

# Jae-wook Ahn

Research Staff Member

IBM Research / T.J. Watson Research Center  
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## Research Interests

Adaptive visualization, visual analytics, social network analysis/visualization, Human-Computer Interaction, user modeling, information retrieval, personalized/social search/recommender systems, exploratory information retrieval, text data mining, adaptive E-Learning, data science, digital libraries

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## Education

- 2004–2010 **Ph.D. in Information Science**, *School of Information Sciences, University of Pittsburgh*, Pittsburgh, PA, USA.
- Dissertation: “Adaptive Visualization for Focused Personalized Information Retrieval”
  - Advisor: Professor Peter Brusilovsky
- 1997–2000 **Master of Arts in Information Science**, *Yonsei University*, Seoul, Korea.
- With an emphasis on content-based image retrieval (thesis and other publications)
- 1991–1997 **Bachelor of Arts in Sociology**, *Yonsei University*, Seoul, Korea.

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## Research Grants and Awards

- 2017 **A First Plateau**, *IBM Invention Achievement Award*, New York.  
Filed inventions on Visual Dialog, Cognitive system supported Wizard-of-Oz, Partial answer recommendation, Blockchain for open scientific research
- 2015,2016,2017 **IBM Manager’s Choice Awards**, New York.
- Recognized in adaptive visualization and concept clustering for an intelligent tutor project
  - Recognized in data analysis for Chef Watson
- 2014 **IEEE Transactions on Visualization and Computer Graphics Spotlight Paper**, *A Task Taxonomy of Network Evolution Analysis*, March 2014 issue.  
<http://www.computer.org/portal/web/tvcg>
- 2013 **NSF Task-Based Information Search Systems Workshop**, *Invited to the NSF supported workshop (8 % selection rate)*, University of North Carolina, Chapel Hill, NC.  
<http://ils.unc.edu/taskbasedsearch>
- 2010–2012 **NSF-CRA Computing Innovation Fellowship (CIFellow)**, *One of 47 awardees selected from new 218 computer/information science Ph.D’s in 2010 (11% selection rate)*, USA, **\$267,500**. <http://cifellows.org>.
- Fellowship Mentor: Professor Ben Shneiderman (Distinguished Professor at the Department of Computer Science, University of Maryland at College Park)

- 2009 **Internship Training Award for Computer Science Students**, *Telefónica R&D*, Barcelona, Spain, €9,218.
- 2006,2007,2010 **Student Author Travel Awards**, *WWW '06, 07, UMAP '10*.  
As the first author of research track papers
- 2006 **Honorable mention**, *iFest 2006 Ph.D. Poster Track School of Information Sciences*, University of Pittsburgh, Pittsburgh, PA.  
First author, "YourNews: A Personalized News Filtering System"
- 2005 **First Prize**, *iFest 2005 Demo Track*, University of Pittsburgh, Pittsburgh, PA.  
First author, "Implementation of Social Search with Educational Resources"

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## Employments

- 2016–Current **Research Staff Member**, *IBM Research*, T.J. Watson Research Center, Yorktown Heights, NY.
- Adaptive visualization, concept ingestion, and clustering for educational resources
  - Multi-modal educational conversation system
  - Cognitive system assisted Wizard-of-Oz for data collection
  - Transcript analysis for Watson Tutor
- 2014–2016 **Watson Data Scientist**, *IBM Watson Life Group*, T.J. Watson Research Center, Yorktown Heights, NY.
- Visual and interactive user data analysis and personalization for Chef Watson
  - Recipe classification
- 2012–2014 **Data Scientist**, *College of Computing and Informatics, Drexel University*, Philadelphia, PA.
- Supervisor: Professor Xia Lin
  - Text data analysis, concept mapping, visualization tool implementation for museums (in collaboration with SUNY Buffalo, ARTstor Digital Library, and The Getty Museum)
  - Implementing analytic and visualization tools for mixed data structure of DLs
- 2010–2012 **Research Associate**, *NSF/CRA Postdoctoral CIFellow (Computing Innovation Fellow)*, Human-Computer Interaction Lab, University of Maryland, College Park, MD.
- Supervisor: Professor Ben Shneiderman
  - Implemented dynamic network evolution analysis and visualization tools
  - Usability testing and long-term case study
- Summer 2009 **Research Intern**, *Telefónica Research*, Barcelona, Spain.
- Supervisor: Dr. Xavier Amatriain
  - Implemented a client-oriented expert-based music recommender system
- 2004–2010 **Graduate Student Researcher**, *School of Information Sciences, University of Pittsburgh*, Pittsburgh, PA.
- Supervisors: Professors Peter Brusilovsky and Daqing He
  - **Personalized search engine** and its user interface, visualization, adaptive E-learning
  - System design and implementation, usability testing, user study, user behavior experiment, log analysis, eye-tracking analysis
  - Supported by NSF, DARPA, and Carnegie Museum of Arts

