

Dongwoo Kim

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RESEARCH INTERESTS

Machine learning, Statistical knowledge-bases, Bayesian nonparametrics, Statistical topic models, Computational social science

EMPLOYMENT

The Australian National University Apr.2019-Present
- Lecturer

The Australian National University Jul.2015-Dec.2018
- Postdoctoral Research Fellow, Advisor: Lexing Xie, Cheng Soon Ong

Microsoft Research, Redmond, WA, USA Jun.2013-Aug.2013
- Research Intern, Advisor: Nebojsa Jojic and Alessandro Perina
- Project : Browsing Large Collection of Documents with Counting Grid

Microsoft Research Asia, Beijing, China Sep.2012-Feb.2013
- Research Intern, Advisor: Haixun Wang
- Project : Context-Dependent Conceptualization with Probase and Topic Model

EDUCATION

KAIST, Ph.D., Computer Science Feb.2011-Feb.2015
- Advisor: Alice Oh
- Dissertation: Nonparametric Topic Models with Multi-Labeled Dataset

KAIST, M.S., Computer Science Feb.2009-Feb.2011
- Advisor: Alice Oh
- Dissertation: Distance Dependent Chinese Restaurant Franchise

Sung Kyun Kwan University, B.Eng., Computer Science Mar.2003-Feb.2009

INTERNATIONAL JOURNALS

- [1] **Dongwoo Kim** and Alice Oh. Hierarchical dirichlet scaling process. *Machine Learning*, 106(3):387–418, 2017.
- [2] Jooyeon Kim, **Dongwoo Kim**, and Alice Oh. Joint modeling of topics, citations, and topical authority in academic corpora. *Transactions of the Association for Computational Linguistics*, 5:191–204, 2017.

INTERNATIONAL CONFERENCES/WORKSHOPS

- [3] Minjeong Shin, **Dongwoo Kim**, Jae Hee Lee, Umanga Bista, Lexing Xie Visualizing Graph Differences from Social Media Streams. In *ACM International Conference on Web Search and Data Mining (WSDM)*, 2019
- [4] **Dongwoo Kim** and Christian Walder. Self-Bounded Prediction Suffix Tree via Approximate String Matching. In *International Conference on Machine Learning (ICML)*, 2018
- [5] Christian Walder and **Dongwoo Kim**. Neural Dynamic Programming for Musical Self Similarity. In *International Conference on Machine Learning (ICML)*, 2018
- [6] Christian Walder and **Dongwoo Kim**. Computer assisted composition with recurrent neural networks. In *The Asian Conference on Machine Learning (ACML)*, 2017.

- [7] Dawei Chen, **Dongwoo Kim**, Lexing Xie, Minjeong Shin, Aditya Menon, Cheng Soon Ong, Iman Avazpour, and John Grundy. Pathrec: Visual analysis of travel route recommendations. In *The ACM Conference on Recommender Systems (RecSys)*, 2017.
- [8] Yuan Jin, Mark Carman, **Dongwoo Kim**, and Lexing Xie. Leveraging side information to improve crowd-sourcing. In *The fifth AAAI Conference on Human Computation and Crowd-sourcing (HCOMP)*, 2017.
- [9] **Dongwoo Kim**, Lexing Xie, and Cheng Soon Ong. Probabilistic knowledge graph construction: Compositional and incremental approaches. In *The ACM Conference on Information and Knowledge Management (CIKM)*, 2016.
- [10] Nebojsa Jojic, Alessandro Perina, and **Dongwoo Kim**. Hierarchical learning of grids of microtopics. In *The Conference on Uncertainty in Artificial Intelligence (UAI)*, 2016.
- [11] 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) at KDD 2014*, 2014.
- [12] Alessandro Perina, **Dongwoo Kim**, Andrzej Turski, and Nebojsa Jojic. Skim-reading thousands of documents in one minute: Data indexing and visualization for multifarious search. In *Workshop on Interactive Data Exploration and Analytics (IDEA'14) at KDD 2014*, 2014.
- [13] **Dongwoo Kim** and Alice Oh. Hierarchical dirichlet scaling process. In *Proceedings of the 31th International Conference on Machine Learning (ICML)*, 2014.
- [14] **Dongwoo Kim**, Haixun Wang, and Alice Oh. Context-dependent conceptualization. In *Proceedings of the 23th International Joint Conference on Artificial Intelligence (IJCAI)*, 2013.
- [15] 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 NIPS.*, 2012.
- [16] 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.
- [17] **Dongwoo Kim**, Yeonseung Chung, and Alice Oh. Variable selection for latent dirichlet allocation. *arXiv ePrints:1205.1053*, 2012.
- [18] **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.
- [19] **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.
- [20] **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.
- [21] Il-Chul Moon, **Dongwoo Kim**, Yohan Jo, and Alice Oh. Learning influence propagation of personal blogs with content and network analyses. In *2010 IEEE Second International Conference on Social Computing (SocialCom)*, pages 669–674. IEEE, 2010.
- [22] **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.

