



Alice H. Oh

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RESEARCH INTERESTS

My research interests are in machine learning and computational social science. In particular, I study a subfield of machine learning called topic modeling which aims to discover the hidden semantic patterns in unannotated data. I apply topic modeling to data from online social networks (OSN) and social media which can be used as proxies for human social behavior.

EDUCATION

Massachusetts Institute of Technology, Ph.D., Computer Science, 2008
Carnegie Mellon University, M.S., Language and Information Technologies, 2000
Massachusetts Institute of Technology, B.S., Mathematics, 1996

EXPERIENCES

Assistant Professor, Department of Computer Science, Korea Advanced Institute of Science and Technology, 2008-Present
Visiting Scholar, Center for Research on Computation and Society, Harvard University, 2013-2014
Research Staff, Compaq Corporation, Cambridge, MA, USA, 2000-2001
Technical Writer, Oracle Corporation, Redwood Shores, CA, USA, 1997-1998

RECENT PUBLICATIONS

JOURNALS

- [J1] Dongwoo Kim and Alice Oh. Hierarchical dirichlet scaling process. *Submitted to Journal of Machine Learning Research*.
- [J2] Suin Kim, Sungjoon Park, Scott Hale, Sooyoung Kim, Jungmin Byun, and Alice Oh. Understanding multilingual wikipedia editors. *Submitted to Plos One*.
- [J3] Jihyun Lee, Jun-Ki Min, Alice Oh, and Chin-Wan Chung. Effective ranking and search techniques for web resources considering semantic relationships. *Information Processing & Management*, 50(1):132–155, 2014.

REFEREED CONFERENCES

- [C1] Bumsoo Kang, Sujin Lee, Seungwoo Kang, Inseok Hwang, Junehwa Song, and Alice Oh. Towards understanding relational orientation: Attachment theory and facebook activities. In *Proceedings of the 18th ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW)*, 2015.
- [C2] Jae Won Kim, Dongwoo Kim, Brian Keegan, Joon Hee Kim, Suin Kim, and Alice Oh. Social media dynamics of global co-presence during the 2014 fifa world cup. In *Proceedings of the 33rd ACM Conference on Human Factors in Computing Systems (CHI)*, 2015.