- 2005 **Patient Scheduling System Programmer**, *University of Pittsburgh Medical Center (UPMC) Magnetic Resonance Research Center*, Pittsburgh, PA.
  - Programmed and maintained a web-based patient scheduling system
- 2005-2006 **Graduate Student Assistant**, *School of Information Sciences, University of Pittsburgh*, Pittsburgh, PA.
  - Supervisors: Professors Peter Brusilovsky and Daqing He
  - Teaching Assistant for database management and information retrieval courses

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## Research Experiences

- 2016–Current **Adaptive Visualization for Intelligent Tutoring Systems.**
  - Create a visual dialog system that integrates textual and visual interaction between an intelligent tutor and a learner
  - Extract concepts from large educational resource corpora and generate knowledge graphs
  - Create a visualization system that can enable learners dynamically annotate educational contents
- 2014–Current **IBM Chef Watson.**
  - Analyze user behaviors of consumer-oriented recipe generation cognitive system IBM Chef Watson (<https://www.ibmchefwatson.com>)
  - Personalization/recommendation of recipe ingredient for users based on personal and social aspects
  - Automatic classification of recipe texts
- 2013–Current **Analysis and Visualization for Political Twitter Networks.**
  - Analyze and visualize large-scale Twitter dataset collected during the 2012 Korean Presidential Campaign.
  - Implementation of a large network evolution visualization tool, based on community level abstraction and evolution.
- 2011–2014 **EAGER: Interactive Visualization and Modeling of Latent Communities (NSF)**, *iSchool, University of Pittsburgh*, Pittsburgh, PA.
  - Working as a collaborator with the University of Pittsburgh iSchool team to visualize latent academic communities.
- 2012–2014 **Exploring Common Tools for Meaningful Concept Displays (IMLS)**, *iSchool, Drexel University*, Philadelphia, PA.
  - Concept visualization for search and browsing in digital museum environments.
- 2012–2014 **Analyzing metadata and automatic classification of digital library resources (Digging into Data Challenge)**, *iSchool, Drexel University*, Philadelphia, PA.
  - Analysis of large digital library metadata for inter-operability and automatic classification of resources.
- 2012–2014 **Medical concept visualization**, *Center for Visual and Decision Informatics (CVDI), Drexel University*, Philadelphia, PA.
  - Network visualization of medical concepts extracted from a large document corpus.
- 2011–2012 **Analyzing the Social Network and Evolution of Technology-Mediated Social Participation (CRA, NSF)**, *Human-Computer Interaction Lab, University of Maryland*, College Park, MD.
  - Analyzed Flickr photo uploaders' social networks.
  - Developed a dynamic network visualization tool to analyze citizen scientist networks.

- 2010–2012 **Supporting A Nation of Neighbors with Community Analysis Visualization Environment (CRA, NSF)**, *Human-Computer Interaction Lab, University of Maryland, College Park, MD.*
- Social network evolution analysis and visualization for a neighborhood watch service.
  - Developed a tool for temporal network visualization and the idea was presented at the Social Computing, Behavioral-Cultural Modeling and Prediction (SBP) 2011 Conference.
  - A task taxonomy of visual network evolution analysis was submitted to the Transactions of Visualization and Computer Graphics (TVCG) journal.
- 2009–2010 **Adaptive Visualization for Personalized Search**, *University of Pittsburgh, Pittsburgh, PA.*
- **Dissertation study:** A full-fledged user study that tested an adaptive visualization (Adaptive VIBE) for personalized search result representation (Reports were accepted by IP&M and in preparation to be submitted to the JASIS&T journals).
  - **Pilot studies:** Tested the Adaptive VIBE (Visual Information Browsing Environment) visualization (UMAP 2010, Information Visualization Journal, and HCIR 2009).
- 2009 **Wisdom of the Few: Expert-based Collaborative Filtering Project**, *Telefónica Research, Barcelona, Spain.*
- Collaborative music recommendation project based on expert wisdom
  - Developed a distributed collaborative filtering architecture and a multi-platform UI using RIA (Rich Internet Application; Adobe AIR) and Linked Data technologies. (WI-IAT 2010)
- 2009 **Collaborative Project: User-centric, Adaptive and Collaborative Information Filtering (NSF)**, *University of Pittsburgh, Pittsburgh, PA.*
- Personalized CiteULike search – language model-based re-ranking with a Firefox plug-in.
- 2008 **Digital Photo Library Project**, *University of Pittsburgh, Pittsburgh, PA.*
- Digital library project for “Teenie Harris Archive” of Carnegie Museum of Arts
  - Named-entity based search/browsing, faceted-browsing, social annotation (ASIS&T 2010)
- 2008 **Search Visualization for Mobile Devices**, *University of Pittsburgh, Pittsburgh, PA.*
- First-stage user study of a platform independent mobile search visualization tool (HCIR 2009).
- 2005–2007 **GALE Program (DARPA)**, *University of Pittsburgh, Pittsburgh, PA.*
- Designed and implemented prototype news search and filtering systems focusing on personalization and advanced user interfaces
  - Conducted user studies and published the results at major international conferences and journals as the first author.
  - **YourNews Study:** Content-based news recommendation with “Open User Model” – viewable/editable user profiles (WWW 2007).
  - **TaskSieve Study:** A flexible mediation of user query and user model UI for personalized news search (WWW 2008).
  - **NameSieve Study:** Named-entity based pseudo faceted search and browsing user interface (Information Processing & Management).

