Kijung SHIN

Contact Information	School of Electrical Engineering, KAIST 291 Daehak-ro, Yuseong-gu Daejeon 34141, Republic of Korea	Homepage: http://kijungshin.com Email: kijungs@kaist.ac.kr

Research Interests Data Mining, Graph Mining, Social Network Analysis, Scalable Machine Learning

Education

Carnegie Mellon University, Pittsburgh, PA, USA 08/2015 - 02/2019
Ph.D. in Computer Science
Thesis: "Mining Large Dynamic Graphs and Tensors"
Advisor: Prof. Christos Faloutsos

Seoul National University, Seoul, Korea 03/2008 - 08/2015
B.S. in Computer Science & Engineering; and B.A. in Economics
Thesis: "Scalable Methods for Random Walk with Restart and Tensor Factorization"
Advisors: Prof. U Kang and Prof. Byung-Gon Chun
GPA: 4.21/4.30 (Ranked 1st in the College of Engineering)

Positions

KAIST, Daejeon, Korea 02/2019 - Present
Assistant Professor, School of Electrical Engineering (CNS Group)

LinkedIn Corporation, Mountain View, CA, USA 05/2018 - 08/2018
Research Intern, Growth Relevance Team
Project: "Lossless and Lossy Summarization of Web-Scale Graphs"
Mentors: Dr. Amol Ghoting and Dr. Myunghwan Kim

LinkedIn Corporation, Mountain View, CA, USA 05/2017 - 08/2017
Research Intern, Growth Relevance Team
Project: "Discovering Progression Stages in Trillion-Scale Behavior Logs"
Mentors: Dr. Mahdi Shafiei and Dr. Myunghwan Kim

CYRAM, Seoul, Korea 01/2011 - 12/2013
Associate Researcher
Projects: NetMiner 4 (social network analysis software), NetExplorer 3 (criminal analysis software), and Sopion.com (Twitter analysis and monitoring service)

Awards & Honors

Awarded the **Siebel Scholar Fellowship** 08/2018
Selected for **Best Papers of ICDM 2016** and Invited to the KAIS Journal 12/2016
Received the **SIGKDD Best Research Paper Award** 08/2016
Awarded the **Korea Foundation for Advanced Studies Scholarship** 2015 - 2019
Received the **Best Senior Thesis Award**, Seoul National University 08/2015
Received the **Samsung Humantech Paper Award** (1st in CS) 02/2015
Awarded the **Kwanjeong Educational Foundation Scholarship** 2010, 2014, 2015
Awarded the **Merit-Based Scholarship**, Seoul National University 2009
Awarded the **National Science & Technology Scholarship** 2008

Theses

[1] Mining Large Dynamic Graphs and Tensors
Kijung Shin
Ph.D. Thesis, Carnegie Mellon University, 2019.

[2] Scalable Methods for Random Walk with Restart and Tensor Factorization
Kijung Shin
Senior Thesis, Seoul National University, 2015. *(Best Senior Thesis Award)*

Referred Conference Papers

[3] SWeG: Lossless and Lossy Summarization of Web-Scale Graphs
Kijung Shin, Amol Ghoting, Myunghwan Kim and Hema Raghavan
TheWebConf 2019 (formerly WWW)

[4] SMF: Drift Aware Matrix Factorization with Seasonal Patterns
Bryan Hooi, Kijung Shin, Shenghua Liu, and Christos Faloutsos
SDM 2019

[5] Think Before You Discard: Accurate Triangle Counting in Graph Streams with Deletions
Kijung Shin, Jisu Kim, Bryan Hooi, and Christos Faloutsos
PKDD 2018

[6] ONE-M: Modeling the Co-evolution of Opinions and Network Connections
Aastha Nigam, Kijung Shin, Ashwin Bahulkar, Bryan Hooi, David Hachen, Boleslaw Szymanski, Christos Faloutsos, and Nitesh Chawla
PKDD 2018

[7] Discovering Progression Stages in Trillion-Scale Behavior Logs
Kijung Shin, Mahdi Shafiei, Myunghwan Kim, Aastha Jain, and Hema Raghavan
TheWebConf 2018 (formerly WWW) (Industry Track)

[8] Tri-Fly: Distributed Estimation of Global and Local Triangle Counts in Graph Streams
Kijung Shin, Mohammad Hammoud, Euiwoong Lee, Jinoh Oh, and Christos Faloutsos
PAKDD 2018

[9] WRS: Waiting Room Sampling for Accurate Triangle Counting in Real Graph Streams
Kijung Shin
ICDM 2017

[10] ZooRank: Ranking Suspicious Entities in Time-Evolving Tensors
Hemank Lamba, Bryan Hooi, Kijung Shin, Christos Faloutsos, and Jürgen Pfeffer
PKDD 2017

