Curriculum Vitae

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BIOGRAPHICAL SUMMARY

Dr. Jie Bao received his B.S. and M.S. (both with honor) in electrical engineering from Hefei University of Technology in 1998 and 2001, respectively, and his Ph.D. in computer science (advised by Professor Vasant Honavar) from the Iowa State University (ISU) in 2007. At ISU, he developed new formalisms and tools for semantic data integration, modeling modular ontologies, collaborative ontology building and Web privacy protection. For his work on modular ontologies, he received the Best Paper Award from the Asian Semantic Web Conference 2006.

From 2008 to present, Dr. Bao is a postdoctoral research associate at the Tetherless World Constellation, Rensselaer Polytechnic Institute, where he worked with Professor James Hendler and Professor Deborah McGuinness on a variety of topics in Semantic Web. He has pursued research on social semantic web, ontology integrity constraint languages, policy formulation and scalable reasoning with Web ontologies. Specific efforts in this period have included the development of methodologies and applications of semantic wiki-based approaches for the analysis, modeling, production and use of semantic web data.

Dr. Bao has authored more than 50 research papers in journals and peer-reviewed international conferences and workshops. He has served on Organizing Committees or Programming Committees of more than 20 international conferences and workshops, including prestigious International Joint Conferences on Artificial Intelligence (IJCAI), International Semantic Web Conference (ISWC), Extended/European Semantic Web Conference (ESWC), Asian Semantic Web Conference (ASWC) and Association for the Advancement of Artificial Intelligence (AAAI) Symposia, and is currently serving on the editorial board of Journal of Emerging Technologies in Web Intelligence. He is a member of the OWL Working Group at W3C in which he co-authored two W3C specification documents of OWL 2.

EDUCATION

Iowa State University, Ames, Iowa, USA
Ph.D. in Computer Science, Dec. 2007
Dissertation: Representing and Reasoning with Modular Ontologies. Advisor: Vasant Honavar

Hefei University of Technology, Hefei, Anhui, China
M.S. in Electrical Engineering (area: Signal and Information Processing), July 2001
Thesis: Research on Some Key Issues of Synergetic Neural Network. Advisors: Jun Gao and Mengxian Pan

Hefei University of Technology, Hefei, Anhui, China
B.S. in Electrical Engineering, July 1998
Thesis: Data Visualization and Processing.

WORK EXPERIENCES

Tetherless World Constellation and Department of Computer Science,
Rensselaer Polytechnic Institute, Troy, NY, USA
Research Associate, Feb 2008 - present. Supervisor: James A. Hendler

Artificial Intelligence Research Laboratory, Department of Computer Science,
Iowa State University, Ames, Iowa, USA
Postdoctoral Research Associate, Aug 2007 - Feb 2008. Supervisor: Vasant Honavar
Research Assistant, Aug 2001 - Jul. 2007
Teaching Assistant, Aug 2002 – Dec 2002

RESEARCH INTERESTS

- Current research topics: Semantic Web, Description Logics, Ontology Engineering and Data Integration.
- Previous research topics: Data Mining, Neural Network, Pattern Recognition, Image Processing, Image Database, and Complex System.

AWARDS AND HONORS

Percentage of award is the ratio of receivers/total participants

- **Robert Stewart Research Excellence Award**, Department of Computer Science, Iowa State University. Apr. 2007. (Awarded to 2 students from 150 graduate students)
- **Student Travel Award**, the 2006 IEEE/WIC/ACM International Conference on Web Intelligence (WI). Dec. 2006. (Awarded to 5 students worldwide).
- **Best Paper Award**, the First Asian Semantic Web Conference (ASWC). Sept. 2006. (4.1%)
- **Science & Technology Progress Award of Anhui Province** (Third Class), on *the Theory and Application Research of Synergetic Pattern Recognition*. Apr. 2004, China.
- **Best Paper Award in Natural Science**, Second Class in Anhui Province, China. Dec. 2003.
- **Excellent Graduate Student (Postgraduate)** of Anhui Province, China. July 2001
- **Research Excellency Award** (2%, 10 in around 500), Graduate College, Hefei University of Technology, May 2001
- **2 International Awards of Mathematical Competition in Modeling:**
    - Meritorious (2^{nd} highest class out of 5 classes), COMAP (Consortium for Mathematics and Its Applications) International MCM, 1999, as advisor (17%);

- Honorable Mention (3rd highest class out of 5 classes), COMAP International MCM, 1998, as student (25%);

- **3 National Awards of Mathematical Competition in Modeling:**
  - National Second Class Award, China, 2000, as advisor (7.6%);
  - National Second Class Award, China, 1998, as advisor (7.3%);
  - National Second Class Award, China, 1996, as student (6.5%).
- **1 Provincial Award of Mathematical Competition in Modeling:**
  - Anhui Provincial First Class Award, China, 1997, as student;
- **Excellent Graduate Student (Postgraduate)**, Hefei University of Technology, Dec. 2000
- **Excellent Undergraduate Thesis**, Department of Computer and Information, Hefei University of Technology, July 1998.

RESEARCH EXPERIENCES

At **Rensselaer Polytechnic Institute**. Feb 2008 - Present.

