Eun Lee

Network Science, Data Science, Computational social Science and modeling, Statistical Physics
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APPOINTMENTS

UNIV. OF COLORADO - BOULDER
Postdoctoral Associate
Mentor: Daniel Larremore/Aaron Clauset
Feb 2020 - present | Boulder, USA

UNIV. OF NORTH CAROLINA-CH
Postdoctoral Associate
Mentor: Peter J. Mucha
Feb 2018 - Feb 2020 | Chapel Hill, USA

EDUCATION

SUNGKYUNKWAN UNIV.
Ph.D. in Energy Science
Advisor: Petter Holme & Beom Jun Kim
Thesis title-"Effects of structurally correlated inequalities: network theory approaches to social contagion and perception bias"
Feb 2018 | Suwon, South Korea

EWHA WOMANS UNIV.
BS. in Electronic Engineering
Aug 2007 | Seoul, South Korea

SKILLS

- Python • Matlab • C
- Network analysis • Data analysis
- Data modeling • Statistical physics

RESEARCH KEYWORDS

- Social Networks • Temporal Networks
- Opinion Dynamics • Disease Spreading
- Perception • Inequality • Minorities
- Brain networks • Social stratification
- Social segregation • Cognitive science

SHORT INTRODUCTION

I am a post-doctoral researcher in the Department of Mathematics at the University of North Carolina (Chapel Hill) with an interest in contributing to a deeper understanding of the interplay among social network structure, the dynamics on and of that structure, perception, and collective behavior. My research interest lies in four topics:

- The effects of the social network structure on perceptions.
- The effect of perceptions on the collective behavior.
- The co-evolution of social networks and human behavior.
- Understanding dynamics on and of temporal and social networks.

RESEARCH PUBLICATIONS

PUBLICATIONS IN REFERRED JOURNALS

- <u>E. Lee</u>, S. Emmons, R. Gibson, J. Moody, and P. J. Mucha, "Concurrency and reachability in treelike temporal networks", Physical Review E, 100, 062305 (2019).
- <u>E. Lee</u>, F. Karimi, Claudia Wagner, H.-H.Jo, Markus Strohmaier, Mirta Galesic, "Homophily and minority size explain perception biases in social networks", Nature Human Behavior (2019).
- <u>E. Lee</u>, Sungmin Lee, Y.H. Eom, P. Holme, H. H. Jo, "Impact of perception models on friendship paradox and opinion formation", Physical Review E, 99(5), 052302 (2019).
- <u>E. Lee</u>, P. Holme, "Social contagion with degree-dependent thresholds", Physical Review E, 96(1), 012315 (2017).
- <u>E. Lee</u>, P. Holme, S. H. Lee, "Modeling the dynamics of dissent", Physica A, 486, 262 (2017).
- <u>E. Lee</u>, P. Holme, "Impact of mobility structure on optimization of small-world networks of mobile agents", European Physical Journal B, 89(6), 143 (2016).
- <u>E. Lee</u>, P. Holme, "Network characteristics of individual pigments in cyanobacterial photosystem II core complexes", Journal of the Korean Physical Society, 63(11), 2255-2261 (2013).

PUBLICATIONS IN CONFERENCE PROCEEDINGS

- M. Terika, H. Kim, <u>E. Lee</u>, A. M. Lakdawala, C. Bolton, "Content and Social Network Analyses of Depression-related Tweets of African American College Students (accepted, HICSS 2021)"

BOOK CHAPTERS

- E. Lee, J. Moody, Peter J. Mucha, "Exploring concurrency and reachability in the presence of high temporal resolution", In: Holme P., Saramäki J. (eds) Temporal Network Theory. Computational Social Sciences. Springer, Cham (2019)

PREPRINTS/PAPERS IN PREPARATION

- M. J. Lee, E. Lee, B. H. Lee, H. W. Jeong, D.-S. Lee, S. H. Lee, "Uncovering hidden mutual importance in networks via information entropy (under revision, https://arxiv.org/abs/2008.11047)".

- E. Lee, O. Stanoi, P. J. Mucha, "Elements of social networks", in preparation.

- E. Lee, O. Stanoi, P. J. Mucha, "Generalized Friendship paradox in college groups drinking perception", in preparation.

TALKS AND SEMINARS

ORAL PRESENTATIONS

- "Homophily explains perception bias in social networks" (Netsci, Vermont, USA.)

  June, 2019

- "Concurrency and reachability in tree-like temporal networks" (SIAM NS, Snowbird, USA.)

