

# Haibo Zhao

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## Education

- **University of Georgia** Athens, GA  
*Ph.D. Candidate, Computer Science(GPA 3.8/4.0)* *Aug. 2004 - Present*
  - **Research Interests:** Semantic Web Services, Semantic Web, Data Mining, Machine Learning, Knowledge Representation, Decision-Theoretic Planning, AI
  - **Awards:** University-wide Graduate Student Fellowship(2004, 2005), University Dissertation Completion Award(2008)
- **Xiangtan University** Xiangtan, China  
*M.S., Computer Science* *2002-2004*
  - **Research Interests:** Distributed Computing, Web Based Applications
  - Overlapped With Undergraduate Senior Year Because of Grade Advance
- **Xiangtan University** Xiangtan, China  
*B.S., Computer Science* *1999-2003*
  - Graduated with Honors, “Excellent Graduation Thesis” Award

## Research & Projects

- **Integrate Google services in SCA compositions** [GSoC, Google]  
*Designer and Programmer* *Summer, 2008*
  - A Google Summer of Code project associated with Apache Tuscany
  - Adding GData binding into Tuscany to allow the integration of Google services into Tuscany, an Apache SOA framework. It enables an easy and intuitive integration of Google services and other Web accessible services including Feed, WS/AXIS2, RMI and so on
  - **Project Website:** <http://gdatabindingtuscany.blogspot.com>
- **Medical Domain Knowledge Editors, KMT** [Research Intern, Siemens]  
*Research Intern (Internship project in Siemens Medical Solution)* *May 2008 - Aug. 2008*
  - Proposed (and proved by a prototype implementation) a general modeling based solution to designing Medical Domain Knowledge Editors in KMT Project, which aims to extract Medical knowledge of particular interest from unstructured clinical data. The proposed solution has been adopted in Siemens product.
- **HALEY: An Automated Hierarchical Web Service Composition Framework**  
*Researcher (Dissertation Research)* *Aug. 2005 - Present*
  - Responsible for major research, architecture design and system implementation.
  - Extend Semantically Annotated WSDL to support *SWRL* based first-order descriptions.

- Extend classical Semi-Markov Decision Processing(SMDP) model into First-order SMDP model and design a *stochastic AI planner* to automatically compose Web services into BPEL processes. Our stochastic planner is *so far the only planner* with the capacity to capture the *uncertainty, functionality, QoS property* and *optimality* of Web services and BPEL processes. HALEY employs a *hierarchical framework* to handle the hierarchies found in processes and addresses the *scalability issue* which many planning based approaches suffer from.
  - HALEY is an automated, scalable, efficient and *end-to-end semantic Web service composition framework*. It naturally models uncertainty nature of Web services, takes into consideration both functional and QoS descriptions and provide a *cost-based optimization* of the generated business processes. Our experiment results show that it has stronger *expressive power* and produces significantly *better BPEL processes* than other contemporary approaches.
  - HALEY is implemented as a Eclipse plugin and stand-alone Eclipse RCP. Some of the technologies used are Draw2D, EMF, GEF, GMF, Prolog and BPEL APIs.
  - **Demo URL:** <http://www.haibozhao.com/HaleyDemo/>
- **NFSMS: United States National Feral Swine Mapping System** [On-Campus Job]  
*Project Leader, Major Designer (A project sponsored by USDA)* *May. 2007 - May. 2008*
    - Responsible for project management, architecture design, system implementation.
    - NFSMS is a Google Maps API based interactive digital mapping system to monitor the distribution of feral swine in US. Via NFSMS, state agencies intuitively draw regions on the map to report swine observations and population changes; System administrator evaluates agency submissions, updates the distribution map, monitors distribution changes and produces distribution map over time. This system can be easily modified to other animals or diseases.
    - **URL:** <http://www.feralswinemap.org>
  - **LFY: A Google Search API Based People Search Engine** *Jan. 2006 - May 2006*  
*Project Leader and Major Programmer*
    - Responsible for architecture design, engine implementation, system integration and testing.
    - Based on Google search API, enhance Google searching on people classification and text categorization. Web content mining, Text corpus building and Frequency analyzing, Bayesian learning based people related Web page classification.
    - **URL:** <http://www.haibozhao.com:8080/mlProject/>
  - **CUADRO: A Semantic Photo Sharing Community** [Group Research Project]  
*Major Programmer* *Aug. 2005 - Dec. 2005*
    - Responsible for Ontology design, Ontology populating and Database schema design.
    - The novelty of CUADRO is that it semantically annotates photos, people, locations and their relationships, we extract instances, relations from descriptions of photos to populate the Ontology and then retrieve and inference information from the populated Ontology.
  - **Ontology Visualization** *Jan. 2005 - May 2005*  
*Major Programmer*
    - Responsible for RDF/RDFS/OWL parsing. Designed an ontology visualizer.
  - **MDGA: Motif Discovery Using Genetic Algorithms** *Aug. 2004 - Jan 2005*  
*Programmer*
    - Responsible for programming and testing
    - A new way of genetic motif discovering with genetic algorithms using tailored crossover and mutation method.