- On **Social Semantic Web** (Feb. 2008-present)

  One of the biggest challenges in realizing the Semantic Web vision is end-user friendly tools and workflows for common Web users to contribute semantic annotations and link these semantic annotations. One direction to solve this problem is driven by enabling Semantic Web with the power of social network and Social Web tools, e.g., wikis. My work on this topic explores:

  - Develop a semantic portal wiki system to support typical content management tasks of a research community, including ontology generation and user-friendly query interfaces for information about people, events, literature, projects, etc.; the wiki is used by the homepage of the Tetherless World Constellation (http://tw.rpi.edu);
  - Concept modeling, formal models, complexity analysis of semantic wikis;
  - Semantic logging and provenance tracking of user activities on semantic wiki and their applications in explanation (http://tw.rpi.edu/semhis);
  - Social tagging, collaborative ontology building, and ontology mapping via social network;
  - Semantic geographical information system, e.g. RPI Map (http://map.rpi.edu)
  - Evaluation of Semantic MediaWiki, as part of the DARPA funded project Knowledge Acquisition for Human Terrain (KAHT)

- On **Semantic Data Management** (Mar. 2008-present), as a part of the US-UK joint project "International Technology Alliance in Network and Information Science" (ITA). (http://tw.rpi.edu/wiki/Project/ITA)

  The project is aimed at improving interoperability and situational awareness to increase operational efficiency in international alliance tasks. My research addresses following problems:

  - Controlled natural language interface for semantic wikis (http://tw.rpi.edu/proj/cnl);
  - Formal methods and tools for the collaborative construction and maintenance of ontology mappings that between semantically heterogeneous applications;
  - Applying the theory of modular ontology in efficient ontology reuse, including reuse by ontology interface and portable ontology alignment;
  - OWL instance data evaluation and constraint checking (http://tw.rpi.edu/wiki/OWLEval).

- On **Web-Scale Reasoning** (Mar. 2008-present)

  As Semantic Web is an open, distributed and every-increasing source of knowledge and data,

reasoning on the Semantic Web inevitably requires strong scalability that is able to handle billions or even trillions of data instances. My research on this direction is aimed at methods and tools to support scalable query answering over very large light-weight ontologies. Those methods include:

- Distributed reasoning and query answering from multiple, autonomous ontologies; currently, the work is aimed at designing a distributed reasoner for Package-based Description Logics
- Applying parallel computation methods in designing reasoners for very large data sources.

- On **Web Ontology Language (OWL)** (Mar. 2008-present), as a member of the W3C (The World Wide Web Consortium) OWL Working Group, representing RPI. (http://www.w3.org/2007/OWL/)

The OWL working group is aimed to develop the next generation of Web ontology language as a common language for Semantic Web applications. The OWL language is closely related to description logics thus has the support of automated reasoning. The current focus of the working group is on the design and documentation of the "OWL 2" language. My primary involvement to the development of OWL is authoring two W3C standardization specification proposals, namely the "OWL Quick Reference Guide" and "rdf:PlainLiteral: A Datatype for RDF Plain Literals". I'm also interested in better support in OWL for the scalable reasoning and reuse of ontologies. That involves modularity in ontologies, collaborative ontology building, partial reuse, reuse by interface and new reasoning strategies over OWL (e.g., distributed reasoning and parallel reasoning).

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At **Iowa State University (ISU)**, Aug. 2001-Feb 2008.

- On **Modular Ontologies** (2003-2008). Worked on US NSF sponsored project "Exploratory Investigation of Modular Ontology Languages" (IIS-0639230 SGER) and its preliminary research.

The work is focused on the theory and application tools for combing and reasoning with multiple ontologies. This research explores questions such as the following:

- What are the minimal requirements for ensuring well-defined semantics in a modular ontology language?
- What ontology language features are needed to construct modular ontologies in practice?
- Can such reasoning be accomplished in a distributed setting without the need for centralized access to all of the ontology modules?
- How can ontologies be partially reused?
- How to combine ontology modules without losing the contexts of knowledge in those modules?
- How expressive modular ontology languages can be without losing decidability?
- How can we support rapid, on-the-fly development of ontologies with good modularity?

To address these issues, this work developed a family of modular ontology languages, namely Package-Based Description logics (P-DL) on its language features, syntax, semantics and reasoning algorithms. This work contributes the main body of my dissertation.

- On **Trust and Privacy on Semantic Web** (2006-2008). Worked on NSF Industry-University Research Center for Information Protection sponsored project "Privacy-Preserving Reasoning with Hidden Knowledge") and its preliminary research.

The work is focused on practical methods to selectively share inference results using hidden

knowledge, whenever it is feasible to do so without compromising the hidden knowledge. Such methods provide the necessary inference support on the top of syntactical access control methods of resources on the Semantic Web offered by policy languages. In particular, it explores:

- The notion of strong and weak privacy preservation in the Semantic Web context.
- Practical approaches for privacy-preserving inference with hierarchical ontologies and description logics.
- Privacy-preserving inference with distributed, modular ontologies.

- On **Semantic Data Integration** (2003-2007). Worked on US NSF (IIS 0219699) and NIH (GM 066387) sponsored project "INDUS (the Intelligent Data Understanding System)".

  The work is focused on algorithms and tools for building and querying semantically heterogeneous, distributed data sources. My work includes the following:

  - The investigation on formal methods to model the (usually implicit) ontology commitment associated with data sources, including semantic commitments in both data schema and data instances (Spring 2006 to present);
  - The development of a theoretically sound approach to formulation and execution of queries across semantically heterogeneous data sources. (Spring 2005 to Summer 2006);
  - The design and implementation of INDUS – a modular, extensible, open source software toolkit for data driven knowledge acquisition from large, distributed, autonomous, semantically heterogeneous data sources (in collaboration with Doina Caragea and Jyotishman Pathak). (Fall 2003 to Spring 2005)

- On **Collaborative Ontology Building** (2004-2006). USDA NAGRP Bioinformatics Coordination Program sponsored project. (http://www.animalgenome.org/bioinfo/projects/ATO/)

  The work is focused on developing theoretical methods and tools for building ontologies that require collaboration among individual experts or research groups in biological domains. This research is tightly related to my work on modular ontologies. The specific aims of this work include:

  - The theoretical investigation on key issues in collaborative ontology building, such as server-based ontology storage, inconsistency checking, conflicts control, and maintenance of ontology modules;
  - The development of COB Editor, a modular ontology editor designed for a group of biologists to collaboratively build ontologies;
  - The development of animal trait (phenotype) ontologies using the collaborative ontology editor (in collaboration with LaRon Hughes and Zhiliang Hu).

