

## Kijung SHIN

---

CONTACT INFORMATION	CHiPS (N26), Room #114 291 Daehak-ro, Yuseong-gu Daejeon 34141, Republic of Korea	Phone: +82 - 42 - 350 - 7454 Email: <a href="mailto:kijungs@kaist.ac.kr">kijungs@kaist.ac.kr</a> Homepage: <a href="https://kijungs.github.io">https://kijungs.github.io</a>
RESEARCH INTERESTS	Data Mining, Graph Mining, Social Network Analysis, Scalable Machine Learning	
EDUCATION	<b>Carnegie Mellon University</b> , Pittsburgh, PA, USA Ph.D. in Computer Science Thesis: “Mining Large Dynamic Graphs and Tensors” Advisor: Prof. Christos Faloutsos  <b>Seoul National University</b> , Seoul, Korea 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)	08/2015 - 02/2019          03/2008 - 08/2015
POSITIONS	<b>KAIST</b> , Daejeon, Korea Assistant Professor, Graduate School of AI & School of Electrical Engineering  <b>LinkedIn Corporation</b> , Mountain View, CA, USA Research Intern, Growth Relevance Team Project: “Lossless and Lossy Summarization of Web-Scale Graphs” Mentors: Dr. Amol Ghoting and Dr. Myunghwan Kim  <b>LinkedIn Corporation</b> , Mountain View, CA, USA Research Intern, Growth Relevance Team Project: “Discovering Progression Stages in Trillion-Scale Behavior Logs” Mentors: Dr. Mahdi Shafiei and Dr. Myunghwan Kim  <b>CYRAM</b> , Seoul, Korea Associate Researcher Projects: NetMiner 4 (social network analysis software), NetExplorer 3 (criminal analysis software), and Sopion.com (Twitter analysis and monitoring service)	02/2019 - Present                05/2018 - 08/2018                05/2017 - 08/2017                01/2011 - 12/2013
AWARDS & HONORS	Awarded the <b>Siebel Scholar Fellowship</b> Selected for <b>Best Papers of ICDM 2016</b> and Invited to the KAIS Journal Received the <b>SIGKDD Best Research Paper Award</b> Awarded the <b>Korea Foundation for Advanced Studies Scholarship</b> Received the <b>Best Senior Thesis Award</b> , Seoul National University Received the <b>Samsung Humantech Paper Award</b> (1st in CS) Awarded the <b>Kwanjeong Educational Foundation Scholarship</b> Awarded the <b>Merit-Based Scholarship</b> , Seoul National University Awarded the <b>National Science &amp; Technology Scholarship</b>	08/2018 12/2016 08/2016 2015 - 2019 08/2015 02/2015 2010, 2014, 2015 2009 2008
THESES	<ul style="list-style-type: none"><li>[1] Mining Large Dynamic Graphs and Tensors <a href="#">Kijung Shin</a> <b>Ph.D. Thesis</b>, Carnegie Mellon University, 2019.</li><li>[2] Scalable Methods for Random Walk with Restart and Tensor Factorization <a href="#">Kijung Shin</a> <b>Senior Thesis</b>, Seoul National University, 2015. (<i>Best Senior Thesis Award</i>)</li></ul>	

