

JINWOO SHIN

Associate Professor
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(updated on Mar 2018)

EXECUTIVE SUMMARY

Jinwoo Shin has worked on developing advanced algorithms for large-scale data and network analytics. He received ACM SIGMETRICS rising star award 2015 for his contribution to fundamental advances in distributed algorithm design and analysis for resource allocation in stochastic processing networks and inference in graphical models.¹ He has published around 50 technical papers to date at top peer-reviewed journals and conferences in networking, machine learning, applied probability and theoretical computer science. In particular, since 2015, more than 25 technical papers were published led by his KAIST supervised students at top venues. He has served as a technical program committee (or reviewer) for various top conferences such as AAAI, ICML, INFOCOM, MOBIHOC, NIPS, SIGMETRICS and UAI. He is currently associate editors at IEEE/ACM Transactions on Networking, and ACM Modeling and Performance Evaluation of Computing Systems. He has also served as a technical advisor on machine learning for a number of companies including AIZEN, I-SENS, NAVER Clova AI Research, STAYGE Labs, QISENS and XBRAIN.

His Ph.D. work on designing distributed algorithms in stochastic processing networks has received the Kenneth C. Sevick best student paper award at the premier network performance conference, ACM SIGMETRICS 2009 and the George M. Sprowls best doctoral thesis award 2010 from the MIT EECS Department. After his Ph.D. study, he won the best publication award from INFORMS applied probability society in 2013 (given to one paper per two years) and the best paper award at the premier networking conference, ACM MOBIHOC 2013. He is the first-ever recipient of Bloomberg scientific research award 2015 (with 60,000 USD research grant) given to high-quality computer science research and the first-ever recipient from an Asian school for ACM SIGMETRICS rising star award 2015. His papers were selected as spotlight presentation (4.5% acceptance ratio) in NIPS 2015 and oral presentation (1.8% acceptance ratio) in NIPS 2016. He is the most significant contributor among whom in Korean institutes to major machine learning conferences (NIPS, ICML) in last three years (published 7 papers in 2015-2017).

EDUCATION

Massachusetts Institute of Technology, Cambridge, MA, USA, 2005 - 2010

Ph.D. in Mathematics

- Thesis Title : Efficient Distributed Medium Access Algorithm
- Received the **George M. Sprowls Award** given to the best doctoral thesis in MIT CS
- Advisor : Devavrat Shah

Seoul National University, Seoul, Korea, 1997 - 2001

B.S. in Computer Science and Mathematics

Seoul Science High School, Seoul, Korea, 1994 - 1997

EMPLOYMENT HISTORY

Korea Advanced Institute of Science and Technology, Daejeon, Korea, Jul 2013 - present

- School of Electrical Engineering
- Title: Assistant Professor (Jul 2013 - Aug 2016), Associate Professor (Sep 2016 - present)

¹See <https://www.sigmetrics.org/risingstar-2015.shtml>.

IBM T. J. Watson Research, Yorktown Heights, NY, USA, Sep 2012 - Jun 2013

- Department of Business Analytics and Mathematical Sciences
- Title : Postdoctoral Researcher
- Advisor: Naoki Abe

Los Alamos National Laboratory, Los Alamos, NM, USA, Summer 2008, 2012, 2013, 2015, 2016, 2017

- Center for Nonlinear Studies
- Title : Research Intern (2008), Visiting Faculty Researcher (2012, 2013, 2015, 2016, 2017)
- Host: Michael Chertkov

Georgia Institute of Technology, Atlanta, GA, USA, Sep 2010 - Jun 2012

- Algorithms & Randomness Center
- Title : Postdoctoral Fellow
- Advisor: Prasad Tetali (MATH in Georgia Tech) and Ton Dieker (ISyE in Georgia Tech)

Penta Security Systems Inc., Seoul, Korea, Aug 2001 - Jan 2005

- Division for Public Key Infrastructure
- Title : Software Engineer
- Advisor: Duk Soo Kim