- [C3] JinYeong Bak, Chin-Yew Lin, and Alice Oh. Self-disclosure topic model for classifying and analyzing twitter conversations. In *Empirical Methods in Natural Language Processing (EMNLP)*, 2014.
- [C4] Dongwoo Kim and Alice Oh. Hierarchical dirichlet scaling process. In *Proceedings of the 31st International Conference on Machine Learning (ICML)*, 2014.
- [C5] Suin Kim, Ingmar Weber, Li Wei, and Alice Oh. Sociolinguistic analysis of twitter in multilingual societies. In *Proceedings of the 25th ACM Conference on Hypertext and Social Media (HT)*, 2014.
- [C6] Yeouul Kim, Suin Kim, Alejandro Jaimes, and Alice Oh. A computational analysis of agenda setting. In *Proceedings of the companion publication of the 23rd international conference on World Wide Web companion (WWW)*, 2014.
- [C7] Dongwoo Kim, Haixun Wang, and Alice Oh. Context-dependent conceptualization. In *Proceedings of the Twenty-Third International Joint Conference on Artificial Intelligence (IJCAI)*, 2013.
- [C8] Suin Kim, Jianwen Zhang, Zheng Chen, Alice Oh, and Shixia Liu. A hierarchical aspect-sentiment model for online reviews. In *Proceedings of the Twenty-Seventh AAAI Conference on Artificial Intelligence (AAAI)*, 2013.
- [C9] JinYeong Bak, Suin Kim, and Alice Oh. Self-disclosure and relationship strength in twitter conversations. In *Proceedings of the 50th Annual Meeting of the Association for Computational Linguistics (ACL)*, 2012.
- [C10] Dongwoo Kim, Suin Kim, and Alice Oh. Dirichlet process with mixed random measures: a nonparametric topic model for labeled data. In *Proceedings of the 29th International Conference on Machine Learning (ICML)*, 2012.
- [C11] Joon Hee Kim, Dongwoo Kim, Suin Kim, and Alice Oh. Modeling topic hierarchies with the recursive chinese restaurant process. In *Proceedings of the 21th ACM Conference on Information and Knowledge Management (CIKM)*, 2012.
- [C12] Suin Kim, JinYeong Bak, and Alice Oh. Do you feel what i feel? social aspects of emotions in twitter conversations. In *Proceedings of the 6th International AAAI Conference on Weblogs and Social Media (ICWSM)*, 2012.
- [C13] Yohan Jo and Alice Oh. Aspect and sentiment unification model for online review analysis. In *Proceedings of the fourth ACM International Conference on Web Search and Data Mining (WSDM)*, 2011.
- [C14] Dongwoo Kim and Alice Oh. Accounting for data dependencies within a hierarchical dirichlet process mixture model. In *Proceedings of the 20th ACM Conference on Information and Knowledge Management (CIKM)*, 2011.
- [C15] Dongwoo Kim and Alice Oh. Topic chains for understanding a news corpus. In *Proceedings of the 12th International Conference on Intelligent Text Processing and Computational Linguistics (CICLING)*, 2011.
- [C16] Wonjun Lee, Sunjun Kim, Youn-kyung Lim, Alice Oh, Tek-jin Nam, and Kee-Eung Kim. A rapid prototyping method for discovering user-driven opportunities for personal informatics. In *16th International Conference on Virtual Systems and Multimedia (Best Paper Award)*, 2011.
- [C17] Sunjun Kim and Alice Oh. ilight: Information flashlight on objects using handheld projector. In *ACM Conference on Human Factors in Computer Systems*, 2010.
- [C18] Trung Nguyen and Alice Oh. Users' needs for social tagging and sharing on mobile contacts. In *ACM International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI)*, 2010.
- [C19] Il-Chul Moon Moon, Youngmin Kim, Hyunjong Lee, and Alice Oh. Temporal issue trend identifications in blogs. In *Proceedings of IEEE SocialCom Symposium on Social Computing Applications*, 2009.
- [C20] Alice Oh, Hyunjong Lee, and Youngmin Kim. User evaluation of a system for classifying and displaying political viewpoints of weblogs. In *Proceedings of AAAI International Conference on Weblogs and Social Media*, 2009.

WORKSHOP PAPERS

- [W1] JinYeong Bak, Chin-Yew Lin, and Alice Oh. Self-disclosure topic model for twitter conversations. In *Workshop on Social Dynamics and Personal Attributes in Social Media at ACL*, 2014.
- [W2] Jooyeon Kim, Joon Hee Kim, Dongwoo Kim, and Alice Oh. Diversity-seeking users and their influence on social news sites. In *Workshop on Data Science for News Publishing (NewsKDD)*, 2014.
- [W3] JinYeong Bak, Dongwoo Kim, and Alice Oh. Distributed online learning for latent dirichlet allocation. In *Workshop on Big Learning : Algorithms, Systems, and Tools at the Neural Information Processing Systems*, 2012.
- [W4] Dongwoo Kim, Yohan Jo, Il-Chul Moon, and Alice Oh. Analysis of twitter lists as a potential source for discovering latent characteristics of users. In *Workshop on Microblogging at the ACM Conference on Human Factors in Computer Systems*, 2010.
- [W5] Younkyung Lim, Alice Oh, Tekjin Nam, and Kee-Eung Kim. Personal informatics for discovering human-centered lifecare system opportunities. In *Workshop on Know Thyself at the ACM Conference on Human Factors in Computer Systems*, 2010.
- [W6] Il-Chul Moon, Dongwoo Kim, Yohan Jo, and Alice Oh. Learning influence propagation of personal blogs with content and analysis. In *Workshop on Finding Synergies Between Texts and Networks at the IEEE International Conference On Social Computing*, 2010.