- REFERRED  
CONFERENCE  
& JOURNAL  
PAPERS
- [3] Fast, Accurate and Provable Triangle Counting in Fully Dynamic Graph Streams  
Kijung Shin, Sejoon Oh, Jisu Kim, Bryan Hooi, and Christos Faloutsos  
**ACM TKDD Journal 2020**
  - [4] Fast and Accurate Anomaly Detection in Dynamic Graphs with a Two-Pronged Approach  
Minji Yoon, Bryan Hooi, Kijung Shin, and Christos Faloutsos  
**ACM KDD 2019**
  - [5] SWeG: Lossless and Lossy Summarization of Web-Scale Graphs  
Kijung Shin, Amol Ghoting, Myunghwan Kim and Hema Raghavan  
**TheWebConf 2019** (formerly WWW)
  - [6] SMF: Drift Aware Matrix Factorization with Seasonal Patterns  
Bryan Hooi, Kijung Shin, Shenghua Liu, and Christos Faloutsos  
**SDM 2019**
  - [7] Think Before You Discard: Accurate Triangle Counting in Graph Streams with Deletions  
Kijung Shin, Jisu Kim, Bryan Hooi, and Christos Faloutsos  
**PKDD 2018**
  - [8] 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**
  - [9] 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)
  - [10] 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**
  - [11] Fast, Accurate and Flexible Algorithms for Dense Subtensor Mining  
Kijung Shin, Bryan Hooi, and Christos Faloutsos  
**ACM TKDD Journal 2018**
  - [12] Patterns and Anomalies in k-Cores of Real-world Graphs with Applications  
Kijung Shin, Tina Eliassi-Rad, and Christos Faloutsos  
**KAIS Journal 2018** (*Special Issue on the Selected Papers from ICDM 2016*)
  - [13] WRS: Waiting Room Sampling for Accurate Triangle Counting in Real Graph Streams  
Kijung Shin  
**IEEE ICDM 2017**
  - [14] ZooRank: Ranking Suspicious Entities in Time-Evolving Tensors  
Hemank Lamba, Bryan Hooi, Kijung Shin, Christos Faloutsos, and Jürgen Pfeffer  
**PKDD 2017**
  - [15] DenseAlert: Incremental Dense-Subtensor Detection in Tensor Streams  
Kijung Shin, Bryan Hooi, Jisu Kim, and Christos Faloutsos  
**ACM KDD 2017**
  - [16] 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*)
  - [17] D-Cube: Dense-Block Detection in Terabyte-Scale Tensors  
Kijung Shin, Bryan Hooi, Jisu Kim, and Christos Faloutsos  
**ACM WSDM 2017** (*SIGIR Student Travel Grant*)

- [18] S-HOT: Scalable High-Order Tucker Decomposition  
Jinoh Oh, [Kijung Shin](#), Evangelos E. Papalexakis, Christos Faloutsos, and Hwanjo Yu  
**ACM WSDM 2017**
- [19] Graph-Based Fraud Detection in the Face of Camouflage  
Bryan Hooi, [Kijung Shin](#), Hyun Ah Song, Alex Beutel, Neil Shah, and Christos Faloutsos  
**ACM TKDD Journal 2017** - ACM Transactions on Knowledge Discovery from Data  
(*Special Issue on the Best Papers from KDD 2016*)
- [20] Fully Scalable Methods for Distributed Tensor Factorization  
[Kijung Shin](#), Lee Sael, and U Kang  
**IEEE TKDE Journal 2017**
- [21] CoreScope: Graph Mining Using k-Core Analysis - Patterns, Anomalies and Algorithms  
[Kijung Shin](#), Tina Eliassi-Rad, and Christos Faloutsos  
**IEEE ICDM 2016** (*Selected for Best Papers of ICDM 2016 and Invited to the KAIS Journal*)
- [22] M-Zoom: Fast Dense-Block Detection in Tensors with Quality Guarantees  
[Kijung Shin](#), Bryan Hooi, and Christos Faloutsos  
**PKDD 2016**
- [23] FRAUDAR: Bounding Graph Fraud in the Face of Camouflage  
Bryan Hooi, Hyun Ah Song, Alex Beutel, Neil Shah, [Kijung Shin](#), and Christos Faloutsos  
**ACM KDD 2016** (*SIGKDD Best Research Paper Award*)
- [24] Random Walk with Restart on Large Graphs Using Block Elimination  
Jinhong Jung, [Kijung Shin](#), Lee Sael, and U Kang  
**ACM TODS Journal 2016**
- [25] BEAR: Block Elimination Approach for Random Walk with Restart on Large Graphs  
[Kijung Shin](#), Jinhong Jung, Lee Sael, and U Kang  
**ACM SIGMOD 2015**  
(*Samsung Humantech Paper Award, SIGMOD Student Travel Award*)
- [26] Distributed Methods for High-dimensional and Large-scale Tensor Factorization  
[Kijung Shin](#) and U Kang  
**IEEE ICDM 2014** (*ICDM Student Travel Award*)
- [27] Data/Feature Distributed Stochastic Coordinate Descent for Logistic Regression  
Dongyeop Kang, Woosang Lim, [Kijung Shin](#), Lee Sael, and U Kang  
**ACM CIKM 2014**
- OTHER PAPERS [28] Patterns and Anomalies in k-Cores of Real-world Networks  
[Kijung Shin](#), Tina Eliassi-Rad, and Christos Faloutsos  
**NetSci 2017** (Abstract)
- [29] Incorporating Side Information in Tensor Completion  
{Hemank Lamba\*, Vaishnavh Nagarajan\*, [Kijung Shin](#)\*, and Naji Shajarisales\*}  
**WWW Companion 2016** (Poster)
- TECHNICAL REPORTS [30] CoCoS: Fast and Accurate Distributed Triangle Counting in Graph Streams  
[Kijung Shin](#), Euiwoong Lee, Jinoh Oh, Mohammad Hammoud, and Christos Faloutsos  
Technical Report 2019
- [31] Out-of-Core and Distributed Algorithms for Dense Subtensor Mining  
[Kijung Shin](#), Bryan Hooi, Jisu Kim, and Christos Faloutsos  
Technical Report 2018

