

JOYCE JIYOUNG WHANG

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EDUCATION

Ph.D. in Computer Science
The University of Texas at Austin
August 2010 – December 2015
Advisor: Professor Inderjit S. Dhillon
Dissertation: Overlapping Community Detection in Massive Social Networks
Member of Center for Big Data Analytics & Data Mining Laboratory
G.P.A. 3.89/4.0

B.S. in Computer Science & Engineering
Ewha Womans University, Seoul, Korea
March 2006 – February 2010
Summa Cum Laude
G.P.A. 4.30/4.3

RESEARCH INTERESTS

Big Data, Data Mining, Social Network Analysis, Machine Learning, Community Detection, Overlapping Clustering, Large-Scale Graph Partitioning, Graph Theory, Bioinformatics.

RESEARCH EXPERIENCE

Mar. 2016 – present: Assistant Professor, Dept. of Computer Engineering, SKKU.
Aug. 2010 – Feb. 2016: Graduate Research Assistant, Dept. of Computer Science, UT Austin.
Jun. 2008 – May 2010: Undergraduate Research Assistant, Dept. of Computer Science & Engineering, Ewha Womans University.

CONFERENCE PUBLICATIONS

1. Yangyang Hou, **Joyce Jiyoung Whang**, David F. Gleich, and Inderjit S. Dhillon, “Fast Multiplier Methods to Optimize Non-exhaustive, Overlapping Clustering”, *Proceedings of the 16th SIAM International Conference on Data Mining (SDM)*, pages

297–305, May 2016.
Acceptance rate: 25.9%

2. Yangyang Hou*, **Joyce Jiyoung Whang***, David F. Gleich, and Inderjit S. Dhillon, “Non-exhaustive, Overlapping Clustering via Low-Rank Semidefinite Programming”, *Proceedings of the 21th ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, pages 427–436, August 2015.
(* authors in alphabetical order with equal contribution)
Acceptance rate: 19.4%
3. **Joyce Jiyoung Whang**, Andrew Lenharth, Inderjit S. Dhillon, and Keshav Pingali, “Scalable Data-driven PageRank: Algorithms, System Issues, and Lessons Learned”, *Proceedings of the 21th International European Conference on Parallel and Distributed Computing (Euro-Par)*, pages 438–450, August 2015.
Acceptance rate: 27.0%
4. **Joyce Jiyoung Whang**, Inderjit S. Dhillon, and David F. Gleich, “Non-exhaustive, Overlapping k -means”, *Proceedings of the 15th SIAM International Conference on Data Mining (SDM)*, pages 936–944, April 2015.
Acceptance rate: 22.0%
5. **Joyce Jiyoung Whang**, Piyush Rai, and Inderjit S. Dhillon, “Stochastic Block-model with Cluster Overlap, Relevance Selection, and Similarity-Based Smoothing”, *Proceedings of the 13th IEEE International Conference on Data Mining (ICDM)*, pages 817–826, December 2013.
Acceptance rate: 11.6% (regular paper)
6. **Joyce Jiyoung Whang**, David F. Gleich, and Inderjit S. Dhillon, “Overlapping Community Detection Using Seed Set Expansion”, *Proceedings of the 22nd ACM Conference on Information and Knowledge Management (CIKM)*, pages 2099–2108, October 2013.
Acceptance rate: 16.8% (full paper)
7. **Joyce Jiyoung Whang**, Xin Sui, and Inderjit S. Dhillon, “Scalable and Memory-Efficient Clustering of Large-Scale Social Networks”, *Proceedings of the 12th IEEE International Conference on Data Mining (ICDM)*, pages 705–714, December 2012.
Acceptance rate: 10.7% (regular paper)
8. Kai-Yang Chiang, **Joyce Jiyoung Whang**, and Inderjit S. Dhillon, “Scalable Clustering of Signed Networks Using Balance Normalized Cut”, *Proceedings of the 21st ACM Conference on Information and Knowledge Management (CIKM)*, pages 615–624, October 2012.
Acceptance rate: 13.4% (full paper)
9. Xin Sui, Tsung-Hsien Lee, **Joyce Jiyoung Whang**, Berkant Savas, Saral Jain, Keshav Pingali, and Inderjit S. Dhillon, “Parallel Clustered Low-rank Approximation of Graphs and Its Application to Link Prediction”, *Proceedings of the 25th International Workshop on Languages and Compilers for Parallel Computing (LCPC)*, pages 76–95,

September 2012.
Acceptance rate: 41.0%

10. Myungha Jang, Arang Rhie, **Jiyoung Whang**, Sanduk Yang, and Hyun S. Park, “A Statistical Analysis of Relation Degree of Compound Pair on Online Biological Pathway Databases”, *Proceedings of the 3rd International Conference on Ubiquitous Information Management and Communication (ICUIMC)*, pages 644–649, January 2009.