- On **Data Mining in Electric Power Usage** (2001-2002). Cooperative Research with Power Domain, Inc.

  This project is focused on developing data mining methods for electric power usage data to develop customer profiles. My work addressed the following issues:

  - The investigation of several hybrid forecasting model for time series based on neural network and statistical methods. These algorithms provide short-term forecasting of electricity load with high accuracy (98.8% for one-hour-ahead forecasting and 97.3% for 24-hour-ahead forecasting) and stability (on the test set of 6 months of hourly load data) in forecasting.

- The implementation of a Matlab program for predicting power usage (on hourly and daily base).

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At **Hefei University of Technology** (HFUT), Sept.1998 - Jul. 2001

Research Assistant for Dr. Jun Gao and Prof. Mengxian Pan, Lab of Image and Information Processing (LIIP), Computer and Information Department.

My selected work at HFUT includes:

- On **Synergetic Neural Network** (Sept. 1999 – July 2001)

  Synergetic Neural Network (SNN) is a pattern recognition method inspired by the analogy between pattern recognition and pattern formation in open systems. My work extended the original SNN model in both theoretical aspect and implementation optimizations. This work constituted the main body of my master's thesis. Some specific results of this research include:

  - The analysis of SNN as competitive neural networks and the comparison between SNN and other competitive neural networks, e.g., Self-Organizing Map (SOM);
  - The formal description and visualization of potential functions of SNN in two-dimensional space;
  - The tuning of attractive domains and the attractors of SNN for the best approximation of pattern boundaries;
  - A fast algorithm for SNN based on linear and exponential function approximation of attractive domain boundaries and fast feature extraction (faster than the original algorithm by two orders);
  - The use of SNN as the recognition layer of an optoelectronic shape recognition system;
  - Implementation of the SNN tool set in Matlab..

- On **PACS, Medical Image Processing and Image Databases** (Jan. 1999 - July 2001)

  Picture Archiving and Communication Systems (PACS) are software and hardware dedicated to the storage, retrieval, distribution and presentation of medical images. In collaborations with Anhui Medical University, Best Co. Ltd. (Hefei), and Department of Mechanical Engineering, HFUT, my work in this research includes:

  - The investigation of component-based, Internet-oriented PACS;
  - The development of *ImagePro*, a system for medical image capturing, storage, query and computer-aided diagnosis;
  - An adaptive acquisition algorithm for medical x-ray images that can improve image quality by removing device bias signal and maximizing the dynamic range of captured images;
  - A valid region recognition algorithm based on Hough Transformation to improve captured image quality.

PROFESSIONAL SERVICES

Journal Editor

1. Member of Editorial Board, Journal of Emerging Technologies in Web Intelligence, since 2009

2. Guest Editor for Journal of Multimedia Tools and Applications, Special Issue on Data Semantics for Multimedia Systems, 2009.
3. Guest Editor for Journal of Multimedia, 2009 Special Issue on Selected Papers of The 4th IEEE International Workshop on Multimedia Information Processing and Retrieval (MIPR 2008) and The 1st IEEE International Workshop on Data Semantics for Multimedia Systems and Applications (DSMSA 2008)

Journal Reviewer

4. Journal of Web Semantics (JWS), 2009
5. IEEE Transactions on Knowledge and Data Engineering (TKDE), 2009
6. Data & Knowledge Engineering (DKE), 2009
7. Knowledge and Information Systems: An International Journal, 2009
8. Journal of Zhejiang University-SCIENCE A, 2008

Conference Organizing Committee Member

9. Metadata chair of the 9th International Semantic Web Conference (ISWC 2010), Nov 7 to 11, 2010. Shanghai, China.
10. Co-chair of the Social Web Track, the 7th Extended Semantic Web Conference (ESWC 2010), May 30 to Jun 3, 2010. Heraklion, Greece. .
11. Tutorial Chair of the 4th Asian Semantic Web Conference (ASWC), Dec 6-9 2009, Shanghai, China.

Workshop Organizing Committee Member

12. Co-chair of the 4th International Workshop on Modular Ontologies (WOMO 2010). May 11-14, 2010. Toronto, Canada.
13. Co-chair of the AAAI 09 Spring Symposium on Social Semantic Web: where Web 2.0 meets Web 3.0. March 23-25 2009, Stanford, California, USA.
14. Co-chair of The IEEE International Workshop on Data Semantics for Multimedia Systems and Applications (DSMSA2008), held in conjunction with The IEEE International Symposium on Multimedia (ISM2008). December 15-17, 2008. Berkeley, California, USA
15. Co-chair of the Special Session on Semantic Representation, Analysis, and Transmission for Large-Scale Multimedia Database, and Software Engineering Supporting Tools at IEEE 8th International Conference on Intelligent System Design and Applications (ISDA). November 26-28, 2008. Kaohsiung City, Taiwan, Republic of China.

