Jinhyuk Yun, Ph. D.

CONTACT INFORMATION

School of AI Convergence,
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CAREER

Soongsil University, Seoul, South Korea
Assistant Professor, School of AI Convergence — Mar 20 – present

Korea Institue of Science and Technology Information (KISTI), Seoul, South Korea
Senior Research Scientist, Future Technology Analysis Center — Dec 16 – Feb 20

Naver Corporation, Seongnam, South Korea
Data Scientist, Naver Search — Aug 16 – Dec 16

Korea Advanced Institute of Science and Techonlogy (KAIST), Daejeon, South Korea
Research Assistant, Department of Physics — Feb 13 – Aug 16
Teaching Assistant, Department of Physics — Feb 11 – Dec 12

RESEARCH INTERETS

Data Science, Network Science, Artificial Intelligence, Machine Learning, Modeling Human Behavior, Computational Social Science, Econophysics, Cultural Science, Science of Science, Scientometrics

EDUCATION

Ph.D. Physics, KAIST (Daejeon, South Korea), August 2016

- Thesis topic: Theoretical study on a Spreading in Human Society
- Advisor: Hawoong Jeong

B.S. Physics, KAIST (Daejeon, South Korea), February 2010

Exchange Student, INSA (Lyon, France), Aug. 2008 - Jul. 2009

TEACHING AND ADVISING

Assistant Professor, Soongsil University

Undergraduate

Introduction to the AI	Fall 2023
Big Data Programming	Spring 2021–2023
AI Mathematics Basics	Spring 2022–2024
Programming Basics 2	Fall 2021
Probability and Statistics	Fall 2020–2022
Data Structure	Spring 2020–2021

Graduate

Network Science and Graph Embedding	Fall 2023

Teaching Assistant, KAIST

Statistical Physics	Fall 2012
Thermal Physics	Spring 2012
Advanced Physics II	Fall 2011
Advanced Physics I	Spring 2011

Grant, Awards, and Fellowships

Research Grants

- PI, National Research Foundation of Korea (NRF; Mid-Career Researcher Program), Study on the innovation and knowledge diffusion using graph neural network and graph embedding, 09/2022 – 02/2027
- Co-PI, Institute for Information & communications Technology Planning & Evaluation (IITP), Innovative Human Resource Development for Local Intellectualization, 07/2022 – 12/2029
- Co-PI, National Research Foundation of Korea (NRF; LINC+) 4th Industrial Revolution Innovation Leading University (AI Mobility), 03/2020 – 02/2022
- PI, Korea Institute of Science and Technology Information, A study on efficient clustering methods for large-scale scientific literature dataset, 04/2022 – 10/2022
- Co-PI, Institute for Information & communications Technology Planning & Evaluation (IITP), National Program for Excellence in SW, 03/2020 – 12/2023
- PI, National Research Foundation of Korea (NRF; Mid-Career Researcher Program), A study on the hidden bias of artificial intelligence and big data from a complex system analysis, 09/2020 – 02/2022
- PI, National Research Foundation of Korea (NRF; Strategic Project on the Industrial Mathematics), Study on the Knowledge Ecosystem of 4th Industrial Revolution using Big Data, 09/2017 – 08/2020
- Co-PI, Korea Institute of Science and Techology Information (KISTI), Development of Future Technology Analysis System Based on Open Data, 01/2018 – 02/2020
- Co-PI, Korea Institute of S&T Evaluation and Planning (KISTEP), Development of government R&D package investment model for the 4th industrial revolution, 09/2017 – 02/2018
- Co-PI, Korea Institute of Science and Techology Information (KISTI), Development of Technology Intelligence System for Exploring Future Technologies, 01/2017 – 12/2017

Awards

- Soongsil Fellowship Professor (Excellence in Teaching), Soongsil University (Seoul, South Korea), 2022
- Best Paper Award (Division: Open Source), KCC2021 (Jeju, South Korea), 2021
- Outstanding Researcher Award (Best Paper), Korea Institute of Science and Technology Information (Daejeon, South Korea), 2019
- Outstanding Young Researcher Award, Korea Institute of Science and Technology Information (Daejeon, South Korea), 2018
- Young Investigator Training Award, Challenges in Data Science (Matera, Italy), 2016
- Best project award (1st prize), The 5th KIAS CAC Summer School on Parallel Computing (Seoul, South Korea), 2014
- Bronze award, The 5th BK21 Young Physicists Workshop (Daejeon, South Korea), 2012

Scholarship

- National Graduate Science & Technology Scholarship, 02/2010–12/2015
- National Undergraduate Science & Technology Scholarship, 03/2005–12/2009

Academic Service

- Editorial Borad Member, Humanities and Social Sciences Communications, 11/2023–

