

RESEARCH INTERESTS

My research interests are in machine learning and computational social science. In particular, I study probabilistic Bayesian topic models which aims to discover latent patterns such as topics and sentiments in unstructured data.

First, I research the effective methodology of analyzing large data with high complex probabilistic Bayesian topic models. For example, I study posterior inference algorithms on distributed systems such as MapReduce. And also I study online learning which learns with one or small fraction of large data repeatedly. My M.S. thesis is suggesting new algorithm that combine two ideas for topic models. And it shows that suggesting algorithm runs faster than existing one and preserves model fit. From that, I am going to study more efficient way and apply it to more complex models.

Second, I research modeling network with Bayesian topic models. I consider network as relational data which contains not only existence but also its properties such as topics. I apply these topic models to large online social network and social media to find user's behavior. For example, I found user's self-disclosure behaviors in Twitter. I analyzed Twitter conversation between two users and found that users with high relationship strength show more self-disclosure behavior such as secrets. I published this results to ACL 2012. From that, I am going to study modeling other user's behaviors and expand it to nonparametric Bayesian models which can be inferred the number of parameters from data.

EDUCATION

KAIST, Ph.D., Computer Science, Mar 2013 -

KAIST, M.S., Computer Science, Feb 2011 - Feb 2013
Thesis : Distributed Learning for Topic Models

Sungkyunkwan University, B.S., Computer Engineering, Mar 2004 - Feb 2011

PUBLICATIONS

- [1] **JinYeong Bak**, Chin-Yew Lin, and Alice Oh. Self-disclosure topic model for classifying and analyzing twitter conversations. In *Proceedings of the 2014 Conference on Empirical Methods in Natural Language Processing*, 2014.
- [2] **JinYeong Bak**, Dongwoo Kim, and Alice Oh. Distributed online learning for latent dirichlet allocation. In *Proceedings of Workshop on Big Learning : Algorithms, Systems, and Tools at the Neural Information Processing Systems*, 2012.
- [3] **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*, 2012.
- [4] Suin Kim, **JinYeong Bak**, and Alice Oh. Do you feel what i feel? social aspects of emotions in twitter conversations. In *Proceedings of the AAAI International Conference on Weblogs and Social Media*, 2012.
- [5] Rae Young Ko, Duk Sun Kim, **JinYeong Bak**, and Sang Gu Lee. Development of mobile sage-math and its use in linear algebra. In *J. Korea Soc. Math. Ed. Ser. E: Communications of Mathematical Education*, 2009.
- [6] Duk Sun Kim, **JinYeong Bak**, and Sang Gu Lee. The educational models using enhanced mathematics ict in the korean it environments. In *J. Korea Soc. Math. Ed. Ser. E: Communications of Mathematical Education*, 2008.

EXPERIENCES

Research Intern, Microsoft Research Asia, Beijing, China, September 2013 - February 2014

TEACHING EXPERIENCES

Spring 2014 - Fall 2014, Teaching Assistant for Introduction to Programming, KAIST

Spring 2013, Teaching Assistant for Artificial Intelligence and Machine Learning, KAIST

Fall 2011, Teaching Assistant for Artificial Intelligence, KAIST

Fall 2010, Teaching Assistant for General Physics, Sungkyunkwan University

Fall 2010, Teaching Assistant for Operating Systems, Sungkyunkwan University

Spring 2010, Teaching Assistant for Discrete mathematics, Sungkyunkwan University

TALKS

2013.08.22. Bayesian Nonparametric Topic Modeling, Korean machine learning summer school, Seoul, South Korea

2014.10.23. Self-disclosure in Twitter conversations, Qatar Computing Research Institute, Doha, Qatar

SKILLS

Java, Python, C#, C++, C, R, PHP, JavaScript, SQL, Perl, Scheme

EXTRACURRICULAR ACTIVITIES

Students Representative, Department of Computer Science, KAIST, 2014

Student Volunteer, Annual Meeting of the Association for Computational Linguistics 2012 (ACL 2012), July 2012

Social service Personnel, Banyeo Library, Haeundae-gu office, Busan, Korea, May 2005 - July 2007

Worked as a member and president of Linux & Open-source learned club "SKKULUG", Sungkyunkwan University, School of Information and Communication Engineering, 2004 - 2010

REFERENCES

Prof. Alice Haeyun Oh, Department of Computer Science, KAIST, alice.oh@kaist.edu

Dr. Chin-Yew Lin, Knowledge Mining Group, Microsoft Research Asia, cyl@microsoft.com

Prof. Sang Gu Lee, Department of Mathematics, Sungkyunkwan University, sglee@skku.edu