Conference Program Committee Member

16. The 15th International Conference on Applications of Natural Language to Information Systems (NLDB 2010), June 23-25, 2010, Cardiff, Wales, UK
17. The Second International Symposium on Data, Privacy & E-Commerce (ISDPE 2010), June 20-22, 2010. Buffalo, NY, USA.
18. The 21st IEEE International Conference on Tools with Artificial Intelligence (ICTAI 2009), November 2-4, 2009, Newark, NJ, USA
19. The 8th International Semantic Web Conference (ISWC 2009), 25-29 October 2009, Washington, DC. USA.
20. Tenth Argentine Symposium on Artificial Intelligence (ASAI 2009), August 24-25, 2009. Mar Del Plata, Argentina
21. The Third International Conference on Advances in Semantic Processing (SEMAPRO 2009), October 11-16, 2009, Sliema, Malta

22. International Joint Conferences on Artificial Intelligence (IJCAI-09), July 11-17, Pasadena, California, USA.
23. The Second International Conference on Advanced Engineering Computing and Applications in Sciences (ADVCOMP 2008), September 29 - October 4, 2008 Valencia, Spain.
24. International Conference on Computational Intelligence and Security (CIS'07), Dec. 17-19, 2007. Harbin, China
25. The International Conference on Advances in Semantic Processing (SEMAPRO 2007). Nov. 4-9, 2007. Papeete, French Polynesia (Tahiti)

Workshop Program Committee Member

26. AAAI Spring Symposium on Linked Data Meets Artificial Intelligence. March 22-24 2010. Stanford, CA, USA.
27. The 2nd IEEE International Workshop on Data Semantics for Multimedia Systems and Applications (DSMSA 2009). December 14-16, 2009. San Diego, California, USA
28. Semantics for the Rest of Us -- Variants of Semantic Web Languages in the Real World (SemRUs). co-located with ISWC 2009. 26 October 2009, Washington, DC USA.
29. The 5th International Workshop on Scalable Semantic Web Knowledge Base Systems (SSWS2009). co-located with ISWC 2009. Oct 25. 2009. Washington, DC USA.
30. The 2nd Social Data on the Web workshop (SDoW 2009), Oct 25. 2009. co-located with ISWC 2009. Washington, DC USA.
31. The 6th International Workshop on OWL: Experiences and Directions (OWL ED). Oct. 2009. Washington, DC USA.
32. The 3rd Chinese Semantic Web Symposium (CSWS 2009), Aug. 30-31, 2009, Nanjing, China.
33. The 1st International Workshop on Motivation and Incentives on the Web (Webcentives), co-located with WWW'09. April 20-24, 2009, Madrid, Spain.
34. The 1st Social Data on the Web workshop (SDoW 2008), co-located with 7th International Semantic Web Conference (ISWC2008). October 27th, 2008, Karlsruhe, Germany.
35. The 4th International Workshop on Scalable Semantic Web knowledge Base Systems (SSWS 2008), co-located with 7th International Semantic Web Conference (ISWC2008). October 27th, 2008, Karlsruhe, Germany
36. The International Workshop on Ontologies: Reasoning and Modularity (WORM-08), June 2, 2008 Tenerife, Spain.
37. The 2008 Workshop on Collaborative Distributed Knowledge Discovery (CDKD'08) May 19-23, 2008. Irvine, California, USA
38. The Workshop on Cyberinfrastructure for e-Science (CyIneS 2007). Nov. 2, 2007. Fremont, California, USA
39. The Second International Workshop on Modular Ontologies (WOMO 2007). Oct 28. 2007. Whistler, BC Canada.
40. The First International Workshop on Modular Ontologies (WOMO 2006). Nov. 5, 2006. Athens, Georgia, USA

Conference & Workshop Invited Reviewer

41. The 2nd Annual Conference of the International Technology Alliance (ACITA), 2009
42. Object-Oriented Programming, Systems, Languages, and Applications (OOPSLA), 2009
43. Web Science Conference (WebSci'09) - Society On-line, 2009.
44. IEEE International Conference on Networking, Sensing and Control (ICNSC), 2008
45. The Third Indian International Conference on Artificial Intelligence (IICAI), 2007
46. The Second International Workshop on Semantic Web for Collaborative Knowledge Acquisition (SWeCKa), 2006
47. IEEE Workshop on Knowledge Acquisition from Distributed, Autonomous, Semantically

Heterogeneous Data and Knowledge Sources (KADASH), 2005

Panel Discussion Chair

48. Co-chair of the SemanticWiki mini-series Session-5: Semantic Wiki Applications & Use Cases (2): horizontal applications. Feb 12, 2009, Ontolog Community (ontolog.cim3.net)

PUBLICATIONS (Papers with [🕒] are under review)

(NOTE: Published papers can be downloaded from http://tw.rpi.edu/wiki/Jie_Bao_Publication)

Journal Papers and Book Chapters:

1. [🕒] **Jie Bao**, Li Ding, & James A. Hendler (2010) Collective Cognition using Semantic Mediawiki. Submitted as a Book Chapter to: *Network-Enabled Cognition: The Contribution of Social and Technological Networks to Human Cognition*. Trung Dong Huynh & Paul Smart (Ed.)
2. [🕒] **Jie Bao**, Giora Slutzki, George Voutsadakis & Vasant Honavar (2009) Pakage-based Description Logics: Syntax, Semantics and Complexity. Submitted to *International Journal On Semantic Web and Information Systems* (IJSWIS).
3. **Jie Bao**, George Voutsadakis, Giora Slutzki & Vasant Honavar (2009) Package-based Description Logics. Book Chapter in: *Modular Ontologies: Concepts, Theories and Techniques for Knowledge Modularization*. Parent, C., Spaccapietra, S., and Stuckenschmidt, H. (Ed). Berlin: Springer. LNCS 5445. pp. 349–371.
4. Zhi-Liang Hu, **Jie Bao**, James M. Reecy (2008) CateGOrizer: A Web-Based Program to Batch Analyze Gene Ontology Classification Categories. In *Online Journal of Bioinformatics* 9(2):108-112.
5. LaRon M. Hughes, **Jie Bao**, Zhi-Liang Hu, Vasant Honavar & James M. Reecy (2008). Animal Trait Ontology (ATO): the Importance and Usefulness of a Unified Trait Vocabulary for Animal Species. In *Journal of Animal Science*, 86(6):1485-1491.
6. **Jie Bao**, Jun Gao & Yongqiang Yu. (2001) Some Key Problems in the Development of PACS. In *Chinese Journal of Radiology*, *35* (3), 168-170. [In Chinese]
7. **Jie Bao**, Lin Pu, Jun Gao, Guojun Hong & Xi Huang. (2001) Engineering Drawing Archiving and Communication System. *Journal of Computer-Aided Design and Computer Graphics*, *13* (5), 413-417. [In Chinese]
8. Lin Pu, Guojun Hong, Juguang Lin, **Jie Bao** & Hua Yan. (2001) Study on Automobile Panel Dies Drawing Archiving and Communication System. *Digital Manufacturing Industry*, 2007(1), 63-65. [In Chinese]
9. **Jie Bao** & Jun Gao (2000) Component PACS System Design Orienting to Internet. *J. Computer Engineering*, *26* (7), 9-10,115. [In Chinese]
10. Yongqing Yang, Jun Gao, **Jie Bao** & Xuedong Yang. (2000) Close-Caption Retrieval and Extraction Based on Video. *Journal of Computer Applications*, *20* (10), 33-36. [In Chinese]

Journal/Magazine Articles:

11. Mei-Ling Shyu, Yu Cao, Jun Kong, Ming Li, Mathias Lux & **Jie Bao**. Introduction to the special issue on “data semantics for multimedia systems”. Journal of Multimedia Tools and Applications, 2009. (In Press)
12. Mark Greaves, Li Ding, **Jie Bao**, and Uldis Bojars (2009). Report of the AAAI 2009 Spring Symposium on Social Semantic Web: Where Web 2.0 Meets Web 3.0. AI Magazine 30(3):94
13. James A. Hendler. & **Jie Bao** (2008) Why It Matters. IEEE Intelligent Systems 23(4): 2-3

Conference Papers:

14. [🕒] Jie Bao, David Mott, Dave Braines & Paul. R. Smart (2010) Adding Context to Semantic Web. Submitted to Extended Semantic Web Conference (ESWC 2010).
15. [🕒] Jiao Tao, **Jie Bao** & Evren Sirin. (2010) Integrity Constraints in OWL. Submitted to The Twelfth International Conference on Principles of Knowledge Representation and Reasoning (KR 2010).
16. **Jie Bao,** Li Ding, Rui Huang, Paul R. Smart, Dave Braines & Gareth Jones. (2009) A Semantic Wiki Based Light-WeightWeb Application Model. In the Proceedings of *the 4th Annual Asian Semantic Web Conference (ASWC).* (p. 168-183)
17. **Jie Bao**, Paul R. Smart & Dave Braines, Gareth Jones & Nigel R. Shadbolt (2009) A Controlled Natural Language Interface for Semantic MediaWiki. In *The 2nd Annual Conference of the International Technology Alliance (ACITA'09).* A longer version in *Tetherless World Constellation (RPI) Technical Report*. no. TW-2009-05.
18. **Jie Bao**, Li Ding, Paul R. Smart, Dave Braines & Gareth Jones (2009) Rule Modeling using Semantic MediaWiki. In *The 2nd Annual Conference of the International Technology Alliance (ACITA'09)*
19. Gareth Jones, Dave Braines, Paul R. Smart, Trung Dong Huynh & **Jie Bao** (2009) GIDS: Global Interlinked Data Store. In *The 2nd Annual Conference of the International Technology Alliance (ACITA'09)*
20. George Voutsadakis, Giora Slutzki, Vasant Honavar & **Jie Bao** (2008) Federated ALCI: Preliminary Report. In *The IEEE/WIC/ACM International Conference on Web Intelligence* (WI) 2008. (p. 575-578)
21. Dave Braines Yannis Kalfoglou, Paul R. Smart, **Jie Bao**, Nigel R. Shadbolt & James A. Hendler (2008) Semantic Web techniques to support Interoperability in Distributed Networked Environments. In *the Proceeding of the 2nd Annual Conference of the International Technology Alliance (ACITA'08)* (p. 223-230)
22. Alistair Russell, Paul R. Smart R., Dave Braines, Yannis Kalfoglou, **Jie Bao** & Nigel R. Shadbolt (2008) A Visual Approach to Semantic Query Design Using a Web-Based Graphical Query Designer. In *the Proceeding of the 16th International Conference on Knowledge Engineering and Knowledge Management (EKAW 2008)*. (p. 275-291)
23. **Jie Bao**, George Voutsadakis, Giora Slutzki & Vasant Honavar (2008). On the Decidability of Role Mappings between Modular Ontologies. In *the Proceeding of the Twenty-Third Conference on Artificial Intelligence* (AAAI 2008). (p. 400-405)
24. **Jie Bao**, Giora Slutzki & Vasant Honavar (2007). Privacy-Preserving Reasoning on the Semantic Web. In *IEEE/WIC/ACM International Conference on Web Intelligence* 2007. (p. 791-797)
25. **Jie Bao**, Giora Slutzki & Vasant Honavar (2007). A Semantic Importing Approach to Knowledge Reuse from Multiple Ontologies. In *Proceedings of Twenty-Second Conference on Artificial Intelligence* (AAAI 2007) (p. 1304-1309)
26. Yimin Wang **Jie Bao**, Peter Hasse & Guilin Qi (2007) Evaluating Formalisms for Modular Ontologies in Distributed Information Systems. In *the Proceeding of the First International Conference on Web Reasoning and Rule Systems* (RR 07*)* (p. 178-193).
27. **Jie Bao**, Doina Caragea & Vasant Honavar (2006) On the Semantics of Linking and Importing in Modular Ontologies. In *Proceedings of International Semantic Web Conference (ISWC)* (p. 72-86).
28. **Jie Bao**, Doina Caragea & Vasant Honavar (2006) Package-Based Description Logics -Preliminary Results. In *Proceedings of International Semantic Web Conference (ISWC), Doctoral Consortium Track* (p. 967-969).
29. **Jie Bao**, Doina Caragea & Vasant Honavar (2006) Modular Ontologies - A Formal Investigation of Semantics and Expressivity. In *Proceedings of Asian Semantic Web Conference (ASWC)* (p. 616-631). (**Best Paper Award**)
30. **Jie Bao**, Doina Caragea & Vasant Honavar (2006) A Tableau-Based Federated Reasoning Algorithm for Modular Ontologies. In *Proceedings of IEEE/WIC/ACM International Conference on Web Intelligence (WI).* IEEE Press. (p. 404-410)