HONORS AND AWARDS

SELECTED

KAIST Technology Innovation Award, 2015 (the only recipient as an assistant professor)
ACM SIGMETRICS Rising Star Award, 2015 (given to the best young researcher within 7 years of having PhD)
Bloomberg Scientific Research Award, 2015 (the first-ever recipient of the grant program)
Best Publication Award from *INFORMS Applied Probability Society*, 2013 (given to the best paper in 2011-2013)
Best Paper Award in *ACM MOBIHOC*, 2013
George M. Sprowls Award from MIT EECS Department, 2010 (given to best doctoral theses in MIT CS)
Kenneth C. Sevcik Award in *ACM SIGMETRICS/Performance*, 2009 (given to the best student paper)
Silver Medal in the 36th *International Mathematical Olympiad* in Toronto, Canada, 1995

OTHERS

NIPS Oral Presentation, 2016 (acceptance ratio = 1.8%)
NIPS Spotlight Presentation, 2015 (acceptance ratio = 4.5%)
MSRA Fellowship Nomination Award, 2015 (supervised)
Bronze Prize at the 21th Samsung Humantech Thesis Prize Awards, 2015 (supervised)
Gold Prize at the 20th Samsung Humantech Thesis Prize Awards, 2014 (supervised)
Qualcomm Fellowship Award, 2013 (supervised)
ARC Postdoctoral Fellowship, 2010 - 2012
MIT Applied Mathematics Fellowship, 2005 - 2006
Samsung Frontier Membership (for talented undergraduate students), 1999
Second Place in the 17th Korean Undergraduate Mathematics Competition, 1998
Science Olympiad Scholarship from Korean Mathematical Society, 1997 - 2001
First Place in the 8th Seoul Mathematical Olympiad from Korean Mathematical Society, 1996
Silver Medal in the 9th Korean Mathematical Olympiad from Korean Mathematical Society, 1995
Bronze Medal in the 7th Asian Pacific Mathematical Olympiad, 1995
Silver Medal in the 8th Korean Mathematical Olympiad from Korean Mathematical Society, 1994

RESEARCH INTERESTS

Machine Learning and Algorithms

- Graphical Model [J2, J5, J8, J14, J19, C3, C5, C9, C12, C13, C20, C27, C29, C30, C34]
- Deep Learning [C1, C2, C7, C8]
- Large-scale Distributed Optimization [J4, J21, C6, C16, C19, C21]
- Theoretical Computer Science [J1, J16, C4, C18, C35, C36]

Communication and Networks

- Combinatorial Resource Allocation and Distributed Scheduling [J3, J6, J9, J10, J11, J12, J15, J17, J18, J20, C17, C24, C25, C26, C28, C31, C32, C38, C39]
- Social Network Analysis and Game Theory [J7, J13, C10, C11, C14, C15, C22, C23, C33, C37]

PUBLICATIONS (only international papers are listed)

JOURNAL

- [J1] Multi-armed Bandit with Additional Observations
- Donggyu Yun, Sumyeong Ahn, Alexandre Proutiere, Jinwoo Shin and Yung Yi
 - To appear at *Proceedings of the ACM on Measurement and Analysis of Computing Systems 2018*
- [J2] Maximum Weight Matching using Odd-sized Cycles: Max-Product Belief Propagation and Half-Integrality
- Jinwoo Shin, Andrew Gelfand and Michael Chertkov
 - *IEEE Transactions on Information Theory*, 64(3): 1471-1480, 2018
- [J3] Game Theoretic Perspective of Optimal CSMA
- Hyeryung Jang, Se-Young Yun, Jinwoo Shin and Yung Yi
 - *IEEE Transactions on Wireless Communications*, 17(1): 194-209, 2018
- [J4] Approximating Spectral Sums of Large-scale Matrices using Stochastic Chebyshev Approximations
- Insu Han, Dmitry Malioutov, Haim Avron and Jinwoo Shin
 - *SIAM Journal on Scientific Computing*, 39(4), A1558-A1585, 2017
- [J5] Convergence and Correctness of Max-Product Belief Propagation for Linear Programming
- Sejun Park and Jinwoo Shin
 - *SIAM Journal on Discrete Mathematics*, 31(3): 2228-2236, 2017
- [J6] Scheduling using Interactive Optimization Oracles for Constrained Queueing Networks
- Tonghoon Suk and Jinwoo Shin
 - *Mathematics of Operations Research*, 42(3): 723-744, 2017
- [J7] On Maximizing Diffusion Speed over Social Networks with Strategic Users
- Jungseul Ok, Jinwoo Shin and Yung Yi
 - *IEEE/ACM Transactions on Networking*, 24(6): 3798-3811, 2016
- [J8] Breaking the Trapping Sets in LDPC Codes: Check Node Removal and Collaborative Decoding
- Soonyoung Kang, Jaekyun Moon, Jeongseok Ha and Jinwoo Shin
 - *IEEE Transactions on Communications*, 64(1): 15-26, 2016
- [J9] Delay Optimal CSMA with Linear Virtual Channels under General Topology
- Dongmyung Yun, Donggyu Lee, Jinwoo Shin, Yung Yi and Se-Young Yun
 - *IEEE/ACM Transactions on Networking*, 24(5): 2847-2857, 2016
- [J10] Distributed Medium Access over Time-varying Channels