- 2004–2010 **Personalized Access to Open Corpus Educational Resources through Adaptive Navigation Support and Adaptive Visualization (NSF)**, *University of Pittsburgh*, Pittsburgh, PA.
- Designed, implemented, and conducted studies about social search and adaptive visualization tools for educational domains.
  - **Personalized Search Study**: Searching by social information such as group traffic and annotations (JCDL 2005). An extended version that stresses the query and the task model mediation is being prepared.
  - **ADVISE (Adaptive Document Visualization for Education) Visualization Study**: Reference point based visualization (ADVISE VIBE) and force-directed visualization (ADVISE 2D) were used for visualization of educational resources such as quizzes and examples for computer programming classes (Information Visualization 2006 and E-Learn 2006).

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## Publications

Google Scholar <http://goo.gl/1Skmm>  
 DBLP <http://goo.gl/iD2IfQ>

Total citations=840  
 H-index=15 (Dec 2017)

## Journal Papers

- [1] X. Lin., M. Khoo, **J. Ahn**, D. Tudhope, C. Binding, D. Massam, H. Jones. Mapping metadata to DDC classification structures for searching and browsing. *International Journal on Digital Libraries*, 18(1), 1-15, March 2017.
- [2] M. Khoo, **J. Ahn**, C. Binding, H. Jones, X. Lin, D. Massam, and D. Tudhope. Augmenting Metadata from Heterogeneous Digital Libraries with DDC Subjects. *Journal of Documentation*, 71(5), 976-998, 2015.
- [3] **J. Ahn**, C. Plaisant, and B. Shneiderman. A Task Taxonomy of Network Evolution Analysis. *IEEE Transactions on Visualization and Computer Graphics (TVCG)*, 20(3), 2014. (**Selected as the TVCG March 2014 Spotlight Paper**)
- [4] **J. Ahn**, and P. Brusilovsky. Adaptive Visualization for Exploratory Information Retrieval. *Information Processing and Management (IP&M) Special Issue on the Human-Computer Interaction and Information Retrieval*, 49(5): 1139-1164, 2013.
- [5] **J. Ahn**, P. Brusilovsky, J. Grady, D. He, and R. Florian. Semantic annotation based exploratory search for information analysts. *Information Processing and Management (IP&M)*, 46(4):383–402, July 2010.
- [6] P. Brusilovsky, **J. Ahn**, and E. Rasmussen. Teaching information retrieval with web-based interactive visualization. *Journal of Education in Library and Information Science (JELIS)*, 51(3):187–200, 2010.
- [7] **J. Ahn** and P. Brusilovsky. Adaptive visualization of search results: Bringing user models to visual analytics. *Information Visualization (IVS)*, 8(3):167–179, 2009.
- [8] D. He, P. Brusilovsky, **J. Ahn**, J. Grady, R. Farzan, Y. Peng, Y. Yang, and M. Rogati. An evaluation of adaptive filtering in the context of realistic task-based information exploration. *Information Processing and Management (IP&M)*, 44(2):511–533, March 2008.
- [9] **J. Ahn**, R. Farzan, and P. Brusilovsky. Social search in the context of social navigation. *Journal of the Korean Society for Information Management (in English)*, 23(2):147-165, 2006.