MANUSCRIPTS

- [M1] Dongwoo Kim, Yeonseung Chung, and Alice Oh. Variable selection for latent dirichlet allocation. *arXiv ePrints:1205.1053*, 2012.
- [M2] Trung V. Nguyen and Alice Oh. Summarizing reviews with variable-length syntactic patterns and topic models. *arXiv ePrints:1211.4929*, 2012.
- [M3] Bonggun Shin and Alice Oh. Bayesian group nonnegative matrix factorization for eeg analysis. *arXiv ePrints:1212.4347*, 2012.

INVITED TALKS AT INTERNATIONAL VENUES

- 2014.05.06. Machine Learning Approaches for Understanding Social Interactions on Twitter. **Massachusetts Institute of Technology**, Cambridge, MA, USA
- 2014.04.10. Hierarchical Dirichlet Scaling Process for Multi-labeled Data. **BBN Technologies**, Cambridge, MA, USA
- 2013.10.29. A Computational Analysis of Agenda Setting Theory. **Northeastern University**, Boston, MA, USA
- 2013.10.17. Topic Modeling and Computational Social Science. **Boston Dataswap Workshop**, Boston, MA, USA
- 2013.09.18. Insights and challenges of applying machine learning methods to problems in social science. **Harvard University**, Cambridge, MA, USA
- 2013.06.18. A Computational Analysis of Agenda Setting Theory. **Microsoft Research Asia**, Beijing, China
- 2013.04.11. Hierarchical Aspect Sentiment Model and Context-Dependent Conceptualization. **National ICT Australia**, Canberra, Australia
- 2012.12.05. Topic and Text Analysis for Sentiment, Emotions, and Computational Social Science. **IBM Research Almaden**, San Jose, USA

- 2012.10.24. Topic and Text Analysis for Sentiment, Emotions, and Computational Social Science. **Max Planck Institute for Software Systems**, Saarbrucken, Germany
- 2012.10.09. Topic Modeling, Sentiment Analysis, and Computational Social Science. **Microsoft Research Asia**, Beijing, China
- 2011.10.21. Social Aspects of Sentiment and Emotions in Twitter Conversations. **Carnegie Mellon University**, Pittsburgh, USA
- 2011.03.24. Accounting for Data Dependencies within a Hierarchical Dirichlet Process Mixture Model. **University of Massachusetts, Amherst**, USA
- 2011.03.21. Applications of Latent Dirichlet Allocation and Hierarchical Dirichlet Processes. **BBN Technologies**, Boston, USA
- 2011.03.18. Applications of Latent Dirichlet Allocation and Hierarchical Dirichlet Processes. **Carnegie Mellon University**, Pittsburgh, USA
- 2011.02.14. Applications of Latent Dirichlet Allocation and Hierarchical Dirichlet Processes. **Hong Kong University of Science and Technology**, Hong Kong
- 2010.12.02. Aspect and Sentiment Unification Model for Online Review Analysis. **Microsoft Research**, Redmond, USA
- 2010.12.01. Aspect and Sentiment Unification Model for Online Review Analysis. **Intel Labs Seattle**, USA
- 2010.08.12. Topic Chains for Understanding a News Corpus. **Palo Alto Research Center**, Palo Alto, CA, USA
- 2010.08.11. Google Tech Talk (on YouTube): Topic Chains and Aspect Sentiment Unification Model. **Google**, Mountain View, CA, USA