- Se-Young Yun, Jinwoo Shin and Yung Yi
- *IEEE/ACM Transactions on Networking*, 24(5): 3000-3013, 2016
- [J11] CSMA using the Bethe Approximation: Scheduling and Utility Maximization
 - Se-Young Yun, Jinwoo Shin and Yung Yi
 - *IEEE Transactions on Information Theory*, 61(6):4776-4787, 2015
- [J12] Impacts of Selfish Behaviors on the Scalability of Hybrid Server Client and Peer-to-Peer Caching Systems
 - Youngmi Jin, Yung Yi, George Kesidis, Fatih Kocak and Jinwoo Shin
 - *IEEE/ACM Transactions on Networking*, 23(6):1818-1831, 2015
- [J13] Minimally Invasive Mechanism Design: Distributed Covering with Carefully Chosen Advice
 - Maria-Florina Balcan, Sara Krehbiel, Georgios Piliouras and Jinwoo Shin
 - *ACM Transactions on Economics and Computation*, 2(4):1-22, 2014
- [J14] The Complexity of Approximating a Bethe Equilibrium
 - Jinwoo Shin
 - *IEEE Transactions on Information Theory*, 60(7):3959-3969, 2014
- [J15] From Local to Global Stability in Stochastic Processing Networks through Quadratic Lyapunov Functions
 - Ton Dieker and Jinwoo Shin
 - *Mathematics of Operations Research*, 156(1):75-99, 2013
- [J16] Improved Spatial Mixing Condition for the Hard-Core Model
 - Ricardo Restrepo, Jinwoo Shin, Prasad Tetali, Eric Vigoda and Linji Yang
 - *Probability Theory and Related Fields*, 156(1):75-99, 2013
- [J17] Randomized Scheduling Algorithm for Queueing Networks
 - Devavrat Shah and Jinwoo Shin
 - *Annals of Applied Probability*, 22(1):128-171, 2012,
 - *Best Publication Award from INFORMS Applied Probability Society, 2013*
- [J18] DRAM Scheduling Policy for a GPGPU Architecture Based on a Potential Function
 - Hyesoon Kim, Nagesh B. Lakshminarayana, Jaekyu Lee and Jinwoo Shin
 - *IEEE Computer Architecture Letters*, 11(2):33-36, 2012
- [J19] Counting Independent Sets Using the Bethe Approximation
 - Venkat Chandrasekaran, Michael Chertkov, David Gamarnik, Devavrat Shah and Jinwoo Shin
 - *SIAM Journal on Discrete Mathematics*, 25:1012-1034, 2011
- [J20] Distributed Random Access Algorithm: Scheduling and Congestion Control
 - Libin Jiang, Devavrat Shah, Jean Walrand and Jinwoo Shin
 - *IEEE Transactions on Information Theory*, 56(12):6182–6207, 2010
- [J21] Distributed averaging via lifted Markov chains
 - Kyomin Jung, Devavrat Shah and Jinwoo Shin
 - *IEEE Transactions on Information Theory*, 56(1):634–647, 2010

CONFERENCE (only peer-reviewed conference papers listed excluding invited, workshop or non-reviewed ones)

Summary:

- **Machine Learning and Algorithms:** 4 NIPS, 4 ICML, 3 AISTATS, 2 FOCS, 1 ICLR, 1 UAI, 1 CVPR
- **Communication and Networks:** 7 INFOCOM, 6 SIGMETRICS, 3 ISIT, 2 MOBIHOC, 1 CDC

