

Jiahui Liu

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Background

Researcher on information retrieval and knowledge discovery on the web. Experience in developing intelligent information systems that analyze web content and user activity to retrieve information of interest to users. Experience in conducting user studies on human factors of information access. Programming skills in Java, C++, Lisp, Python, and web development language and tools.

Education

Ph.D. Computer Science (GPA 3.81/4.0) 09/2004 – 06/2009
Northwestern University
Advisor: Prof Larry Birnbaum

B.E. Computer Science and Technology (GPA 3.91/4.0) 09/2000 – 07/2004
Zhejiang University, China, Graduated with Honors

Research Experience

(Projects mentioned below will be described in more details later.)

Northwestern University, Intelligent Information Laboratory 07/2005 – 06/2009
Research Assistant Evanston, IL, USA
Projects: Classification of blogger's interest (*Spectrum*), Local News Aggregation (*LocalSavvy*), Comparable news search (*Compare&Contrast*), News event tracking (*Brussell*), Learning to gesture.

Google Research summer 2008
Software Engineering Intern Mountain View, CA,, USA
Project: Prediction of news user's interests

IBM Research, Collaborative User Experience Group summer 2007
Research Intern Cambridge, MA, USA
Project: Collaborative Reasoning

Northwestern University, Learning Science 10/2004 – 05/2005
Research Assistant Evanston, IL, USA
– Project: Geographic Information System for science education (*My World GIS*)

Zhejiang University, Computer Graphics and Image Laboratory 01/2004 – 06/2004
Research Assistant Hangzhou, China
– Project: Relevance feedback for 3D model retrieval

University of Luebeck 10/2003 – 11/2003
Exchange Student Luebeck, Germany
– Project: Web based bibliography management

Teaching Experience

Northwestern University, Teaching Assistant Spring, 2008
– Artificial Intelligence

Northwestern University, Teaching Assistant Fall, 2007
– Semantic Information Processing

Northwestern University, Teaching Assistant Fall, 2006
– Introduction to Computer Programming

Publications

- Liu, J.**, Dolan, P., Pederson E. "Personalized News Recommendation Based on Click Behavior". Proceeding of the 14th International Conference on Intelligent User Interface (IUI'10). 2010.
- Liu, J.**, Birnbaum, L., Pardo, B. "Spectrum: Retrieving Different Points of View from the Blogosphere". Proceeding of the 3rd Int'l AAAI Conference on Weblogs and Social Media (ICWSM'09). 2009.
- Wagner, E., **Liu, J.**, Birnbaum, L., Forbus, K. D. "Rich interfaces for reading news on the web". Proceeding of the 13th International Conference on Intelligent User Interface (IUI'09). 2009.
- Wagner, E., **Liu, J.**, Birnbaum, L. "Rich Interfaces for Browsing News in Blog Posts". Proceeding of Workshop on Visual Interfaces to the Social and the Semantic Web (VISSW2009). 2009.
- Liu, J.**, Birnbaum, L., Pardo, B. "Categorizing Blogger's Interests Based on Short Snippets of Blog Posts". Proceedings of the 16th ACM conference on Conference on information and knowledge management (CIKM'08). 2008
- Liu, J.**, Birnbaum, L. 2008. "What Do They Think? Aggregating Local Views about News Events and Topics". In Proceedings of the 17th International Conference on World Wide Web (WWW'08). 2008
- Liu, J.**, Birnbaum, L. 2008. "LocalSavvy: Aggregating Local Points of View about News Issues". Proceeding of WWW 2008 Workshop on Location on the Web, 2008
- Wagner, E, **Liu, J.**, Birnbaum, L. "Novel User Interfaces via Model-Mediated Information Retrieval". Proceeding of Second Workshop on Human-Computer Interaction and Information Retrieval (HCIR'08), 2008.
- Liu, J.**, Gruen, D. "Between Ontology and Folksonomy: A Study of Collaborative and Implicit Ontology Evolution". In Proceedings of the 12th International Conference on Intelligent User Interfaces (IUI'08). 2008
- Gruen, D., Rasmussen, J., **Liu, J.**, Hupfer S. and Ross, S. "Collaborative Reasoning and Collaborative Ontology Development in CRAFT". AAAI Spring Symposium on Semantic Web and Knowledge Engineering (SWKE'08). 2008
- Liu, J.**, Birnbaum, L. "Measuring Semantic Similarity between Named Entities by Searching the Web Directory", In Proceedings of IEEE/WIC/ACM International Conference on Web Intelligence (WI'07). 2007
- Nichols, N., **Liu, J.**, Pardo, B., Hammond, J., Birnbaum, L. "Learning to Gesture: Applying animations To Spoken Text". In Proceedings of the 15th ACM International Conference on Multimedia (ACM MM'07). 2007
- Liu, J.**, Wagner, E., Birnbaum, L. "Compare&Contrast: Using the Web to Discover Comparable Cases for News Stories". In Proceedings of the 16th International Conference on World Wide Web (WWW '07). 2007
- Wagner, E., **Liu, J.**, Birnbaum, L., Forbus, K., and Baker, J. 2006. "Using Explicit Semantic Models to Track Situations across News Articles". AAAI 2006 Workshop on Event Extraction and Synthesis. 2006

Patent

- Liu, J.** and Dolan, P. "News Topic-Interest-Based Recommendations Twiddling". Filed on September 18. 2009.