  June, 2019

- "Introduction of Network Science" (Girls talk Math, Department of Mathematics, UNC, Chapel Hill, USA.)

  July, 2018

- "Homophily explains perception biases in social networks" (KPS fall meeting, Gyeongju, Korea)

  October, 2017

- "Social contagion with degree-dependent thresholds" (APCTP Workshop, Pohang, Korea)

  December, 2016

- "The effects of correlation between influential level and threshold in opinion dynamics" (Conference on Complex Systems, Amsterdam, Netherland)

  September, 2016

- "Modeling the dynamics of dissent" (Netsci 2016, Seoul, Korea)

  June, 2016

- "Opinion formation in society with inhomogeneous status distribution" (Netsci-X, Wroclaw, Poland)

  January, 2016

- "Modeling of social uprising with inhomogeneous status distribution" (KPS Spring meeting, Daejeon, Korea)   April, 2015

- "The influence of movement patterns in dynamic wireless network power consumption" (Netsci-X, Rio de Janeiro, Brazil)

  January, 2015

POSTERS

- "Multi-level analysis on similarity of different socialnetworks in small groups" (IC2S2, Boston, USA.)

  July, 2020

- "Effect of the perception mechanisms on the Friendship Paradox" (Netsci, Indiana, USA.)

  June, 2017

- "The effects of correlation between influential level and threshold in opinion dynamics" (GESIS winter symposium, Cologne, Germany)

  December, 2016

- "The influence of heterogeneous threshold in opinion dynamics" (Netsci, Seoul, Korea)

  June, 2016

- "The influence of unequal distribution of information on convergence of society in diverse social structure" (IC2S2 Helsinki, Finland)

  June, 2015

SELECTED HONORS

- Young Statistical Physicist prize on the Korean Physical Society Spring Meeting

  July, 2020

- Visiting researcher for Perception on minorities in social network, GESIS, Germany

  June, 2019

- Best Oral Presentation Award on Korean Physical Society Fall Meeting
  "Homophily explains perception biases in social networks"   October, 2017

- Poster Award Prize on Netsci 2017
  "Effect of the perception mechanisms on the Friendship Paradox"   June, 2017

- 2017 Bridge Grant
  YRNCS(Young Researchers Network on Complex Systems)   April, 2017

- Invited researcher and scholarship
  EXODASS program, Institute of Molecular Science, Japan   Jan, 2013.

TEACHING

- Calculus II in Fall semester of University of North Carolina at Chapel Hill

  August, 2018

ACADEMIC REVIEW

- Scientific reports/ Physica A/ Journal of the Korean Physical Society

CERTIFICATIONS

- Data Scientist with Python   Data Camp (2020)

- Social Psychology certification by Wesleyan University   Coursera (2020)

- Bayesian Statistics: From Concept to Data Analysis certification by University of California, Santa Cruz

                                                                              Coursera (2020)

- Business Translation Diploma Program   Global College, Canada (2020)

TRAININGS

- Summer Institute in Computational Social Science
  University of Colorado, USA   Aug 13-18, 2018

- Workshop of Integrating different perspectives on social learning
  Santafe Institute, USA   April 16-19, 2018

- Oversea Training
  GESIS, Germany
  : Collaboration for the biased visibility   Jun, 2017

- Short course of complexity
  Santafe institute, New Mexico, USA
  : Study the interdisciplinary approach of complexity   Jan 5-7, 2016

- EXODASS program
  Institute of Molecular Science, Japan
  : Invitation as the East Asian Young Researchers   Nov 2 , 2012-Jan 27, 2013

- Oversea Training
  National Taiwan University, Taipei, Taiwan
  : Theoretical calculation of the excitation energy transfer   Feb 11-26, 2012

- New England Complex Systems Institute Summer School
  MIT, USA
  : Network theory and simulation study   June 13-24, 2011

- Oversea Training
  Umeå, Sweden
  : Network analysis of the core complex   July 9-Aug 31, 2011

MEDIA

- Santa Fe Institute "It's not you, it's the network" LINK

- Nature Social Science "Our journey through a personal quest: How do social networks shape our perceptions?" LINK

- 동아사이언스 "타인도 내 의견에 동조한다는 '착각'에 숨은 물리학 법칙" (Dong-A Science) LINK

- The Horizons Tracker "DO SOCIAL NETWORKS HAVE PERCEPTION BIASES?" LINK

- Ars Technica "It's the network, stupid: Study offers fresh insight into why we're so divided" LINK