Curriculum Vitae

Hongtao Ren

Research scholar, International Institute for Applied Systems Analysis(IIASA)

A-2361 Laxenburg, Austria

Email: renh@iiasa.ac.at

Mobile: +436889130856

Website: http://www.iiasa.ac.at/~renh

Birth date: 1977-09-21 Gender: Male Marriage state: Married

Research interests

- Advanced software engineering
- Ontology based data mining
- Distributed and heterogeneous systems
- Decision support systems
- E-science environments and cloud computing
- Computerized support for knowledge creation
- Information integration
- Integrated modeling environment
- Multiple criteria analysis and its applications

Education

- **PH. D. in Knowledge Science, School of Knowledge Science,** Japan Advanced Institute of Science and Technology (JAIST), Japan, Sep. 2004 –Sep. 2007
- **M.S. in Systems Engineering, Institute of Systems Engineering,** Dalian University of Technology, China (DUT), Sep. 2001 – Jun. 2004

- **B.S. in Management Engineering, School of Management**, Dalian University of Technology (DUT), China, Sep. 1995--Jun. 1999

Employment History

- **Research scholar,** International Institute for Applied Systems Analysis (IIASA), Austria, Apr. 2007--present
- **ICT technologist (part-time),** Center of Excellence, Japan Advanced Institute of Science and Technology (JAIST), Japan Feb. 2005—Oct. 2006
- **DBMS and J2EE teacher (part-time),** Dalian Neusoft Institute of Information, China Sep. 2002—Jul. 2003

Experiences

2007—present (IIASA period):

- **Decision Support System** for energy efficiency and risk management in public buildings (EnRiMa)**,** ongoing Europe project under FP7.

  My main responsibilities and achievements:

  - ❖ Design software architecture of the EnRiMa decision support system.
  - ❖ Develop data warehouse for managing the huge amount of semi-structured data.
  - ❖ Develop Web-services for integrating the heterogeneous (software & hardware) DSS components.
- **Multi-criteria Analysis Tool** for New Energy Externalities Development for Sustainability (NEEDS), Europe project under FP6.

  My main responsibilities and achievements:

  - ❖ Developed web-based tool for analyzing a wide range of stakeholders about their preferences regarding the performance of future generating technologies over a broad range of sustainability criteria. The tool is available at http://www.ime.iiasa.ac.at/mca_need/.

- **Web-based Multi-criteria Analysis (IIASA project).**

  My main responsibilities and achievements:

  - ❖ Developed a web-based tool for the multiple-criteria analysis of any problem that involves alternative solutions with diverse and possibly conflicting or related criteria, the MCA becomes so popular for worldwide researchers that IIASA include it as IIASA major models (see: `http://www.iiasa.ac.at/Research/Models/index.html`). It's available at: `http://www.ime.iiasa.ac.at/mca/`.

- **Emission Trading Simulator (IIASA project).**

  My main responsibilities and achievements:

  - ❖ Developed a very easy to use application for exploring optimal carbon emission trading that depends on various combinations of parties participating in the emission permit market, it's available at `http://www.ime.iiasa.ac.at/et/`.

- **Soft data mining tool with diverse methods.**

  My main responsibilities and achievements:

  - ❖ Semi-structured/structured data modeling for advanced analytics.
  - ❖ Integrate diverse analysis methods into tools.
  - ❖ Develop Kensei-based recommendation system for Japanese traditional crafts which supported by SCOPE 102305001 of Ministry of Internal Affairs and Communications (MIC) in Japan.

- **Prototype of web-based multi-criteria model analysis (MCMA)**, Model-based decision support application.
- **Knowledge-map (incubator) in Web3.0:** Web-based tool for massive scalable knowledge storing, retrieving and visualization.
- **SmartESE (EU FP7 proposal):** Knowledge-driven E-Science Environments for Collaborative Research.

2004—2007 (JAIST period):

- **Creative Environments for Scientific Creativity (JAIST COE Project**), A

integrated system for support JAIST Nanatsudaki Model [8][10].

- **On-line Survey Result Analysis System,** Developed a web-based system to evaluate conditions of scientific creativity at JAIST by analyzing complex data sets in a database.
- **Adaptive Hermeneutic Agent,** A web-based system for researchers to gather research materials from website, It was designed to support the Hermeneutic spiral (EAIR) [5].