JOURNAL PUBLICATIONS

1. **Joyce Jiyoung Whang**, David F. Gleich, and Inderjit S. Dhillon, “Overlapping Community Detection Using Neighborhood-Inflated Seed Expansion”, *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, vol. 28:5, pages 1272–1284, May 2016 (SCI Journal).
2. **Joyce Jiyoung Whang**, Uran Oh, Aeyoung Kim, and Sang-Ho Lee, “Privacy-Preserving Protocols for Finding the Similarity between Two DNA Sequences with a Blind Third Party”, *Journal of Convergence Information Technology (JCIT)*, vol. 6:10, pages 33–40, October 2011.
3. Myungha Jang, **Jiyoung Whang**, Coleen S. Lewis, and Hyun S. Park, “An Interpretation of Biological Metabolites and their Reactions Based on Relation Degree of Compound Pairs in KEGG XML Files”, *Journal of Software*, vol. 5:2, pages 187–194, February 2010.
4. Eunji Lee, **Jiyoung Whang**, Uran Oh, Kern Koh, and Hyokyung Bahn, “Popular Channel Concentration Schemes for Efficient Channel Navigation in Internet Protocol Televisions”, *IEEE Transactions on Consumer Electronics*, vol. 5:4, pages 1945–1949, October 2009 (SCI Journal).
5. Sung-Hui Kang, Myung-Ha Jang, **Jiyoung Whang**, and Hyun-Seok Park, “Parsing KEGG XML Files to Find Shared and Duplicate Compounds Contained in Metabolic Pathway Maps: A Graph-Theoretical Perspective”, *Genomics & Informatics*, vol. 6:3, pages 147–152, September 2008.

SELECTED HONORS & AWARDS

- National Science Foundation (NSF) Graduate Research Fellowship Program Honorable Mention, 2012.
- Dean’s Excellence Award from the College of Natural Sciences, The University of Texas at Austin, 2010.
- The Special Prize of the University President, Ewha Womans University, 2010.
- Best Project Award for Graduation Project Competition, Department of Computer Science & Engineering, Ewha Womans University, 2009.
- Honor Scholarship, Ewha Womans University, Fall 2006 – Fall 2009.

- National Science & Technology Scholarship, Korea Student Aid Foundation, Fall 2008.

TEACHING EXPERIENCE

- **Instructor**, Introduction to Computer Engineering (ICE2010-41), SKKU, Spring 2016.
- **Instructor**, Basic Programming Languages (CSE2014-43), SKKU, Spring 2016.
- **Teaching Assistant & Guest Lecturer**, Introduction to Big Data Analytics (Prof. Inderjit S. Dhillon), UT Austin, May 19–22, 2014 & May 26–29, 2015.
- **Teaching Assistant**, Computational Analysis of Social Networks (Prof. Inderjit S. Dhillon), UT Austin, May 21–24, 2012 & May 20–23, 2013.
- **Teaching Assistant**, Elements of Security (Dr. William D. Young), UT Austin, Spring 2015.
- **Teaching Assistant**, Foundations of Logical Thought (Dr. Elaine Rich), UT Austin, Fall 2014.
- **Teaching Assistant**, Elements of Navigating Cyberspace (Dr. William D. Young), UT Austin, Spring 2011 & Spring 2013.
- **Teaching Assistant**, Elements of Software Design (Dr. William D. Young), UT Austin, Fall 2010 & Fall 2012.

PROFESSIONAL SERVICES

- Reviewer for *IEEE Transactions on Knowledge and Data Engineering (TKDE)*, 2014, 2015, 2016.

MAJOR TALKS

- “Overlapping Community Detection in Massive Social Networks”, POSTECH, March 2016.
- “Non-exhaustive, Overlapping Clustering via Low-Rank Semidefinite Programming”, *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)*, Sydney, Australia, August 2015.
- “Non-exhaustive, Overlapping k -means”, *SIAM International Conference on Data Mining (SDM)*, Vancouver, British Columbia, Canada, April 2015.
- “Stochastic Blockmodel with Cluster Overlap, Relevance Selection, and Similarity-Based Smoothing”, *IEEE International Conference on Data Mining (ICDM)*, Dallas, Texas, USA, December 2013.
- “Overlapping Community Detection Using Seed Set Expansion”, *ACM Conference on Information and Knowledge Management (CIKM)*, Burlingame, California, USA, October 2013.
- “Scalable and Memory-Efficient Clustering of Large-Scale Social Networks”, *IEEE International Conference on Data Mining (ICDM)*, Brussels, Belgium, December 2012.
- “Scalable Clustering of Signed Networks Using Balance Normalized Cut”, *ACM Conference on Information and Knowledge Management (CIKM)*, Maui Hawaii, USA, October 2012.