## Journal Papers in Preparation

- [1] J. Lee, **J. Ahn**, and H. Ryu. Retweeting Political Sentiments: Polarization and Homogeneity in Twitter from 2012 Presidential Election in South Korea. *Journal of the American Society for Information Science and Technology (JASIS&T)*.

- [2] J. Oh, **J. Ahn**, J. Lee, and H. Ryu. Political Twitter Media Outlet Analysis in South Korea. *Journal of the American Society for Information Science and Technology (JASIS&T)*.

### Book Chapters

- [1] D. He., P. Brusilovsky, J. Grady, **J. Ahn**, Y. Yang, M. Rogati. EDIE: An Evaluation Dataset for Task-Based Information Exploration. *Achievements in DARPA GALE Program*.

### Refereed Conference Papers

- [1] **J. Ahn**, S. Sundararajan, P. Watson, M. Change, and T. Ma. Adaptive Visual Dialog for Learning Environments. *In preparation to be submitted to CHI 2018*.
- [2] M. Chang, **J. Ahn**, S. Sundararajan, S. Azfaal, R. Sindhgatta, N. Muhki, P. Watson. Dialogue-based tutoring at scale: Design and Challenges. *In preparation to be submitted to ICLS 2018*.
- [3] **J. Ahn**, J. Oh and J. Lee. Visualizing Large Network Dynamics: A Study on Korean Presidential Election 2012. *In preparation*.
- [4] P. Watson, T. Ma, R. Tejwani, M. Chang, **J. Ahn**, and S. Sundrarajan. Human-level multiple choice question guessing without domain knowledge: Machine-learning of framing effects. *Submitted to WWW 2018*.
- [5] **J. Ahn**, P. Watson, M. Chang, S. Sundararajan, T. Ma, N. Mukhi, and S. Prabhu. Wizard's Apprentice: Cognitive Suggestion Support for Wizard-of-Oz Question Answering. *The 18th International Conference on Artificial Intelligence in Education (AIED 2017)*, 2017 (acceptance rate 30%).
- [6] **J. Ahn**, S. Han, and P. Brusilovsky. Personalized Search: Reconsidering the Value of Open User Models. *Proceedings of the 20th International Conference on Intelligent User Interface (IUI 2015)*, pp. 202–212. (acceptance rate 22.9%).
- [7] J. Lee, **J. Ahn** and J. Oh. Mysterious Influential Users in Political Communication on Twitter: Users' Occupation Information and Its Impact on Retweetability. *iConference 2015*.
- [8] X. Lin, M. Khoo, **J. Ahn**, C. Binding, D. Tudhope, H. Jones, and D. Massam. A DDC Visual Interface for Metadata Exploration. *International Conference on Dublin Core and Metadata Applications*, pages 158–169, 2015.
- [9] **J. Ahn**, D. Soergel, X. Lin, M. Zhang, and W. Ying. Mapping between ARTstor Material Terms and the Getty Art and Architecture Thesaurus (AAT). *International Society for Knowledge Organization (ISKO) Conference 2014*.
- [10] X. Lin, and **J. Ahn**. Challenges of knowledge structure visualization. *International UDC Seminar 2013*.
- [11] P. Dudas, **J. Ahn**, M. de Jongh, and P. Brusilovsky. Visualizing Overlapping Latent Communities Using POI-Based Visualizations. *iConference 2013*.
- [12] M. Khoo, D. Tudhope, C. Binding, H. Jones, I. Orrego, and **J. Ahn**. MASHing metadata: Legacy issues in OAI harvesting from three digital libraries, *iConference 2013*.
- [13] **J. Ahn**, J. Hammock, C. Parr, J. Preece, B. Shneiderman, K. Shultz, D. Hansen, D. Rotman, and Y. He. Visual Visually Exploring Social Participation in Encyclopedia of Life, *2012 ASE International Conference on Social Informatics*, pages 149-156. (acceptance rate 11.5%)
- [14] P.J. Rey, A. Sopian, **J. Ahn**, J.H. Kang, C. Plaisant, and B. Shneiderman. The Influence of Leadership on Activity Levels in an Online Crime Watch Community, *American Sociology Association Annual Meeting*, 2012.
- [15] **J. Ahn**, M. Taieb-Maimon, S. Sopian, C. Plaisant, and B. Shneiderman. Temporal Visualization of Social Network Dynamics: Prototypes for Nation of Neighbors. In *Proceedings of the 2011 International Conference on Social Computing, Behavioral-Cultural Modeling, & Prediction (SBP'11)*, pages 309–316, College Park, MD, USA, 2011.

