Sungsu Lim

Assistant Professor
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Employment

Chungnam National University   Daejeon, Korea
Assistant Professor, Department of Computer Science & Engineering   Sep. 2018 - Present

KAIST   Daejeon, Korea
Full-time Researcher, School of Computing   Sep. 2012 - Feb. 2013
   Advisor: Prof. Kyomin Jung

Education

KAIST   Daejeon, Korea
Ph.D. in Knowledge Service Engineering, Industrial & Systems Engineering   Aug. 2016
   Thesis: Transformation-Based Community Detection from Social Networks
   Advisor: Prof. Jae-Gil Lee

M.S. in Mathematical Sciences   Jan. 2011
   Thesis: Learning Sparse DAG Models Based on Continuous Type Data
   Advisor: Prof. Sung-Ho Kim

B.S. in Mathematical Sciences   Jan. 2009
   Undergraduate Graduation Research: Nonparametric Regression Using R
   Advisor: Prof. Sung-Ho Kim

Research Interests

Big Data, Network Science, Complex Network Analysis, Statistical Inference, Artificial Intelligence.

Awards and Honours

Qualcomm Innovation Award, Qualcomm Korea 2016
KT ICT Prize, The 2nd Big Data Analytics Competition (BigContest) 2014
MSRA Fellowship Nomination Award, Microsoft Research Asia 2012
Honorable Mention, The 18th Samsung Electronics Humantech Paper Award 2012
Presentation Award, The 6th ERC ROSAEC Center Workshop 2011
Outstanding Teaching Assistant Award, Dept. of Mathematical Sciences, KAIST 2010

Publications

1. **Sungsu Lim**, Kyomin Jung, and John C.S. Lui. *Phase Transition of Multi-state Diffusion Process in Networks.* ACM SIGMETRICS Performance Evaluation Review, v.41, no.3, 31-33, Dec. 2013.

2. **Sungsu Lim**, Seungwoo Ryu, Sejeong Kwon, Kyomin Jung, and Jae-Gil Lee. *LinkSCAN*: Overlapping Community Detection Using the Link-Space Transformation.* Proc. of the 30th IEEE Int'l Conf. on Data Engineering (ICDE), pp.292-303, Chicago, IL, USA, Apr. 2014 (Acceptance rate: 89/446 = 20%).

3. Yishi Lin, John C.S. Lui, Kyomin Jung, and **Sungsu Lim**. *Modeling Multi-state Diffusion Process in Complex Networks: Theory and Applications.* Journal of Complex Networks, v.2, no.4, 431-459, Dec. 2014.
   ∗ Conference version appeared in Proc. of the 9th Int'l Conf. on Signal Image Technology and Internet Based Systems (SITIS), pp. 506-513, Kyoto, Japan, Dec. 2013.

4. **Sungsu Lim**, Kyomin Jung, and Matthew Andrews. *Stability of the Max-Weight Protocol in Adversarial Wireless Networks.* IEEE/ACM Trans. on Networking, v.22, no.6, 1859-1872, Dec. 2014 (SCI, Impact factor: 3.11).
   ∗ Conference version appeared in Proc. of the 31st Annual Int'l Conf. on Computer Communications (INFOCOM), pp. 1251-1259, Orlando, FL, USA, Mar. 2012 (Acceptance rate: 278/1547 = 18%).

5. Jungeun Kim, Minseo Kang, **Sungsu Lim**, and Jae-Gil Lee. *Triangle Counting in Networks Using the Multi-Level Branching Technique.* Proc. of the 2nd Int'l Conf. on Big Data and Smart Computing (BigComp), pp.47-50, Jeju, Korea, Feb. 2015.

6. **Sungsu Lim**, Inwoo Jung, Seulki Lee, and Kyomin Jung. *Analysis of Information Diffusion for Threshold Models on Arbitrary Networks.* European Physical Journal B (EPJ B), v.88, no.8, 201, Aug. 2015 (SCI, Impact factor: 1.536).

7. **Sungsu Lim**, Junghoon Kim, and Jae-Gil Lee. *BlackHole: Robust Community Detection Inspired by Graph Drawing.* Proc. of the 32nd IEEE Int'l Conf. on Data Engineering (ICDE), pp.25-36, Helsinki, Finland, May 2016 (Acceptance rate: 99/395 = 25%).

8. **Sungsu Lim**, Joongbo Shin, Namju Kwak, and Kyomin Jung. *Phase Transitions for Information Diffusion in Random Clustered Networks.* European Physical Journal B (EPJ B), v.89, no.9, 188, Sep. 2016 (SCI, Impact factor: 1.536).