2001—2004 (DUT period):

- **A Platform of Experts Evaluation (DUT Project):** Developed an integrated environment in DUT for evaluating projects by multiple criteria.
- **E-bidding System:** Developed a web-based system using in Dalian Construction Council Bidding Department for supporting bidding processes, The system supports multi-person cooperation and calculate the results in real time.

Professional Skills

(Over 15 years programming and modeling experience)

- **Programming language:** Java, C++, PL/SQL, Cypher, sh/csh
- **Operation Systems:** Unix, Linux, Windows
- **Application development frameworks:** Spring, Struts, AppEng (developed by myself only for internal use)
- **DB and DBMS:** Oracle, postgreSQL, Neo4j, mySQL
- **Semantic web:** XML, OWL, RDF, JSON
- **Web services:** Axis2, spring-ws, RESTful web-services
- **Web-based GUI:** HTML5, CSS3, AJAX, Jquery
- **Others:** Hibernate, Hadoop, NoSQL, Data visualization, Lucene, etc

Publications

[1] Pan Donghua and Ren hongtao, Research on application Server and Assistant Decision-Making in Bidding system，ICSSSE'03 (The Fourth International Conference on Systems Science and Systems Engineering) 2003.11.

[2] Hongtao Ren, Yoshiteru Nakamori, A Prototype System for Using Structured Document to Support Knowledge Sharing，ICSSSM'05 (2005 International Conference on Services Systems and Services Management) 2005.6.

[3] Hongtao Ren, Yoshiteru Nakamori, A Network System for Knowledge Sharing in Learning Organization，IFSR2005 (First World Congress of the International Federation for Systems Research) 2005.11.

[4] Andrzej P. Wierzbicki, Jing Tian, Hongtao Ren, The Use of Reference Profiles and Multiple Criteria Evaluation in Knowledge Acquisition from Large Databases, 4th US-European Workshop on Logistics and Supply Chain Management June 8&9, 2006, University of Hamburg, Germany.

[5] Hongtao Ren, Jing Tian, Yoshiteru Nakamori, Andrzej P. Wierzbicki, Electronic Support for Knowledge Creation in a Research Institute,KSS'2006,September 22-25,2006,Beijing,China.

[6] Hongtao Ren, Jing Tian, Yoshiteru Nakamori, Andrzej P. Wierzbicki, Electronic Support for Knowledge Creation in a Research Institute, Journal of Systems Science and Systems Engineering 16 (2), pp. 235-253.

[7] Jing Tian, Andrzej P. Wierzbicki, Hongtao Ren, and Yoshiteru Nakamori, Testing the Triple Helix Model, the chapter 2 of the Creative Environments Book.

[8] Adam Wierzbicki, Hongtao Ren, Integrated Support for Scientific Creativity, the chapter 8 of the Creative Environments Book.

[9] Jing Tian, Andrzej P. Wierzbicki, Hongtao Ren, Yoshiteru Nakamori, A Study of Knowledge Creation Support in Japanese Research Institute, International Journal of Knowledge and Systems Sciences, Volume 3 Number 1, March 2006,pp7-18.

[10] Hongtao Ren, Implementing Creative Environments for Scientific Research in a Research Institute, doctor dissertation, Sep. 2007.

[11] Makowski M, Granat J, Ren H. User Guide to MCA: Multiple Criteria Analysis of Discrete Alternatives with a Simple Preference Specification. IIASA Interim Report IR-09-022 , December 2009, 56 pp.

[12] Makowski M, Granat J, Ren H, Schenler W, Hirschberg S. Requirement Analysis and Implementation of Multicriteria Analysis in the NEEDS Project. IIASA Interim Report IR-09-009 , November 2009, 50 pp.

[13] Hongtao Ren, Jing Tian, Wierzbicki AP, Nakamori Y, Klimasara E (2012). Ontology construction and its applications in local research communities. In: Modeling for Decision Support in Network-Based Services, D Dolk, J Granat (eds), Springer-Verlag, Heidelberg, Germany pp.279-317 (January 2012).