## Publications

- **Haibo Zhao**, Prashant Doshi, *Haley: Hierarchical and Logical Composition of Web Services*, Journal of Service Oriented Computing and Applications, 2008, Submitted
- **Haibo Zhao**, Prashant Doshi, *Haley: An End-to-End, Scalable Web Service Composition Tool*, Developers Track, W3C 17th International World Wide Web Conference, WWW, Beijing, 2008
- **Haibo Zhao**, Prashant Doshi, *HALEY: A Hierarchical Framework for Logical Composition of Web Services*, Research Track, IEEE International Conference on Web Services, ICWS, Salt Lake City, 2007 (acceptance: 18%)
- **Haibo Zhao**, Prashant Doshi, *A Hierarchical Framework for Composing Nested Web Processes*, Research Track, IEEE International Conference of Service Oriented Computing, ICSOC, Chicago, 2006 (acceptance: 17%)
- **Haibo Zhao**, Prashant Doshi, *Composing Nested Web Processes using HSMDP*, Workshop on AI-Driven Technologies for SOC, The Twenty-First National Conference on Artificial Intelligence, AAAI, Boston, 2006
- Joseph Corn, **Haibo Zhao**, Thomas R. Jordan, Marguerite Madden, Matthew A. Blankenship, *Mapping the Distribution of Feral Swine in the United States, 1982-2008*, National Feral Swine Symposium, 2008

## Talks and Presentations in Academic Conferences

- **“An End-to-End, Scalable Tool Suite of Web Service Composition ”**, Developers Track, 17th International World Wide Web Conference, WWW, Beijing, April 2008
- **“Speeding up Web Service Composition with Volatile External Information”**, CSSSIA Workshop, 17th International World Wide Web Conference, WWW, Beijing, April 2008
- **“Making BPEL flexible: adapting in the context of coordination constraints using WS-BPEL”**, Poster Session, 17th International World Wide Web Conference, WWW, Beijing, April 2008
- **“Speeding up web service composition with volatile information ”**, Poster Session, 17th International World Wide Web Conference, WWW, Beijing, April 2008
- **“HALEY: A Hierarchical Framework for Logical Composition of Web Services”**, IEEE International Conference on Web Services, ICWS, Salt Lake City, Utah, July 2007
- **“Regret-Based Decentralized Adaptation of Web Processes with Coordination Constraints”**, IEEE International Conference on Services Computing, SCC, Utah, July 2007
- **“Composing Nested Web Processes using HSMDP”**, Workshop on AI-Driven Technologies for SOC, The Twenty-First National Conference on Artificial Intelligence, AAAI, MA, July 2006
- **“Adaptive Web Processes Using Value of Change Computations”**, Workshop on AI-Driven Technologies for SOC, The Twenty-First National Conference on Artificial Intelligence, AAAI, Boston, MA, July 2006

## Recent Professional Service

**Session Chair:** CSSSIA Workshop-W3C World Wide Web Conferene 2008

**PC Member:** WSCA Workshop,IEEE International Conference on Services Computing(WSCA-SCC08)

**External Reviewer:** AI-SOC Workshop-AAAI06, SCC07, WSCA07 Workshop, SCC08

**Member:** AAAI, IEEE

## Awards

PhD Dissertation Completion Award	University of Georgia, 2008-2009
University-Wide Graduate School Fellowship	University of Georgia, 08/2004-05/2006
Excellent Graduation Thesis	Xiangtan University, 06/2003
Graduated with Honors	Xiangtan University, 06/2003
The First Prize Undergraduate Scholarship	Xiangtan University, 05/2000, 05/2002

## Skills & Knowledge Acquired Through Education and Experience

**Semantic Web:** Knowledge representation in RDF/OWL, Ontology design and populating via Natural Language processing; XML, XML Schema Design, SWRL and their processing APIs

**Semantic Web Services:** WSDL/SOAP/UDDI programming, BPEL processing, SAWSDL, OWL-S, WSLA/WS-agreement

**Artificial Intelligence:** Machine learning based applications, Knowledge base design and applications, Prolog programming, AI planning

**Text Processing and Information Retrieval:** Regular expression design, Knowledge Base populating via NLP, Knowledge Base querying and inferencing

**Programming Languages and OS:** Java, JSP/Servlet, JavaScript, AJAX, Prolog, C/C++, L<sup>A</sup>T<sub>E</sub>X, Linux, Unix, Windows

**Eclipse Platform:** Eclipse Plugin/RCP development, Draw2D, EMF, GMF, SWT/JFace, Junit

**Database:** MySQL, JDBC, ORM, Hibernate, Connection Pool, C3P0

**Miscellaneous:** Strong problem solving ability, Strong programming ability, Software configuration management, Excellent troubleshooting and debugging skills, Good team skills, Good communication skills

## References

**Prashant Doshi:** Major Professor pdoshi@cs.uga.edu (312)953-2596

**Matthew A. Blankenship:** Manager blank@uga.edu (706)247-0294