search in P2P Information systems Yathiraj B. Udupi, Pinar Yolum and Munindar P. Singh. In Proceedings of the AAMAS Workshop on Agent-Oriented Information Systems (AOIS-03), Melbourne, pages 32–44, 2003.