31. **Jie Bao**, Doina Caragea & Vasant Honavar (2006) Towards Collaborative Environments for Ontology Construction and Sharing. In *Proceedings of International Symposium on Collaborative Technologies and Systems (CTS 2006)* (p. 99-108). IEEE Press.
32. Doina Caragea, Jun Zhang, **Jie Bao**, Jyotishman Pathak & Vasant Honavar (2005) Algorithms and Software for Collaborative Discovery from Autonomous, Semantically Heterogeneous, Distributed Information Sources. In *Proceedings of the 16th International Conference of Algorithmic Learning Theory (ALT)* (p. 13-44).
33. **Jie Bao**, Yu Cao, Wallapak Tavanapong & Vasant Honavar (2004) Integration of Domain-specific and Domain-independent Ontologies for Colonoscopy Video Database Annotation. In H. R. Arabnia (Ed.), *Proceeding of International Conference on Information and Knowledge Engineering (IKE 04)* (p. 82-88). Csrea Press.
34. **Jie Bao** & Jun Gao (2001) PACS Development in China and the Component PACS System. In E. L. Siegel & H. K. Huang (Eds.), *Proceedings of. SPIE Vol.4323, Medical Imaging 2001* (p. 380-385).
35. Jun Gao, **Jie Bao**, Dinggguo Chen, Yongqing Yang & Xuedong Yang. (2001) Optical-electronic Shape Recognition System Based on Synergetic Associative Memory. In N. M. Nasrabadi & A. K. Katsaggelos (Eds.), *Proceedings of SPIE Vol. 4305, Applications of Artificial Neural Networks in Image Processing VI* (p. 138-148). (**Best Paper Award in Natural Science**, **Second Class in Anhui Province**)
36. Jun Gao, Yixian Wang, **Jie Bao**, Xuedong Yang & Qiang Hu. (2000) Valid Region Recognition in Digital Images of Medical X-Ray Imaging. In H. Liu & Q. Luo (Eds.), *Proceedings of Biomedical Photonics and Optoelectronic Imaging* (Vol. 4224, P. 139-144). SPIE.
37. Jun Gao, **Jie Bao** & Ling Huang (2000) Some Key Issues in Drawing Archiving and Communication System. In *Proceedings of the 3rd International Conference on Computer-Aided Industrial Design and Conceptual Design (CAID&CD), Hong Kong.* International Academic Publishers.
38. Xiaozheng Han, **Jie Bao**,Yuanqing Wang, Jun Gao & Jianguo Jiang. (2000) Learning in Multiagent Distributed Control Matters. In *Proceedings of the 3rd International Conference on Computer-Aided Industrial Design and Conceptual Design (CAID&CD), Hong Kong.* International Academic Publishers.
39. **Jie Bao**, Jun Gao & Xudong Zhang (2000) Digital Image Self-Adaptive Acquisition in Medical X-Ray Imaging. In *Proceedings of International Conference on Intelligent Information Processing (IIP 2000), IFIP World Computer Congress (WCC).*
40. **Jie Bao** & Jun Gao (2000). Integrate Degree of System Hierarchy. In *Proceedings of the 11th Annual Symposium of Systems Engineering Society of China* (p. 47-52). [In Chinese]
41. **Jie Bao**, Jun Gao, Hongwei Liu & Xudong Zhang. (1999). Medical X-Ray Digital Image Processing System Based on NSP. In *Proceedings of the 5th Chinese National Symposium on Computer Technology* (Vol. 1, p. 79-82). [In Chinese]