Presentations

- November 2008, "Diversity in Web Information Retrieval", Yahoo Labs, Santa Clara, California.
- September 2007, "Intelligent Information Retrieval and Network Art", Baidu Inc. Beijing, China.
- August 2007, "Craft: Collaborative and Implicit Ontology Evolution", IBM T.J. Watson Research Center, Cambridge, Massachusetts.

Honors and Awards

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| Walter P. Murphy Fellowship, Northwestern University | 2006 – 2007 |
| Honorable Mention in ClearForest SWS Mashup Competition | 12/2006 |

Outstanding Student Leader Award, Northwestern University Chinese Student and Scholar Association	03/2006
Walter P. Murphy Fellowship, Northwestern University	2004 – 2005
Best Undergraduate Thesis, Zhejiang University, China	06/2004
Best Undergraduate Student of Zhejiang Province, China	06/2004
Undergraduate Scholarship for Academic Excellence, Zhejiang University, China	2001 – 2004

Skills

Programming languages: Java, C++, Lisp, Python, C, Visual Basic

Operating system/platforms : Microsoft Windows, Linux, SunOS (Solaris)

Web development technologies: JSP, HTML, XML, PHP, My SQL

Selected Projects

Spectrum (Northwestern University): Spectrum is a web-based system that helps users find blogs that discuss a topic of interest from different perspectives. The system classifies the domain interests of bloggers with a two-layer classification model. Experiment results show that the model is robust to the noise in text classification of blog posts and achieves satisfactory performance.

- Proposed, developed and experimented with the two-layer classification model to classify blogger's interests with short blog post snippets.
- Designed and implemented the web-based system Spectrum with Java and JSP.

News Personalization (Google): This project aims to predict user's interests in different categories of news with their click history. The automatically generated profiles of users are used in personalized news recommendation, which boost the rankings of news articles in the categories of interest to the user. This project is implemented in C++.

- Designed and implemented a set of experiments to analyze click patterns of Google News users.
- Devised a Bayesian model for user's interest prediction based on experiment findings.
- Implemented user profile generation and integrated category boosting into personalized news recommendation.

Compare&Contrast (Northwestern University): Compare&Contrast discovers on the web comparable but distinct cases for news events that users are interested in to help them understand new situation or solve new problems. The system is domain independent and does not require any knowledge engineering efforts. It dynamically discovers entities comparable to the main entity in the original news event and uses these comparable entities as seeds to retrieve information about comparable cases.

- Designed and developed the prototype system of Compare&Contrast in LISP.
- Devised method to measure similarity of named entities using web directories.
- Extended Compare&Contrast to find opposite stories through transformation of lexical features.

Collaborative Reasoning (IBM Research): This project focuses on supporting a group of users to collect, understand and reason about information and make decisions. The system enables users to collaboratively extend the knowledge base of the system to capture new concepts as they conduct their work.

- Devised a paradigm to analyze the evolution of semantic knowledge in collaborative knowledge management. The analysis framework was implemented in Java.
- Conducted a user study to investigate user behavior in using the collaborative reasoning prototype system.

LocalSavvy (Northwestern University): LocalSavvy is a news aggregation system that retrieves multiple local points of view about the events and topics described in the news articles that users are reading.

- Designed and developed the prototype system of LocalSavvy in Java and JSP.
- Implemented a knowledge acquisition module that determines the related locations of entities.
- Conducted a user study of LocalSavvy to investigate how readers detect points of view in news articles.

Brussell (Northwestern University): Brussell tracks ongoing news situation in on-line news articles based on scripts using information extraction and information retrieval techniques. It finds relevant news stories, extracts basic facts about the situation, and organizes those stories around the aspects of the situation to which they pertain.

- Devised and implemented an algorithm to extract news content from web pages by clustering HTML content with the DOM tree.
- Developed a mechanism to enhance information extraction by simplifying sentence structures. This project is implemented in LISP.

Learning to gesture (Northwestern University): This project explores text classification for choosing appropriate gestures to accompany speech for computer animation. A number of features, including n-grams, emotional valence of text, and parts-of-speech, are used to classify speech text as corresponding gestures. Experiments were conducted with animation scripts of video games.

- Developed and experimented with text classifiers with the different features extracted from speech text. This project is implemented in Python.
- Designed and conducted two user studies of subjective evaluation of the animation assigned by our classifiers.

My World GIS (Northwestern University): This project explores data visualization and analysis tools in Geographic Information System (GIS) for science education.

- Developed a search tool for learners to locate a place of interest in the GIS system in Java.
- Conducted field study of My World GIS in Lane Technical High School to examine the prospect for and challenges of scientific GIS systems in science education.

Interactive 3D model retrieval (Zhejiang University): This project explores relevance feedback in 3D model retrieval for Computer Aided Design system (CAD). Different 3D features in model retrieval are combined with weights which are updated according to user's feedbacks.

- Designed and experimented two statistical weight updating algorithms for relevance feedback.
- Implemented the prototype system that enables interactive 3D model retrieval in a SQL Server database. This project is implemented in Visual C++.