- [16] U. Khurana, V. Nguyen, H. Cheng, **J. Ahn**, X. Chen, B. Shneiderman. Visual Analysis of Temporal Trends in Social Networks using Edge Color Coding and Metric Timelines. *The Third IEEE International Conference on Social Computing (SocialCom 2011)*. (acceptance rate 9.8%)
- [17] **J. Ahn** and P. Brusilovsky. Can concept-based user modeling improve adaptive visualization? In *18th International Conference on User Modeling, Adaptation, and Personalization (UMAP 2010)*, pages 4–15, Big Island, HI, USA, 2010. (acceptance rate 23%)
- [18] **J. Ahn** and X. Amatriain. Towards fully distributed and privacy-preserving recommendations via expert collaborative filtering and restful linked data. In *Proceedings of the IEEE/WIC/ACM International Conference on Web Intelligence*, Toronto, Canada, 2010. (acceptance rate 16.6%)
- [19] Y. Lin, **J. Ahn**, P. Brusilovsky, D. He, and R. Will. Exploratory search of museum archives with named entity-based faceted browsing. In *Proceedings of ASIS&T 2010 Annual Meeting*, Pittsburgh, PA, USA, 2010. (acceptance rate 29.7%)
- [20] **J. Ahn**, P. Brusilovsky, D. He, J. Grady, and Q. Li. Personalized web exploration with task models. In *WWW '08: Proceeding of the 17th international conference on World Wide Web*, pages 1–10, Beijing, China, 2008 (acceptance rate <12%)
- [21] **J. Ahn**, P. Brusilovsky, J. Grady, D. He, and S. Y. Syn. Open user profiles for adaptive news systems: help or harm? In *WWW '07: Proceedings of the 16th international conference on World Wide Web*, pages 11–20, Banff, Canada, 2007. (acceptance rate 14.7%)
- [22] **J. Ahn** and P. Brusilovsky. From user query to user model and back: Adaptive relevance-based visualization for information foraging. In *Proceedings of the IEEE/WIC/ACM International Conference on Web Intelligence*, pages 706–712, Silicon Valley, CA, USA, 2007. (acceptance rate 16%)
- [23] D. He, P. Brusilovsky, J. Grady, Q. Li, and **J. Ahn**. How Up-to-date should it be? the Value of Instant Profiling and Adaptation in Information Filtering. In *Proceedings of the IEEE/WIC/ACM International Conference on Web Intelligence*, pages 699–705. IEEE Computer Society, 2007.
- [24] **J. Ahn**, P. Brusilovsky, and S. Sosnovsky. QuizVIBE: Accessing educational objects with adaptive relevance-based visualization. In T. Reeves and S. Yamashita, editors, *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education 2006*, pages 2707–2714, Honolulu, Hawaii, USA, October 2006. AACE.
- [25] P. Brusilovsky, **J. Ahn**, T. Dumitriu, and M. Yudelson. Adaptive knowledge-based visualization for accessing educational examples. In *Tenth International Conference on Information Visualisation (IV'06)*, pages 142-150, London, England, July 2006.
- [26] P. Brusilovsky, R. Farzan, and **J. Ahn**. Comprehensive personalized information access in an educational digital library. In *Proceedings of the 5th ACM/IEEE-CS Joint Conference on Digital Libraries*, pages 9–18, Denver, CO, USA, 2005. (acceptance rate 31%)

### Non-refereed Conference Papers

- [1] D. He and **J. Ahn**. Pitt at CLEF '05: Data fusion for spoken document retrieval. In *CLEF*, pages 773–782, 2005.
- [2] D. He and **J. Ahn**. Pitt at TREC '05: Hard and enterprise. In *TREC*, 2005.

### Refereed Workshop Papers

- [1] **J. Ahn** and X. Lin. Dewey Decimal Classification Based Concept Visualization for Information Retrieval. *Knowledge Map and Information Retrieval 2014*.
- [2] **J. Ahn**, K. Wongsuphasawat, and P. Brusilovsky. Analyzing User Behavior Patterns in Adaptive Exploratory Search Systems with LifeFlow. In *Fifth Workshop on Human-Computer Interaction and Information Retrieval (HCIR 2011)*, Mountain View, CA, USA, Oct 2011.