- [C1] Hierarchical Novelty Detection for Visual Object Recognition
- Kibok Lee, Kimin Lee, Kyle Min, Yuting Zhang, Jinwoo Shin and Honglak Lee
 - *IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2018*
- [C2] Training Confidence-Calibrated Classifiers for Detecting Out-of-Distribution Samples
- Kimin Lee, Honglak Lee, Kibok Lee and Jinwoo Shin
 - *International Conference on Learning Representations (ICLR) 2018*
- [C3] Gauged Mini-Bucket Elimination for Approximate Inference
- Sungsoo Ahn, Michael Chertkov, Jinwoo Shin and Adrian Weller
 - *International Conference on Artificial Intelligence and Statistics (AISTATS) 2018*
- [C4] Multi-armed Bandit with Additional Observations
- Donggyu Yun, Sumyeong Ahn, Alexandre Proutiere, Jinwoo Shin and Yung Yi
 - *ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS) 2018*
- [C5] Gauging Variational Inference
- Sungsoo Ahn, Michael Chertkov, and Jinwoo Shin
 - *Neural Information Processing Systems (NIPS) 2017*
- [C6] Faster Greedy MAP Inference for Determinantal Point Processes
- Insu Han, Prabhanjan Kambadur, Kyoungsoo Park and Jinwoo Shin
 - *International Conference on Machine Learning (ICML) 2017*
- [C7] Confident Multiple Choice Learning
- Kimin Lee, Changho Hwang, Kyoungsoo Park and Jinwoo Shin
 - *International Conference on Machine Learning (ICML) 2017*
- [C8] Adiabatic Persistent Contrastive Divergence Learning
- Hyeryung Jang, Hyungwon Choi, Yung Yi and Jinwoo Shin
 - *IEEE International Symposium on Information Theory (ISIT) 2017*
- [C9] Rapid Mixing Swendsen-Wang Sampler for Stochastic Partitioned Attractive Models
- Sejun Park, Yunhun Jang, Andreas Galanis, Jinwoo Shin, Daniel Stefankovic and Eric Vigoda
 - *International Conference on Artificial Intelligence and Statistics (AISTATS) 2017*
- [C10] Incentivizing Strategic Users for Social Diffusion: Quantity or Quality?
- Jungseul Ok, Jinwoo Shin and Yung Yi
 - *IEEE International Conference on Computer Communications (INFOCOM) 2017*
- [C11] Rumor Source Detection under Querying with Untruthful Answers
- Jaeyoung Choi, Sangwoo Moon, Jiin Woo, KyunHwan Son, Jinwoo Shin and Yung Yi
 - *IEEE International Conference on Computer Communications (INFOCOM) 2017*
- [C12] Synthesis of MCMC and Belief Propagation
- Sungsoo Ahn, Michael Chertkov and Jinwoo Shin
 - *Neural Information Processing Systems (NIPS) 2016*
 - *Oral Presentation (acceptance ratio: 1.8%)*
- [C13] Optimality of Belief Propagation for Crowdsourced Classification
- Jungseul Ok, Sewoong Oh, Jinwoo Shin and Yung Yi
 - *International Conference on Machine Learning (ICML) 2016*
- [C14] Rumor Source Detection: Power of Querying
- Sangwoo Moon, Jaeyoung Choi, Jinwoo Shin and Yung Yi