[11] DenseAlert: Incremental Dense-Subtensor Detection in Tensor Streams
Kijung Shin, Bryan Hooi, Jisu Kim, and Christos Faloutsos
KDD 2017

[12] Why You Should Charge Your Friends for Borrowing Your Stuff
Kijung Shin, Euiwoong Lee, Dhivya Eswaran, and Ariel D. Procaccia
IJCAI 2017 (*Featured in New Scientist*)

[13] D-Cube: Dense-Block Detection in Terabyte-Scale Tensors
Kijung Shin, Bryan Hooi, Jisu Kim, and Christos Faloutsos
WSDM 2017 (*SIGIR Student Travel Grant*)

[14] S-HOT: Scalable High-Order Tucker Decomposition
Jinoh Oh, Kijung Shin, Evangelos E. Papalexakis, Christos Faloutsos, and Hwanjo Yu
WSDM 2017

[15] CoreScope: Graph Mining Using k-Core Analysis - Patterns, Anomalies and Algorithms
Kijung Shin, Tina Eliassi-Rad, and Christos Faloutsos
ICDM 2016 (*Selected for Best Papers of ICDM 2016 and Invited to the KAIS Journal*)

[16] M-Zoom: Fast Dense-Block Detection in Tensors with Quality Guarantees
Kijung Shin, Bryan Hooi, and Christos Faloutsos
PKDD 2016

[17] FRAUDAR: Bounding Graph Fraud in the Face of Camouflage
Bryan Hooi, Hyun Ah Song, Alex Beutel, Neil Shah, Kijung Shin, and Christos Faloutsos
KDD 2016 (*SIGKDD Best Research Paper Award*)

[18] BEAR: Block Elimination Approach for Random Walk with Restart on Large Graphs
Kijung Shin, Jinhong Jung, Lee Sael, and U Kang
SIGMOD 2015 (*Samsung Humantech Paper Award*, *SIGMOD Student Travel Award*)

[19] Distributed Methods for High-dimensional and Large-scale Tensor Factorization
Kijung Shin and U Kang
ICDM 2014 (*ICDM Student Travel Award*)

[20] Data/Feature Distributed Stochastic Coordinate Descent for Logistic Regression
Dongyeop Kang, Woosang Lim, Kijung Shin, Lee Sael, and U Kang
CIKM 2014

Referred Journal Papers

[21] Fast, Accurate and Flexible Algorithms for Dense Subtensor Mining
Kijung Shin, Bryan Hooi, and Christos Faloutsos
TKDD 2018 - ACM Transactions on Knowledge Discovery from Data

[22] Patterns and Anomalies in k-Cores of Real-world Graphs with Applications
Kijung Shin, Tina Eliassi-Rad, and Christos Faloutsos
KAIS 2018 - Knowledge and Information Systems
(Special Issue on the Selected Papers from ICDM 2016)

[23] Graph-Based Fraud Detection in the Face of Camouflage
Bryan Hooi, Kijung Shin, Hyun Ah Song, Alex Beutel, Neil Shah, and Christos Faloutsos
TKDD 2017 - ACM Transactions on Knowledge Discovery from Data
(Special Issue on the Best Papers from KDD 2016)

[24] Fully Scalable Methods for Distributed Tensor Factorization
Kijung Shin, Lee Sael, and U Kang
TKDE 2017 - IEEE Transactions on Knowledge and Data Engineering

[25] Random Walk with Restart on Large Graphs Using Block Elimination
Jinhong Jung, Kijung Shin, Lee Sael, and U Kang
TODS 2016 - ACM Transactions on Database Systems

Other Papers

[26] Patterns and Anomalies in k-Cores of Real-world Networks
Kijung Shin, Tina Eliassi-Rad, and Christos Faloutsos
NetSci 2017 (Abstract)

[27] Incorporating Side Information in Tensor Completion
{Hemank Lamba*, Vaishnavh Nagarajan*, Kijung Shin*, and Naji Shajarisales*}
WWW Companion 2016 (Poster)

Teaching

Instructor
- KAIST EE209(B) Programming Structures for Electrical Engineering — Spring 2019

Teaching Assistant
- CMU 10-601 Introduction to Machine Learning — Fall 2017
- CMU 15-780 Graduate Artificial Intelligence — Spring 2017

Guest Lecturer
- CMU 10-405 Machine Learning with Large Datasets — Spring 2018

Services

Program Committee Member

- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD) 2019
- The Web Conference (WWW) 2019
- IDEA Workshop @ KDD 2018

Journal Reviewer

- IEEE Transactions on Knowledge and Data Engineering (TKDE) 2018
- Physica A: Statistical Mechanics and its Applications 2018
- IEEE Signal Processing Letters (SPL) 2017
- IEEE/ACM Transactions on Networking (ToN) 2017

Ph.D. Admissions Committee

- Computer Science Department, Carnegie Mellon University 2019