Working Papers / Manuscripts

- [23] **Dongwoo Kim**, Timothy Graham, Zimin Wan, and Marian-Andrei Rizoiu. Tracking the Digital Traces of Russian Trolls: Distinguishing the Roles and Strategy of Trolls On Twitter. Submitted to ICWSM, arXiv preprint arXiv:1901.05228, 2019.
- [24] **Dongwoo Kim**, Yeonseung Chung, Alice Oh, Variable Selection for Latent Dirichlet Allocation, arXiv:1205.1053, 2012.

TALKS

Teaching machines to generate music, understand scientific influence, and populate knowledge, Kono Labs, Korea Dec. 22, 2017

Thompson sampling and compositions in knowledge bases with uncertainty, Monash, Australia May. 11, 2016

Introduction to Bayesian nonparametric models, SES Lab., KAIST, Korea Sep. 18, 2014

Introduction to probabilistic topic models, UNIST, Ulsan, Korea Mar. 21, 2014

Topic model and its applications, NHN, Korea Feb. 02, 2014

Social media mining using topic models, NIMS, Korea Oct. 04, 2011

PROFESSIONAL SERVICES

Reviewer of Transactions on Information Systems, Journal of Computer Science and Engineering

Program Committee:

NIPS 2018, 2017, 2016, ICML 2018, 2017, AAAI 2019, AISTATS 2019, ICLR 2018, ACL 2015, EMNLP 2015

TEACHING

Lecturer, Document Analysis, COMP4650/6490, ANU, Australia 2017, 2018

Lecturer & Tutor, Data Mining, COMP8410, ANU, Australia 2017, 2018

Guest Lecturer, Advanced Machine Learning, KAIST, Korea 2012
- Title: Non-parametric Bayesian Models

Guest Lecturer, Topics in Artificial Intelligence: Probabilistic Topic Models, KAIST, Korea 2011
- Title : Dirichlet Process Mixture Model and its Application

Teaching Assistant, Algorithms:Design and Analysis (Prof. Kyomin Jung), KAIST Spring 2011

Teaching Assistant, Artificial Intelligence (Prof. Alice Oh), KAIST Fall 2010, Fall 2011

Teaching Assistant, Undergraduate Research Program, KAIST Fall 2010

AWARDS

Outstanding dissertation award, Department of computer science, KAIST, Korea 2015

Microsoft research fellowship nomination award, Microsoft research asia, China 2013

ICML student travel scholarship, International machine learning society 2012

National science & technology scholarship, Korea student aid foundation 2008

REFERENCES

Lexing Xie, Associate Professor, The Australian National University, lexing.xie@anu.edu.au

Cheng Soon Ong, Principal Researcher, DATA61, CSIRO, chengsoon.ong@anu.edu.au

Alice Oh, Associate Professor, Computer Science, KAIST, alice.oh@kaist.edu