- *International School and Conference on Network Science (NETSCI) 2016*
- [C15] Rumor Source Detection: Power of Protector
 - Jaeyoung Choi, Sangwoo Moon, Jinwoo Shin and Yung Yi
 - *International School and Conference on Network Science (NETSCI) 2016*
- [C16] Distributed Coordination Maximization over Networks: A Stochastic Approximation Approach
 - Hyeryung Jang, Se-Young Yun, Jinwoo Shin and Yung Yi
 - *ACM International Symposium on Mobile Ad Hoc Networking and Computing (MOBIHOC) 2016*
- [C17] Just-in-time WLANs: On-demand Interference-managed WLAN Infrastructures
 - Kimin Lee, Yeonkun Kim, Seokhyun Kim, Jinwoo Shin, Seungwon Shin and Song Chong
 - *IEEE International Conference on Computer Communications (INFOCOM) 2016*
- [C18] Minimum Weight Perfect Matching via Blossom Belief Propagation
 - Sungsoo Ahn, Sejun Park, Michael Chertkov and Jinwoo Shin
 - *Neural Information Processing Systems (NIPS) 2015*
 - *Spotlight Presentation (acceptance ratio: 4.5%)*
- [C19] Practical Message-passing Framework for Large-scale Combinatorial Optimization
 - Inho Cho, Soya Park, Sejun Park, Dongsu Han and Jinwoo Shin
 - *IEEE International Conference on Big Data (IEEE BigData) 2015*
- [C20] Max-Product Belief Propagation for Linear Programming: Applications to Combinatorial Optimization
 - Sejun Park and Jinwoo Shin
 - *Conference on Uncertainty in Artificial Intelligence (UAI) 2015*
- [C21] Large-scale Log-determinant Computation through Stochastic Chebyshev Expansions
 - Insu Han, Dmitry Malioutov and Jinwoo Shin
 - *International Conference on Machine Learning (ICML) 2015*
- [C22] On the Progressive Spread over Strategic Diffusion: Asymptotic and Computation
 - Jungseul Ok, Jinwoo Shin and Yung Yi
 - *IEEE International Conference on Computer Communications (INFOCOM) 2015*
- [C23] On Maximizing the Diffusion Speed in Social Networks: Impact of Random Seeding and Clustering
 - Jungseul Ok, Youngmi Jin, Jinwoo Shin and Yung Yi
 - *ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS) 2014*
- [C24] Scheduling using Interactive Oracles: Connection between Iterative Optimization and Low-complexity Scheduling
 - Jinwoo Shin and Tonghoon Suk
 - *ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS) 2014* (short paper)
- [C25] Distributed Learning for Utility Maximization over CSMA-based Wireless Multi-hop Networks
 - Hyeryung Jang, Se-Young Yun, Jinwoo Shin and Yung Yi
 - *IEEE International Conference on Computer Communications (INFOCOM) 2014*
- [C26] Provable Per-Link Delay-Optimal CSMA for General Wireless Network Topology
 - Dongmyung Yun, Donggyu Lee, Jinwoo Shin, Yung Yi and Se-Young Yun
 - *IEEE International Conference on Computer Communications (INFOCOM) 2014*
- [C27] A Graphical Transformation for Belief Propagation: Maximum Weight Matchings and Odd-Sized Cycles
 - Jinwoo Shin, Andrew Gelfand and Michael Chertkov
 - *Neural Information Processing Systems (NIPS) 2013*

- [C28] CSMA over Time-varying Channels: Optimality, Uniqueness and Limited Backoff Rate
- Se-Young Yun, Jinwoo Shin and Yung Yi
 - *ACM International Symposium on Mobile Ad Hoc Networking and Computing (MOBIHOC) 2013*
 - *Best Paper Award*
- [C29] Loop Calculus and Bootstrap-Belief Propagation for Perfect Matchings on Arbitrary Graphs
- Michael Chertkov, Andrew Gelfand and Jinwoo Shin
 - *Journal of Physics: Conference Series, 473 012007, 2013*
- [C30] Belief Propagation for Linear Programming
- Andrew Gelfand, Jinwoo Shin and Michael Chertkov
 - *IEEE International Symposium on Information Theory (ISIT) 2013*
- [C31] CSMA using Bethe Approximation for Utility Optimization
- Se-Young Yun, Jinwoo Shin and Yung Yi
 - *IEEE International Symposium on Information Theory (ISIT) 2013*
- [C32] Hybrid Client-Server and Peer-to-Peer Caching Systems with Selfish Peers
- Youngmi Jin, Yung Yi, George Kesidis, Fatih Kocak and Jinwoo Shin
 - *IEEE International Conference on Computer Communications (INFOCOM) 2013*
- [C33] Minimally Invasive Mechanism Design: Distributed Covering with Carefully Chosen Advice
- Maria-Florina Balcan, Sara Krehbiel, Georgios Piliouras and Jinwoo Shin
 - *IEEE Conference on Decision and Control (CDC) 2012*
- [C34] Complexity of Bethe Approximation
- Jinwoo Shin
 - *International Conference on Artificial Intelligence and Statistics (AISTATS) 2012*
- [C35] Improved Mixing Condition on the Grid for Counting and Sampling Independent Sets
- Ricardo Restrepo, Jinwoo Shin, Prasad Tetali, Eric Vigoda and Linji Yang
 - *IEEE Symposium on Foundations of Computer Science (FOCS) 2011*
- [C36] Medium Access using Queues
- Devavrat Shah, Jinwoo Shin and Prasad Tetali
 - *IEEE Symposium on Foundations of Computer Science (FOCS) 2011*
- [C37] Dynamics in Congestion Games
- Devavrat Shah and Jinwoo Shin
 - *ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS) 2010*
- [C38] Delay Optimal Queue-based CSMA
- Devavrat Shah and Jinwoo Shin
 - *ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS) 2010* (short paper)
- [C39] Network Adiabatic Theorem: An Efficient Randomized Protocol for Contention Resolution
- Shreevatsa Rajagopalan, Devavrat Shah and Jinwoo Shin
 - *ACM International Conference on Measurement and Modeling of Computer Systems (SIGMETRICS) 2009*
 - *Kenneth C. Sevcik Outstanding Student Paper Award*