9. **Sungsu Lim** and Jae-Gil Lee. *Motif-Based Embedding for Graph Clustering.* Journal of Statistical Mechanics: Theory and Experiment (JSTAT), v.2016, 123401, Dec. 2016 (SCIE, Impact factor: 2.404).

10. Jungeun Kim, Jae-Gil Lee, and **Sungsu Lim**. *Differential Flattening: A Novel Framework for Community Detection in Multi-Layer Graphs.* ACM Trans. on Intelligent Systems and Technology (TIST), v.8, no.2, 27, Jan. 2017 (SCIE, Impact factor: 2.973).

11. **Sungsu Lim**. *Transformation-Based Community Detection from Social Networks.* IEEE Intelligent Informatics Bulletin, v.18, no.1, 26, Aug. 2017.

12. Jungeun Kim, **Sungsu Lim**, Jae-Gil Lee, and Byung Suk Lee. *LinkBlackHole*: Robust Overlapping Community Detection Using Link Embedding.* IEEE Trans. on Knowledge and Data Engineering (TKDE), under minor revision (SCI, Impact factor: 2.775).

Talks

Tutorial

1. *Data Analysis Using R*, Data Analytics Group, Samsung Advanced Institute of Technology (SAIT), Yongin, Korea, Jan. 2011.

Academic Talks

1. *Motif-Based Embedding for Graph Clustering*, Open Presentation of Ph.D. Students, Graduate School of Knowledge Service Engineering, KAIST, Daejeon, Korea, May 2016.
2. *Transformation-Based Community Detection from Social Networks*, The 26th Joint Conference on Communications and Information (JCCI), Sokcho, Korea, Apr. 2016.
3. *BlackHole: Robust Community Detection Inspired by Graph Drawing*, Open Presentation of Ph.D. Students, Graduate School of Knowledge Service Engineering, KAIST, Daejeon, Korea, Dec. 2015.
4. *Overlapping Community Detection Using the Link-Space Transformation*, The 9th ERC ROSAEC Center Workshop, POSTECH, Pohang, Korea, Feb. 2013.
5. *Generalized Mean-Field Approximation for Opinion Spreading in Social Networks*. Interdisciplinary Workshop on Information and Decision in Social Networks (WIDS), Cambridge, MA, USA, Nov. 2012.
6. *Tipping Point of Information Spreading in Random Clustered Networks with Heterogeneous Contact Rates*. The 3rd Workshop on Complex Networks (CompleNet), Melbourne, FL, USA, Mar. 2012 & Summer School on Social Networks Analysis, National Institute for Mathematical Sciences (NIMS), Daejeon, Korea, Aug. 2011.
7. *Stability of the Max-Weight Protocol in Adversarial Networks*, The 6th ERC ROSAEC Center Workshop, Paju, Korea, Jun. 2011.
8. *Information Spreading in Complex Networks, Graduate Student Seminar*, Dept. of Mathematical Sciences, KAIST, Daejeon, Korea, Apr. 2011.

Miscellaneous

1. *Introduction to Graduate Studies*, Graduate School of Knowledge Service Engineering, KAIST, Daejeon, Korea, May 2015.

Teaching - Courses

Instructor

25164: Numerical Analysis, Chungnam National University (in English)	Fall 2018
25151: Object-Oriented Design, Chungnam National University	Fall 2018

Teaching Assistant

KSE625: Data Mining for Social Networks, KAIST-DTU	Fall 2015
KSE525: Data Mining and Knowledge Discovery, KAIST-DTU	Spring 2015
MAS100: College Mathematics, KAIST (one recitation class, in English)	Spring 2011
MAS109: Intro. to Linear Algebra, KAIST (two recitation classes)	Fall 2010
CC511: Probability and Statistics, KAIST (three semesters)	Fall 2009 - Fall 2010

Tutor/Teacher

MAS355: Mathematical Statistics, KAIST (one-to-one tutoring)	Fall 2013
Mathematics, Summer Camp for Gifted Kids, National Science Museum	Summer 2009

Professional Activities

Membership

Member (S'12-M'17), Institute of Electrical and Electronics Engineers (IEEE)	2012 - Present
Member, Korean Institute of Information Scientists and Engineers (KIISE)	2018 - Present

Program Committee

Pacific-Asia Conf. on Knowledge Discovery and Data Mining (PAKDD)	2019
Int'l Conf. on Data Analytics (Data Analytics)	2017 - 2018

Journal Reviewer

IEEE Access	2018
Pattern Recognition	2018
VLDB Journal (VLDBJ)	2017
IEEE Communications Letters	2017
IEEE Journal of Selected Topics in Signal Processing (J-STSP)	2017
IEEE Trans. on Knowledge and Data Engineering (TKDE)	2016
IEEE/KICS Journal of Communications and Networks	2012

References

References available upon request.

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