- [3] **J. Ahn** and P. Brusilovsky. Visual interaction for personalized information retrieval. In *Third Workshop on Human-Computer Interaction and Information Retrieval (HCIR 2009)*, Washington, DC, USA, Oct 2009.
- [4] S. Koshman and **J. Ahn**. Adapting an information visualization tool for mobile information retrieval. In *Third Workshop on Human-Computer Interaction and Information Retrieval (HCIR 2009)*, Washington, DC, USA, Oct 2009.
- [5] **J. Ahn** and P. Brusilovsky. Mediating between User Query and User Model with Adaptive Relevance-Based Visualization. In *The First Workshop on Human-Computer Interaction and Information Retrieval (HCIR 2007)*, Boston, MA, USA, Oct 2007.
- [6] P. Brusilovsky, **J. Ahn**, and R. Farzan. Accessing educational digital libraries through adaptive information visualization. In *Proceedings of 10th DELOS Workshop on Personalized Access, Profile Management, and Context Awareness in Digital Libraries, PersDL 2007*, Confu, Greece, June 29-30 2007.
- [7] **J. Ahn**, P. Brusilovsky, and R. Farzan. Investigating users' needs and behavior for social search. In *Proceedings of the Workshop on new Technologies for Personalized Information Access, part of the 10th International Conference on User Modeling (UM'05)*, pages 1–12, Edinburgh, July 24-25 2005.
- [8] **J. Ahn**, R. Farzan, and P. Brusilovsky. A two-level adaptive visualization for information access to open- corpus educational resources. In *Proceedings of Workshop on the Social Navigation and Community-Based Adaptation Technologies at the 4th International Conference on Adaptive Hypermedia and Adaptive Web-Based Systems*, pages 497–505, Dublin, Ireland, June 20th 2006.
- [9] P. Brusilovsky, R. Farzan, and **J. Ahn**. Layered evaluation of adaptive search. In *Proceedings of Workshop on Evaluating Exploratory Search Systems at the 29th Annual International ACM SIGIR Conference on Research & Development on Information Retrieval*, pages 11–13, Seattle, WA, 2006.

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## Teaching Experiences

- 2017 **Visual Anthropology**, *Yonsei University*, Seoul, Korea, Guest Lecturer.  
“IBM Watson and Education Transformation”
- 2011 **CMSC 734: Information Visualization**, *University of Maryland*, College Park, MD, Class Project Mentor.  
“Visual Analysis of Temporal Trends in Social Networks using Edge Color Coding and Metric Timelines”
- 2010 **INFSCI 2955: Special Topics: The Social Web**, *University of Pittsburgh*, Pittsburgh, PA, Co-teaching.  
“Document Filtering and Classification, and RSS Feed Parsing for Social Network Services”
- 2010 **Passed English Language Comprehensibility Test for Teaching Fellows**, *University of Pittsburgh*, Pittsburgh, PA, Scoring 4 out of 5 (Good).
- 2009 **INFSCI 2955: Special Topics: Adaptive Web Systems**, *University of Pittsburgh*, Pittsburgh, PA, Co-teaching.  
“Document modeling, Content-based adaptation, and Adaptive News Access”
- 2001 **LIS3701: Database Systems**, *Yonsei University*, Seoul, Korea, Guest Lecturer.  
“Client-server Based Database Systems”



- 2000–2002 **Information Retrieval Systems Lab for LIS Graduate School Students**, *Yonsei University*, Seoul, Korea, Instructor.
- Designed a course to teach LIS graduate students basic IR theory and techniques for their research projects.
  - Topics: “Implementation of IR systems using Python,” “Conducting IR Experiments using SMART”
- 1999 **Web-based Information Systems**, *Yonsei University*, Seoul, Korea, Instructor.
- Designed a course to teach LIS undergraduate students Web technologies
  - Topics: “HTML, CGI, and JavaScript”
- 1998 **Web-based Information Systems**, *Yonsei Extension*, Seoul, Korea, Instructor.
- “Internet Expert Course program at the Yonsei University Extension”
  - Designed a course to teach Web-based internet technologies