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57. **Jie Bao** & Vasant Honavar (2005). Collaborative Package-Based Ontology Building and Usage. In *Proceedings of IEEE Workshop on Knowledge Acquisition from Distributed, Autonomous, Semantically Heterogeneous Data and Knowledge Sources, co-Located with ICDM 2005* (p. 35-44).
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61. [◷] Jin Guang Zheng, **Jie Bao**, Dave Braines, Gareth Jones and Paul. R. Smart. Easing Social Semantic Data Publishing and Processing Using Semantic MedaWiki and RDFa. Submitted to WWW 2010 Poster Track.
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65. **Jie Bao** & Vasant Honavar (2007). Privacy-Preserving Reasoning with Hidden Knowledge on the Semantic Web. In *4th European Semantic Web Conference (ESWC 2007)*. Poster Track. Innsbruck, Austria.
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72. **Jie Bao**, Sandro Hawke, Boris Motik, Peter F. Patel-Schneider, & Axel Polleres (2009) rdf:PlainLiteral: A Datatype for RDF Plain Literals. *W3C Recommendation*. http://www.w3.org/TR/rdf-plain-literal/
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Research Technical Reports:

RPI Tetherless World TR site: http://tetherless.rpi.edu/wiki/Publication
ISU TR Site: http://archives.cs.iastate.edu/

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78. **Jie Bao** & Vasant Honavar (2004). Ontology Language Extensions to Support Localized Semantics, Modular Reasoning, and Collaborative Ontology Design and Ontology Reuse (Tech. Rep.). TR-341, *Computer Science, Iowa State University*.
79. **Jie Bao** (2001). Potential Function Explain of the Quick Algorithm of Synergetic Neural Network (Tech. Rep.). TR-404, *Computer Science, Iowa State University*.

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80. **Jie Bao** (2007). *Representing and Reasoning with Modular Ontologies*. Ph.D. Dissertation, Department of Computer Science, Iowa State University. Dec 2007. (ISBN:978-0-549-33714-0.)
81. **Jie Bao** (2001). *Research on Some Key Issues of Synergetic Neural Network.* Master's Thesis, Department of Computer and Information, Hefei University of Technology. (In Chinese)
82. **Jie Bao** (1998). *Data Visualization and Processing.* Bachelor's Thesis, Hefei University of Technology. (In Chinese. **Excellent Undergraduate Thesis**)

Non-reviewed Conference Posters and Extended Abstracts:

83. **Jie Bao**, Li Ding, Deborah L. McGuinness, Peter Fox & James A. Hendler (2009) Semantic Wiki Based Collaborative Scientific Modeling Infrastructure. In *Spring Symposium of Institute of Applied Mathematics and Computational Science (IAMCS)*. College Station, TX.
84. **Jie Bao**, Giora Slutzki & Vasant Honavar (2007) Representing and Reasoning with Modular Ontologies. In *Emerging Technologies Conference* (ETC) 2007. Ames, IA.
85. LaRon M. Hughes, **Jie Bao**, Zhi-Liang Hu, Vasant Honavar & James M. Reecy (2006) A Project for the Creation of a Unified Trait Vocabulary for Farm Animals. In *Workshop on the Representation of Phenotypes*. Extended Abstract. National Center for Biomedical Ontology. Stanford University, Palo Alto, CA.
86. **Jie Bao**, Changhui Yan, Doina Caragea & Vasant Honavar (2004) Tools for Integrating Heterogeneous Data Sources from a User Perspective. In *Standards and Ontologies for Functional Genomics 2 (SOFG)*, Poster Track, Oct 23-26, 2004, Philadelphia, PA.
87. **Jie Bao**, Ellen Maxon & Vasant Honavar (2003) Short-Term Load Forecasting Based on Neural Network and Local Regression. In *the 1st JVA International Symposium on Modern Computing*, Poster Track. Ames, IA.

SELECTED UNPUBLISHED ORIGINAL RESEARCH PAPERS:

1. George Voutsadakis, **Jie Bao**, Giora Slutzki, Vasant Honavar (2008) Privacy-Preserving Reasoning for Hypergraphs, Technical Report, Department of Computer Science, Iowa State University, http://www.cs.rpi.edu/~baojie/pub/2008-04-25_PPhypgrph.pdf
2. **Jie Bao** (2002). Short-term Load Forecasting Based on Neural Network and Moving Average.

Department of Computer Science, Iowa State University. http://www.cs.rpi.edu/~baojie/pub/2002-05-08_stlf.pdf

3. **Jie Bao**, (2002) Hierarchical Learning in Neural Network. *Department of Computer Science, Iowa State University*. (http://www.cs.iastate.edu/~baojie/acad/current/hnn/hnn.htm)
4. **Jie Bao** & Yuan Lin. (2001). Information filtering based on Behavior Evolutional Genetic Algorithm. *Department of Computer Science, Iowa State University*.(http://www.cs.rpi.edu/~baojie/pub/2001-12-20_bega.pdf)

TALKS ON ORIGINAL RESEARCH (not including conference presentations)**:**

1. **Jie Bao**. Towards Linked Ontologies and Data on the Semantic Web. Oct 1, 2009. Decentralized Information Group Seminar, MIT. Cambridge, MA, USA.
2. **Jie Bao.** Introduction to Tetherless World Constellation @ RPI, May 4, 2009. Oracle New England Research Center. Nashua, NH, USA
3. **Jie Bao** & Li Ding. From SMW to Rule. SMW users meeting, Mar. 25, 2009. Stanford, CA, USA
4. **Jie Bao**, Jin Guang Zheng, Rui Huang & Li Ding. Mesh-up Map and Events on Semantic Wiki: Applications in e-Science and Campus Information System. SemanticWiki mini-series Session-4, Jan. 22, 2009. Online talk at the Ontolog Community (ontolog.cim3.net)
5. **Jie Bao,** Li Ding & Zhenning Shangguan. Concept Modeling on SemanticMediaWiki. SemanticWiki mini-series Session-3, Dec. 11, 2008. Online talk at the Ontolog Community (ontolog.cim3.net)
6. **Jie Bao.** Concept Modeling on Semantic Wiki. SMW users meeting, Nov 22, 2008. Boston, MA, USA
7. **Jie Bao.** Representing and Reasoning with Modular Ontologies. Colloquium of Department of Computer and Information Science. University of Oregon. Dec 6, 2007. Eugene, OR, USA.
8. **Jie Bao.** Query Translation for Data Sources with Heterogeneous Content Semantics. Quantum Leap Innovations, Inc. May 5, 2006. Newark, DE. USA.