TEACHING	<b>Instructor</b>	
	- KAIST AI607 Graph Mining and Social Network Analysis	Fall 2019
	- KAIST EE209(B) Programming Structures for Electrical Engineering	Spring 2019
	<b>Teaching Assistant</b>	
	- CMU 10-601 Introduction to Machine Learning	Fall 2017
	- CMU 15-780 Graduate Artificial Intelligence	Spring 2017
	<b>Guest Lecturer</b>	
	- CMU 10-405 Machine Learning with Large Datasets	Spring 2018
	<b>Ph.D. Students</b>	
	- Dongjin Lee, KAIST EE	Fall 2019 -
MENTORING	- Hyeonsoo Jo, KAIST AI	Fall 2019 -
	<b>Master Students</b>	
	- Se-eun Yoon, KAIST EE (Co-advisor: Prof. Yung Yi)	Spring 2019 -
	- Manh Tuan Do, KAIST EE	Fall 2019 -
	- Jihoon Ko, KAIST AI	Fall 2019 -
	- Inkyu Park, KAIST AI	Fall 2019 -
	- Hyeonju Lee, KAIST AI	Fall 2019 -
	<b>Undergraduates</b>	
	- Yunbum Kook, KAIST Math (URP Program)	Spring 2019 -
	- Hyunjin Hwang, KAIST EE (URP Program)	Summer 2019 -
	- Taehyung Kwon, KAIST CS (Independent Research)	Summer 2019 -
	- Seungwoo Lee, KAIST CS (Independent Research)	Summer 2019 -
	- Yewon Eliana Kim, KAIST EE (Independent Research)	Fall 2019 -
	- Jaehan Cho, KAIST EE (Independent Research)	Fall 2019 -
	- Seunghyuk Oh, KAIST EE (Independent Research)	Summer 2019
	- Minkyoo Song, KAIST ISysE (Independent Research)	Summer 2019
	- Manh Tuan Do, KAIST EE	Spring 2019 - Summer 2019
	- Jihoon Ko, KAIST CS	Spring 2019 - Summer 2019
	- Jung Uk Yim, KAIST EE (Graduate Research)	Spring 2019
	<b>Visiting Students</b>	
	- Kyuhan Lee, Hanyang Univ. CS	Summer 2019 -
	- Shaurya Goel, IIT Delhi Math (VSR Program)	Summer 2019
SERVICES	<b>Program Committee Member</b>	
	- The Web Conference (WWW)	2020
	- IEEE International Conference on Data Mining (ICDM)	2019
	- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD)	2019
	- The Web Conference (WWW)	2019
	- IDEA Workshop @ KDD	2018
	<b>Conference Reviewer</b>	
	- Neural Information Processing Systems (NeurIPS)	2019
	<b>Journal Reviewer</b>	
	- The VLDB Journal	2019
	- ACM Transactions on Knowledge Discovery from Data (TKDD)	2019
	- IEEE Transactions on Knowledge and Data Engineering (TKDE)	2018 - 2019
	- Physica A: Statistical Mechanics and its Applications	2018
	- IEEE Signal Processing Letters (SPL)	2017
	- IEEE/ACM Transactions on Networking (ToN)	2017

**Ph.D. Committee Member**

- Seungjae Lee, KAIST EE (Advisor: Prof. Chang D. Yoo)
- Hyeontaek Oh, KAIST EE (Advisor: Prof. Jun Kyun Choi)

06/2019 (Proposal)

05/2019 (Proposal)