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## Talks and Presentations

### Invited Talks

- 2016 **Cognitive Cooking with Chef Watson**, *2016 International XO Symposium. Bio-Convergence Technology of Food for Wellness Life*, Suwon, Korea, Nov 2016.  
Seoul National University Advanced Institutes of Convergence Technology & CJ
- 2016 **Understanding Chef Watson Users**, *Massachusetts Institute of Technology Operations Research Center IAP Seminar 2016, “Analytics in Operations Research”*, Cambridge, MA, Jan 2016.
- 2014 **Human-Computer Interaction for Data Management and Analysis**, *University of British Columbia*, Vancouver, Canada, March 2014.
- 2014 **Visualization for Information Management and Analysis**, *University of South Carolina*, Columbia, SC, February 2014.
- 2014 **Visual Analytics for Social Media**, *Fuji-Xerox Palo Alto Laboratory (FXPAL)*, Palo Alto, CA, January 2014.
- 2013 **Adaptive Visualization for Personalized Search: Combining AI with HCI**, *Seoul National University*, Seoul, Korea, June 2013.
- 2013 **Adding Adaptivity to Visual Analytics**, *Simon Fraser University*, Burnaby, Canada, April 2013.
- 2013 **Data Analysis and Social Media**, *Florida State University*, Tallahassee, FL, March 2013.
- 2013 **Visual Exploratory for Personalized and Social Information Management**, *University of Oklahoma*, Norman, Oh, February 2013.
- 2012 **Adaptive Visualization for Web-based Exploratory Search Systems**, *University of Tennessee*, Knoxville, TN, December 2012.
- 2012 **Visualizing User Models and Social Information**, *Palo Alto Research Center (PARC)*, Palo Alto, CA, December 2012.

- 2012 **Modeling Users and Knowledge for Human Information Interaction**, *McGill University*, Montreal, Canada, June 2012.
- 2012 **Adaptive User Interface for Exploratory Information Systems**, *University of Wisconsin at Madison*, Madison, WI, May 2012.
- 2011 **Nation of Neighbors: Design and Network Evolution for Internet Community Safety Systems**, *a joint talk with Professor Ben Shneiderman at the Technology-Mediated Social Participation: An Interdisciplinary Lecture Series*, College Park, MD, February 2011.
- 2011 **Exploratory user interfaces for personalized information access**, *a talk at the CLIP (Computational Linguistics & Information Processing) Lab Colloquia of the University of Maryland at College Park*, College Park, MD, February 2011.

### Conference & Workshop Presentations

- 2017 **Wizard's Apprentice: Cognitive Suggestion Support for Wizard-of-Oz Question Answering**, *The 18th International Conference on Artificial Intelligence in Education (AIED 2017)*, Wuhan, China, Jun 2017.
- 2016 **Cognitive Cooking with Chef Watson**, *The 67th Annual Meeting of Korean Society of Food Science and Nutrition*, Jeju, Korea, Nov 2016.
- 2014 **A Task Taxonomy of Network Evolution Analysis. IEEE Transactions on Visualization and Computer Graphics**, *SIGGRAPH Asia*, Shenzhen, China, Dec 2014.
- 2013 **Visualizing Overlapping Latent Communities Using POI-Based Visualizations**, *a talk at iConference 2013*, Fort Worth, TX, February 2013.
- 2012 **Analyzing Network Dynamics: Three tools, two applications**, *a talk at the HCIL Symposium*, College Park, MD, May 2012.
- 2011 **Analyzing User Behavior Patterns in Adaptive Exploratory Search Systems with LifeFlow**, *a poster presentation at The Fifth Workshop on Human-Computer Interaction and Information Retrieval, HCIR 2011*, Mountain View, CA, October 2011.
- 2011 **Visualizing the Temporal Evolution of Networks**, *a talk at the HCIL Symposium*, College Park, MD, May 2011.
- 2011 **Guiding educational resources for iSchool students with topic-based adaptive visualization**, *a poster presentation at iConference 2011*, Seattle, WA, February 2011.
- 2010 **Exploratory search of museum archives with named entity-based faceted browsing**, *a talk at ASIS&T 2010 Annual Meeting*, Pittsburgh, PA, October 2010.
- 2010 **Can Concept-based User Modeling Improve Adaptive Visualization?**, *a talk at The User Modeling, Adaptation, and Personalization (UMAP 2010) conference*, Hawaii, USA, June 2010.
- 2010 **What You See Is What You Search: Adaptive Visual Search Framework for the Web**, *a poster presentation at The 19th international conference on World Wide Web, WWW '10*, Raleigh, NC, USA, April 2010.

- 2009 **Visual Interaction for Personalized Information Retrieval**, a poster presentation at *The Third Workshop on Human-Computer Interaction and Information Retrieval, HCIR 2009*, Washington DC, USA, October 2010.
- 2008 **Envisioning User Models for Adaptive Visualization**, a poster presentation at *The IEEE Symposium on Visual Analytics Science and Technology, VAST '08*, Columbus, Ohio, USA, October 2008.
- 2008 **Personalized Web Exploration with Task Models**, a talk at *The 17th International Conference on World Wide Web, WWW '08*, Beijing, China, April 2008.
- 2007 **Open user profiles for adaptive news systems: help or harm?**, a talk at *The 16th International Conference on World Wide Web, WWW '07*, Banff, Canada, April 2007.
- 2006 **Layered Evaluation of Adaptive Search**, a talk at *The Workshop on Evaluating Exploratory Search Systems at the 29th Annual International ACM SIGIR Conference on Research & Development on Information Retrieval*, Seattle, WA, USA, June 2006.
- 2005 **Comprehensive personalized information access in an educational digital library**, a talk at *The 5th ACM/IEEE-CS Joint Conference on Digital Libraries, JCDL '05*, Denver, Colorado, USA, June 2005.