OTHERS (invited, workshop or non-reviewed papers)

- [O1] Training Confidence-Calibrated Classifiers for Detecting Out-of-Distribution Samples
 - Kimin Lee, Honglak Lee, Kibok Lee and Jinwoo Shin
 - *NIPS Workshop on Bayesian Deep Learning (BDL) 2017* (peer-reviewed workshop)
- [O2] Optimality of Belief Propagation for Crowdsourced Classification
 - Jungseul Ok, Sewoong Oh, Jinwoo Shin and Yung Yi
 - *NIPS Workshop on Crowdsourcing and Machine Learning (CrowdML) 2016* (invited workshop)
- [O3] Estimating the Rumor Source with Anti-Rumor in Social Networks
 - Jaeyoung Choi, Sangwoo Moon, Jinwoo Shin and Yung Yi
 - *ICNP Workshop on Machine Learning (NetworkML) 2016* (peer-reviewed workshop)
- [O4] Influence Maximization over Strategic Diffusion in Social Networks
 - Jungseul Ok, Jaeyoung Choi, Youngmi Jin, Jinwoo Shin and Yung Yi
 - *Annual Conference in Information Sciences and Systems (CISS) 2014* (invited conference)
- [O5] On the Impact of Global Information on Diffusion of Innovations over Social Networks
 - Youngmi Jin, Jungseul Ok, Yung Yi and Jinwoo Shin
 - *IEEE International Workshop on Network Science for Communication Networks (NETSCICOM) 2013* (peer-reviewed workshop)
- [O6] Optimal CSMA: A Survey
 - Se-Young Yun, Yung Yi, Jinwoo Shin and Do-Young Eun
 - *IEEE International Conference on Communication Systems (ICCS) 2012* (invited conference)
- [O7] Dynamics in Symmetric Potential Games
 - Devavrat Shah and Jinwoo Shin
 - *Allerton Conference on Communication, Control, and Computing Conference 2009* (invited conference)
- [O8] Fast and Slim Lifted Markov Chains
 - Kyomin Jung, Devavrat Shah and Jinwoo Shin
 - *Allerton Conference on Communication, Control, and Computing Conference 2007* (invited conference)

TEACHING

Korea Advanced Institute of Science and Technology, Daejeon, Korea, Jul 2013 - present

- Title : Instructor
- Fall 2017 : Introduction to Big Data (EE412), 68 students, 3.89 student rating
- Spring 2017 : Advanced Stochastic Processes (EE807), 36 students, 4.10 student rating
- Fall 2016 : Introduction to Big Data (EE412), 49 students, 4.23 student rating
- Spring 2016 : Discrete Mathematics (EE488), 52 students, 4.17 student rating
- Fall 2015 : Fundamentals of Machine Learning (EE807), 22 students, 3.98 student rating
- Spring 2015 : Introduction to Big Data (EE488), 33 students, 4.46 student rating
- Fall 2014 : Discrete Mathematics (EE488), 24 students, 4.18 student rating
- Spring 2014 : Introduction to Big Data (EE488), 37 students, 4.34 student rating
- Fall 2013 : Data Structures and Algorithms (EE205), 73 students, 4.30 student rating (max=5.0)

