Dohyung Park

Contact Information

Electrical & Computer Engineering
The University of Texas at Austin
2501 Speedway, Austin, TX 78712-0240.

E-mail: dhpark@utexas.edu
Web: http://dhpark22.github.io/

Research Interests

My research interests are primarily in large-scale optimization and high-dimensional statistics with focus on machine learning, data mining and graph analysis. I am also interested in online or distributed algorithms for those areas. Prior to the doctoral program, I have participated in research projects on graphical models and statistical inference with applications to indoor localization and error-correcting codes.

Education

The University of Texas at Austin August 2011 - Present
Ph.D., Electrical & Computer Engineering
- Advisors : Prof. Constantine Caramanis and Prof. Sujay Sanghavi
- 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 : Sae-Young Chung
- GPA : 4.08/4.3

Korea Advanced Institute of Science and Technology August 2005
B.S., Electrical Engineering (Magna Cum Laude)
- Minor in Computer Science
- GPA : 3.71/4.3

Honors & Awards

Bronze medal, Korean Olympiad in Informatics	2000
Bronze medal, Korean Science Olympiad	1998
KAIST Academic Full Scholarship	2001 - 2005
KAIST Governmental Fellowship	2006 - 2008

Work Experience

Samsung Advanced Institute of Technology August 2008 - July 2011
Research Staff
- Project : Mobile Indoor Localization Systems
  Worked on research and development of infrastructure-less indoor localization systems, which exploit only the sensors that can be attached in the mobile handsets. I designed and implemented statistical inference algorithms based on the particle filter.

Teaching Experience

The University of Texas at Austin
Teaching Assistant
- Large-scale Optimization
- Communication Networks
- Software Design and Implementation

Korea Advanced Institute of Science and Technology
Teaching Assistant
- Advanced Information Theory
- Advanced Coding Theory

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, Information Theory, Coding Theory, Communication Systems, Sparsity/Structure/Algorithms

PUBLICATIONS (PRIOR TO PHD)

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

[2] **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.

[3] **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.

[4] 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.

[5] 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.

[6] Bang Chul Jung, **Dohyung Park**, and Won-Yong Shin, "A study on the optimal degrees-of-freedom of cellular networks: opportunistic interference mitigation," in *Proc. Asilomar Conference on Signals, Systems and Computers*, Nov. 2010.

[7] Namyoon Lee, **Dohyung Park**, and Young-Doo Kim, "Degrees of freedom on the K-user MIMO interference channel with constant channel coefficients for downlink communications," in *Proc. IEEE Global Communications Conference(GLOBECOM)*, 2009.

PATENTS

[1] Eung Sun Kim, **Dohyung Park**, Yong Kim, "Method and apparatus for measuring a location of a terminal using magnetic field," US2013/0057260A1, Mar. 2013.

[2] Yong Kim, **Dohyung Park**, Eung Sun Kim, "Apparatus and method for estimating the location of a terminal using multiple location estimating schemes," US2013/0053062A1, Feb. 2013.

[3] 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.

[4] Eung Sun Kim, **Dohyung Park**, Yoon Chae Cheong, Ki Ho Kim, "Apparatus and method for integrated positioning," US2012/0203451A1, Aug. 2012.

[5] **Dohyung Park**, Eung Sun Kim, and Sung Cheol Kim, "Method of generating map, and method of measuring location of terminal using the map," US2012/0039316A1, Feb. 2012.

[6] **Dohyung Park**, Sung Cheol Kim, and Eung Sun Kim, "Method and apparatus for expressing the accuracy of a measured location of a terminal," US2012/0040697A1, Feb. 2012.

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

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

[9] **Dohyung Park**, Namyoon Lee, Young-Doo Kim, and Eung Sun Kim, "Communication system performing interference alignment and interference alignment method," US8462874B2, Jun. 2013.

[10] Namyoon Lee, **Dohyung Park**, and Young-Doo Kim, "Adaptive interference alignment precoding and decoding to prevent multi-cell interference," US8548384B2, Oct. 2013.

Skills

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

Other Activities

Class representative of the class of 2005, Dept. of Electrical Engineering, 2003.

References

Available upon requests.