PROFESSIONAL ORGANIZATION MEMBERSHIP

- Member, IEEE (Institute of Electrical and Electronics Engineers), since 2009
- Member, AAAI (Association for the Advancement of Artificial Intelligence), since 2007
- Member, ACM (Association for Computing Machinery), since 2008
- Member, Sigma Xi (The Scientific Research Society), since 2009
- Member, W3C (World Wide Web Consortium), OWL (Web Ontology Language) Working Group, since 2008

GRANT FUNDS AND PROPSOAL PARTICIPATIONS

- US National Science Foundation Grant Proposal: "***Privacy-Preserving Reasoning: Foundations and Algorithms".*** Vasant Honavar (PI) and Giora Slutzki (Co-PI), under review. Senior Research Personnel. 2009.
- US National Science Foundation Industry-University Research Center for Information Protection, Iowa State University. "***Privacy-Preserving Reasoning with Hidden Knowledge***". Vasant Honavar (PI) with Jie Bao (Co-PI) and Giora Slutzki (Co-PI), $25,000. 2008.

Made significant contributions to the following grant proposals:

- US National Science Foundation Collaborative Research: "***Learning Classifiers from Autonomous, Semantically Heterogeneous, Distributed Data***". Vasant Honavar (PI) and Doina

Caragea (Co-PI), $449,999. (2007-2010)

- US National Science Foundation grant (IIS-0639230) "***SGER: Exploratory Investigation of Modular Ontology Languages***" to Vasant Honavar (PI), Giora Slutzki (Co-PI), and Doina Caragea (Co-PI), $100,000. (2006-2008)
- ISU Center for Integrated Animal Genomics (CIAG) Research Support Program grant "***Collaborative Building Environment of Animal Trait Ontology***", to Vasant Honavar and Jim Reecy. $10,838. (2005-2006)
- Excellent Young Teachers Program of Ministry of Education (MOE) of China grant (# 1688), "***Research of Some Key Issues on Synergetic Associative Memory***" to Jun Gao (PI), RMB □120,000. (2001-2003)
- Foundation for University Key Teacher grant by the Ministry of Education of China "***Research of Shape Recognition System based on Associative Memory***", to Jun Gao (PI). RMB□80,000. (2001-2002)

TEACHING EXPERIENCES

Computer Science Department, Rensselaer Polytechnic Institute

- **Tutorial Lecturer** (Summer 2008): Description Logics (8 classes).

Computer Science Department, Iowa State University

- **Seminar Lecturer** (Fall 2007, Spring 2008): Semantic Web and Web Service (ComS 610).
- **Seminar Organizer and Lecturer** (Summer 2007): Semantic Web.
- **Student Mentor** (Summer 2006): Mentored junior students in the AI lab.
- **Graduate Course Teaching Assistant** (Fall 2002): *Principles in Artificial Intelligence* (ComS 572).
    - Gave weekly recitations for students to review course materials and answered their questions
    - Graded homeworks, class projects and the term project; prepared solutions for homeworks.
    - Maintained the course homepage including project-related resources and homework hints.
    - Helped students in their lab assignments.
    - Answered course related questions in office hours (twice a week).

Computer and Information Department, Hefei University of Technology

- **Teaching Assistant** (Spring 2001): *Neural Network Theory and Applications*, undergraduate course. Gave lectures in the second half part of this course.
- **Instructor (**Spring 2001): *Data Structure*, graduate course for EDA Laboratory, Hefei University of Technology.
- **Advisor in Mathematical Contest of Modeling** (1998-2001): advisor for 3 teams in the COMAP International Mathematical Contests (MCM) of Modeling and 3 teams in the China Undergraduate Mathematical Contests of Modeling (CUMCM).
- **Lecturer** (Fall 2000): *Neural Network*, graduate tutorials.
- **Teaching Assistant** (Spring 2000 and Spring 1999): *Neural Network Theory and Applications*, undergraduate course.

MENTOR FOR GRADUATE STUDENTS

Department of Computer Science, Rensselaer Polytechnic Institute

- Giovanni Thenstead (Summer 2009) on OWL RL reasoning
- Ankesh Khandelwal (Spring 2009) on policy language formalization
- Jiao Tao (Summer, Fall 2008) on closed world reasoning
- Rui Huang (Summer, Fall 2008) on semantic wiki

RECENT MENTOR FOR UNDERGRADUATE STUDENTS

Department of Computer Science, Rensselaer Polytechnic Institute

- Evan Patton (Summer 2008) on RDF reasoning
- Jin Guang Zheng (Spring, Summer, Fall 2008) on semantic wiki

Computer Science Department, Iowa State University

- Nikos Pappas, (Fall 2007) on Distributed Description Logic Reasoner
- Peter Wang, (Summer 2006) on Collaborative Ontology Development

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