Massachusetts Institute of Technology, Cambridge, MA, USA, Fall 2006 - Spring 2009

- Title : Teaching Assistant

- Fall 2008 : Probability & Random Variables (Fall 2008) instructed by Jonathan Kelner
- Fall 2007 : Introduction to Algorithms instructed by Madhu Sudan and Ronitt Rubinfeld

Korean Mathematics Society, Seoul, Korea, Summer 1998

- Title : Teaching Assistant
- Description : Taught a daily recitation for the International Mathematical Olympiad Korean team.

SUPERVISED STUDENTS

FORMER PHD STUDENTS

Donggyu Yun (co-advised with Yung Yi), Ph.D. in 2016, and left for NAVER, Korea

Jungseul OK (co-advised with Yung Yi), Ph.D. in 2016, and left for KTH Royal Institute of Technology, Sweden

Hyeryung Jang (co-advised with Yung Yi), Ph.D. in 2017, and left for King's College London, UK

Tae-Hyun Oh (co-advised with In So Kweon), Ph.D. in 2017, and left for Massachusetts Institute of Technology, USA

FORMER MS STUDENTS

Sanghyuk Chun, M.S. in 2016, and left for KAKAO, Korea

Kwihyuk Jin, M.S. in 2017, and left for Qualcomm, USA

Donggyu Lee, M.S. in 2018, and left for National University of Singapore

CURRENT STUDENTS

Kimin Lee, expected to graduate with Ph.D. in 2019

Yunhun Jang, expected to graduate with Ph.D. in 2019

Hyungwon Choi, expected to graduate with Ph.D. in 2019

Sejun Park, expected to graduate with Ph.D. in 2019

Sungsoo Ahn, expected to graduate with P.D. in 2020

Insu Han, expected to graduate with P.D. in 2020

Junhyun Nam, expected to graduate with P.D. in 2022

Sukmin Yoo, expected to graduate with P.D. in 2022

Hankook Lee, expected to graduate with M.S. in 2018

Sangwoo Mo, expected to graduate with M.S. in 2018

Jaehyung Kim, expected to graduate with M.S. in 2019

Jongheon Jung, expected to graduate with M.S. in 2019

Jongjin Park, expected to graduate with M.S. in 2020

PROFESSIONAL SERVICES

Technical Program Committee (or Reviewer)

- NIPS (2017, 2018)
- ICML (2018)
- UAI (2018)
- ICC (2018)
- AAAI (2016, 2017, 2018)
- INFOCOM (2016, 2017)
- MOBIHOC (2011, 2014, 2016, 2018)
- SIGMETRICS (2015, 2016)
- WIOPT (2015, 2016)
- INFORMS Meeting (2015, 2016)

Workshop Organizer

- KAIST Theory Day (May 2015)
- Summer School for Brain Science (Aug 2014)

Technical Advisor (or Consultant) on Industry

- AITRICS (2018)
- AIZEN (2017, 2018)
- IGLOO SECURITY (2017)
- I-SENS (2017, 2018)
- KAKAO BRAIN (2017, 2018)
- NAVER Clova AI Research (2017)
- Penta Security Systems (2014, 2015)
- STAYGE Labs (2018)
- QISENS (2017, 2018)
- XBRAIN (2016, 2017, 2018)

Journal Associated Editor

- IEEE/ACM Transactions on Networking (since 2016)
- ACM Modeling and Performance Evaluation of Computing Systems (since 2017)
- ICT Express (2018, Guest Editor for Special Issue on Artificial Intelligence and Machine Learning)

Journal Reviewer (since 2010)

- Journal of the ACM
- Annals of Applied Probability
- IEEE Transactions on Information Theory
- IEEE Transactions on Signal Processing
- IEEE Transactions on Networking
- IEEE Transactions on Wireless Communications
- IEEE Transactions on Automatic Control
- IEEE Transactions on Mobile Computing
- Mathematics of Operations Research
- Operations Research
- Queueing Systems
- Journal of Theoretical Probability
- Performance Evaluation
- Internet Mathematics
- Computer Communications
- Computers and Mathematics with Applications

REFERENCES

Available upon request