Dohyung Park

CONTACT
INFORMATION

Electrical & Computer Engineering
The University of Texas at Austin
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RESEARCH
INTERESTS

My research interests are primarily in machine learning based on large-scale optimization and high-dimensional statistics. I am also interested in online or distributed algorithms for those areas.

EDUCATION

The University of Texas at Austin   August 2011 - Present
Ph.D., Electrical & Computer Engineering
- Advisors : Prof. Sujay Sanghavi and Prof. Constantine Caramanis
- Current GPA : 4.0/4.0

Korea Advanced Institute of Science and Technology   August 2008
M.S., Electrical Engineering
- Thesis : Performance-Complexity Tradeoffs of Rateless Codes
- Advisor : Prof. Sae-Young Chung
- GPA : 4.08/4.3
B.S., Electrical Engineering (Magna Cum Laude)
- Minor in Computer Science
- GPA : 3.71/4.3

RESEARCH
EXPERIENCE

The University of Texas at Austin
Learning unions of subspaces (a.k.a. Subspace clustering)
- Developed algorithms to recover unions of subspaces from unlabeled points.
- Derived statistical guarantee for exact clustering with conditions weaker than state-of-the-art results.
- Showed competitive practical performance on motion segmentation with much lower computational cost.

Collaborative ranking from pairwise preferences
- Proposed algorithms for ranking multiple items for each of multiple users from given pairwise preferences.
- Implemented parallel algorithms on a multi-core machine.

Samsung Advanced Institute of Technology
Mobile indoor localization systems
- Designed algorithms to estimate indoor locations with limited infrastructure.
- Developed a testbed to demonstrate the localization algorithms.

Korea Advanced Institute of Science and Technology
Rateless codes for wireless communication systems
- Designed a rateless code with improved computational complexity.

COURSES

Math/OR/Stat - Real Analysis, Theory of Probability, Functional Analysis, Numerical Linear Algebra, Linear Programming, Convex Optimization, Statistical Modelling

EECS - Probability and Stochastic Processes, Advanced Probability, Randomized Algorithms, Machine Learning, Large-scale Learning, Sparsity/Structure/Algorithms, Scalable Machine Learning, Information Theory, Coding Theory, Communication Systems.

PUBLICATIONS	[1] **Dohyung Park**, Joe Neeman, Jin Zhang and Sujay Sanghavi, "Preference Completion: Large-scale Collaborative Ranking from Pairwise Comparison," submitted to *International Conference on Machine Learning (ICML)*, 2015.

[2] **Dohyung Park**, Constantine Caramanis, and Sujay Sanghavi, "Greedy subspace clustering," in *Proc. Neural Information Processing Systems(NIPS)*, 2014.

[3] Won-Yong Shin, **Dohyung Park**, and Bang Chul Jung, "Can one achieve multiuser diversity in uplink multi-cell networks?," *IEEE Transactions on Communications*, Vol. 60, No. 12, pp. 3535-3540, Dec. 2012.

[4] Bang Chul Jung, **Dohyung Park**, and Won-Yong Shin, "Opportunistic interference mitigation achieves optimal degrees-of-freedom in wireless multi-cell uplink networks," *IEEE Transactions on Communications*, Vol. 60, No. 7, pp. 1935-1944, July 2012.

[5] **Dohyung Park**, Joonsung Kang, and Eung Sun Kim, "Ad hoc indoor peer-to-peer tracking using relative location estimation," in *Proc. International Conference on Indoor Positioning and Indoor Navigation(IPIN)*, ETH Zurich, Switzerland, Sept. 2010.

[6] **Dohyung Park** and Sae-Young Chung, "Performance-complexity tradeoffs of rateless codes," in *Proc. IEEE International Symposium on Information Theory(ISIT)*, Toronto, Canada, July 2008.

HONORS & AWARDS	KAIST Governmental Fellowship Bronze medal, Korean Olympiad in Informatics Bronze medal, Korean Science Olympiad

TEACHING EXPERIENCE	**The University of Texas at Austin** *Teaching Assistant* • Large-scale Optimization

WORK EXPERIENCE	**Samsung Advanced Institute of Technology** *Research Staff* • Project : Mobile Indoor Localization Systems	August 2008 - July 2011

PATENTS	[1] Eung Sun Kim, **Dohyung Park**, Yong Kim, "Method of calculating accuracy of measuring location, and method and apparatus for measuring location of terminal using accuracy of measuring location," US2013/0080048A1, Mar. 2013.

[2] Joon Seong Kang, Eung Sun Kim, and **Dohyung Park**, "Method and apparatus for estimating angle of arrival," US2011/0199263A1, Aug. 2011

[3] **Dohyung Park**, Eung Sun Kim, and Joon Seong Kang, "Apparatus and method for estimating relative location," US2011/0270519A1, Nov. 2011.

SKILLS

- Programming Languages: C/C++, Python, R, MATLAB.
- Operating Systems: Windows, Mac OS, Unix/Linux