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## Professional Services

- 2018 **Program Committee Member**, *IUI 2018*.
- 2017 **Invited Journal Reviewer**, *ACM Transactions on Intelligent Systems and Technology (TIST)*.
- 2017 **Invited Journal Reviewer**, *ACM Transactions on Information Systems (TOIS)*.
- 2017 **Program Committee Member**, *22nd ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD 2017)*.
- 2016 **Invited Journal Reviewer**, *Information Processing and Management (IP&M)*.
- 2016 **Program Committee Member**, *The 26th World Wide Web Conference (WWW 2017)*.
- 2016 **Program Committee Member**, *iConference 2017*.
- 2016 **Invited Journal Reviewer**, *Journal of User Modeling and User-Adapted Interaction (UMUAI)*.
- 2015 **Invited Journal Reviewer**, *IEEE Transactions of Visualization and Computer Graphics (TVCG)*.
- 2015 **Invited Journal Reviewer**, *Journal of User Modeling and User-Adapted Interaction (UMUAI)*.
- 2015 **Invited Journal Reviewer**, *Journal of the American Society for Information Science and Technology (JASIS&T)*.

- 2014 **Invited Journal Reviewer**, *Journal of the American Society for Information Science and Technology (JASIS&T)*.
- 2014 **Reviewer**, Cambridge University Press, book chapters.
- 2014 **Program Committee Member**, *The ACM Conference on Information and Knowledge Management (CIKM) 2014*.
- 2014 **Invited Journal Reviewer**, *IEEE Transactions of Information Systems (TOIS)*.
- 2014 **Invited Journal Reviewer**, *IEEE Transactions of Visualization and Computer Graphics (TVCG)*.
- 2013 **Invited Journal Reviewer**, *Journal of the American Society for Information Science and Technology (JASIS&T)*.
- 2012 **Invited Journal Reviewer**, *ACM Transactions on the Web (TWEB)*.
- 2012 **Invited Journal Reviewer**, *Information Processing and Management (IP&M)*.
- 2012 **Program Committee Member**, *The ACM/IEEE Joint Conference on Digital Libraries (JCDL 2012)*.
- 2010 **Program Committee Member**, *The Fourth Workshop on Human-Computer Interaction and Information Retrieval (HCIR)*.
- 2004–2014 **Reviewer**, Advanced Visual Interfaces (AVI '12), EuroVis ('12, '14), ACM Hypertext conference (HT '11). IEEE InfoVis conference (InfoVis '11, '13), iConference ('11, '15, '16), ACM SIGCHI conference (CHI '11, '15, '18), ACM SIGIR conference (SIGIR '10), ACM Recommender System conference (RecSys '10), Journal of Universal Computer Science, Conference on Information and Knowledge Management (CIKM '08, '09), Advanced Visual Interfaces International Working Conference (AVI '08), International Conference on World Wide Web (WWW '07, '08), European Conference on Technology Enhanced Learning (ECTEL '06) IEEE/WIC/ACM International Conference on Web Intelligence (WI '05, '06, '13) .

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## Technical skills

<b>Programming Languages</b>	Java, Python, C, Perl, BASH, JavaScript, PHP Action-Script/Flex/AIR	<b>Information Retrieval &amp; Natural Language Processing</b>	Indri/Lemur/Galago (language model search engines developed at U. of Mass. and CMU), Apache Lucene/Solr, Elastic Search, NLTK
<b>Web Technologies</b>	HTML, CSS, Twitter Bootstrap, jQuery, AngularJS, ReactJS	<b>Machine Learning</b>	R, Matlab, Weka, Apach Spark MLlib, Python Scikit-Learn, Watson Natural Language Classifier, Tensorflow
<b>Database and (Big) Data Analysis</b>	SQL, MongoDB, CouchDB, Berkeley DB, Apache Hadoop, Apache Spark, Parallel Python, Pandas, NumPy	<b>Visualization</b>	Prefuse/Flare, D3.js, sigma.js, Java 2D, Kibana

**Social Network Analysis** iGraph, Gephi, NodeXL

**Cloud Computing** IBM Bluemix (Cloud Foundry)

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## References

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