RESEARCH GRANTS

- Evaluating Social Media as a Source of Public Opinion in Korea. Office of Naval Research (ONR) Global, Department of the Navy, USA. July 2013-July 2014, \$75,000, Co-PI
- Basic Software Research in Human-level Lifelong Machine Learning (Machine Learning Center), Ministry of Science, ICT and Future Planning, April 2014-Feb 2018, 2000M KRW/year, Participating Faculty Researcher
- Big Social Stream Data Analysis with Validation for Reliability. Korea Communications Commission, April 2013-April 2016, 200M KRW/year, Co-PI
- Distributed online topic modeling for big data analysis. Samsung Electronics, Dec 2012-Nov 2013, 80M KRW/year
- Modeling emotional influences in long-term group conversations and predicting group performance based on the emotional exchanges, Ministry of Knowledge Economy and Microsoft Research Asia, Sept 2012-Aug 2013, 60M KRW/year
- Identifying and Predicting Emotions toward Korea-related Issues on the Web, Korea National Research Foundation, Sept 2010-Aug 2013, 50M KRW/year

ACADEMIC SERVICES

- Member**, Association for Computing Machinery (ACM)

Member, Association for the Advancement of Artificial Intelligence (AAAI)

Area Co-Chair, Association for Computational Linguistics (ACL) 2015

Area Co-Chair, Empirical Methods in Natural Language Processing (EMNLP) 2015

Doctoral Consortium Mentor, ACM Conference on Human Factors in Computing (CHI) 2015

Program Co-Chair, AAAI International Conference on Weblogs and Social Media (ICWSM) 2014

Publicity Chair, International World Wide Web Conference (WWW) 2014

Organizing Committee, ACM Web Search and Data Mining (WSDM) 2011

Doctoral Consortium Mentor, ACM Web Search and Data Mining (WSDM) 2013

Senior Program Committee, Association for Computational Linguistics (ACL), ACM Knowledge Discovery and Data Mining (KDD), ACM Web Search and Data Mining (WSDM), Asian Conference on Machine Learning (ACML)

Reviewer (last 5 yrs), NIPS, AAAI, ACL, ACM SIGCHI, ACM UIST, ACM CSCW, ACM ToWeb, ACM ToIS, ACM TKDD, PLoS One

Associate Editor, Journal of Computing Science and Engineering

Member, Korean Institute of Information Scientists and Engineers

Board Member, AI Society, KIISE

Board Member, SIG-HLT, KIISE

CURRENT STUDENTS

Dongwoo Kim, Ph.D. student, Feb 2011 - Topic: Nonparametric topic models

Joonhee Kim, Ph.D. student, Feb 2011 - Topic: Bayesian nonparametrics for social media analysis

Suin Kim, Ph.D. student, Sept 2012 - Topic: Emotion and sentiment analysis using topic models

JinYeong Bak, Ph.D. student, Feb 2013 - Topic: Sociolinguistic phenomena in online conversations

Jaewon Kim, Ph.D. student, Sept 2014 - present

Dongwoo Kim, M.S. student, Feb 2013 - present

Jeongmin Byun, M.S. student, Sept 2013 - present

Jooyeon Kim, M.S. student, Sept 2014 - present

Sooyoung Kim, M.S. student, Sept 2014 - present

THESES ADVISED

Yeouul Kim, M.S., August 2013. Computational analysis of agenda setting theory.

Bumsoo Kang, M.S., August 2013. Attachment theory and interactions on SNS.

JinYeong Bak, M.S., Feb 2013. Distributed online learning for topic models.

Suin Kim, M.S., Aug 2012. Unsupervised modeling of sentiments and emotions in online social network conversations.

Yohan Jo, M.S., Feb 2011. Aspect and sentiment unification model. (Distinguished Dissertation Award, KAIST CS Department)

Dongwoo Kim, M.S., Feb 2011. Distance dependent Chinese restaurant franchise.

Sunjun Kim, M.S., Feb 2011. Tracking user behavior and recommending books in offline bookstore.

Youngmin Kim, M.S., Sept 2010. Recommending blogs based on topic similarity with favorite blog.

Hyunjong Lee, M.S., Sept 2010. Bootstrapping sentiment lexicons for cross-domain adaptation.