PUBLICATIONS

Peer-reviewed Journals

- Gangmin Son, **Jinhyuk Yun**, Hawoong Jeong, Untangling pair synergy in the evolution of collaborative scientific impact, *EPJ Data Science*, 12, 62 (2023).
- Jisung Yoon, Jinseo Park, **Jinhyuk Yun**, Woo-Sung Jung, Quantifying knowledge synchronization with the network-driven approach, *Journal of Informetrics*, 17(4), 101455 (2023).
- Eunrang Kwon, **Jinhyuk Yun**, Jeong-han Kang, Dataset for the analysis of gendered research productivity affected by early COVID-19 pandemic, *Data in Brief*, 48, 109200 (2023).
- Jin Min Kim, Jae Hwan Lee, **Jinhyuk Yun**, Wooseop Kwak, Restricted curvature model on a tetrahedral fractal substrate, *Journal of the Korean Physical Society*, 82(7), 623-6238 (2023).
- Eunrang Kwon, **Jinhyuk Yun**, Jeong-han Kang, The effect of the COVID-19 pandemic on gendered research productivity and its correlates, *Journal of Informetrics*, 17(1), 101380 (2023).
- Sungyong Kim, **Jinhyuk Yun**, Analysis of risk propagation using the world trade network, *Journal of the Korean Physical Society*, 81(7), 697–706 (2022).
- Juyoung Kim, **Jinhyuk Yun**, Crime and social environments: differences between misdemeanors and felonies, *Journal of the Korean Physical Society*, 81(2), 179–190 (2022).
- Taekho You, Jinseo Park, June Young Lee, **Jinhyuk Yun**, Woo-Sung Jung, Disturbance of questionable publishing to academia, *Journal of Informetrics*, 16(2), 101294 (2022).
- **Jinhyuk Yun**, Generalization of bibliographic coupling and co-citation using the node split network, *Journal of Informetrics*, 16(2), 101291 (2022).
- Kim Danu, Lee Damin, Jaehyeon Myung, Changwook Jung, Inho Hong, Diego Sez-Trumper, **Jinhyuk Yun**, Jung Woo-Sung, Meeyoung Cha, Information Collection of COVID-19 Pandemic Using Wikipedia Template Network, *Journal of KIISE*, 49(5), 347–353 (2021)
- **Jinhyuk Yun**, S. Ahn, and J.Y. Lee, Return to basics: Clustering of scientific literature using structural information, *Journal of Informetrics* 14(4), 101099 (2020).
- **Jinhyuk Yun**, S.H. Lee, and H. Jeong, Early onset of structural inequality in the formation of collaborative knowledge in all Wikimedia projects, *Nature Human Behaviour* 3, 155-163 (2019) [**Featured as the cover article**]
- Jisung Yoon, **Jinhyuk Yun**, Woo-Sung Jung, Build Up of a Subject Classification System from Collective Intelligence, *New Phys.: Sae Mulli* 68, 647–654 (2018)
- **Jinhyuk Yun**, S.H. Lee, and H. Jeong, Intellectual interchanges in the history of massive online open-editing encyclopedia, Wikipedia, *Phys. Rev. E* 93, 012307 (2016)
- **Jinhyuk Yun**, P.-J Kim, and H. Jeong, Anatomy of scientific evolution, *PLoS ONE* 10(2): e0117388 (2015)

Books and research reports

- Jinseo Park, **Jinhyuk Yun**, and June Young Lee, Comparative study of the predatory journals by country and field, KISTI Data Insight No.8 (2019)
- **Jinhyuk Yun** and Young Jin Kim, Future of the open innovation on the GitHub, KISTI Data Insight No.3 (2018)

Research Techniques

Languages: C, C++, Python, CUDA, MATLAB, *etc.*
Machine learning: Pytorch, Keras, Tensorflow, Scikit-learn, Gensim, *etc.*
Data visualization: Gephi, Cytoscape, Maplotlib, Gnuplot, *etc.*
Analysis tools: Network X, Pandas, Dask, OpenMP, numpy, scipy, *etc.*
System operation: Served as a system administrator for 8 years
1) 50 nodes network cluster (Hadoop, Spark, MPI, SGE, *etc.*)
2) 192 cores workstation
3) Many large-memory workstations
General: Agent-based modeling, Monte Carlo simulation, Statistical methods, Information theory, Game theory.
Human languages: Korean (Native), English (Advanced), Frencn (Intermediate), Japanese (Basic)

In the Press

Research highlights

- Early onset of structural inequality in the formation of collaborative knowledge in all Wikimedia projects
  - Nature Human Behaviour Editorial: Inequalities in crowdsourced knowledge
  - Behavioural and Social Sciences at Nature Research: How I met my collaborators
  - The Korea Bizwire: Study Shows a Monopolizing Few Can Control Collective Intelligence
  - NRC Handelsblad: Op Wikimedia is niet iedereen gelijk (in Dutch)
  - 한겨레: 집단지성의 성채 위키백과, 지식정보의 편향 넘을 수 있을까 (in Korean)
  - 과학동아: 숙제할 때 찾는 위키백과 서로 못 믿어서 내용이 정확해졌다? (in Korean)
  - 중앙일보: 인터넷, 정보 평등 세상 같지만, 실상은 소수가 여론 쉽게 독점 (in Korean)
  - 중앙일보: 인터넷 여론, 소수가 쉽게 독점 (in Korean)
  - 경향신문: 온라인 집단지성, 다수 아닌 소수가 독점 (in Korean)
  - 연합뉴스: 정보 틀어쥔 소수가 가짜뉴스를 집단지성으로 눈속임한다 (in Korean)
  - 동아사이언스: 인터넷 공간 알고 보니 소수가 독점한 세상 (in Korean)
  - 조선비즈: 인터넷서 집단지성 축적될수록 여론조작 쉬워져 (in Korean)
  - 디지털타임스: 가짜뉴스는 왜 증폭될까…소수에 의한 독점 현상 규명 (in Korean)
  - 금강일보: [사이언스톡톡] 왜 가짜뉴스가 판칠까 (in Korean)
  - 아시아경제: 인터넷 집단지성, 빅데이터로 보니 소수 독점 우려 (in Korean)
  - 서울경제: 집단지성 형성과정의 비밀, 빅데이터로 풀어내다 (in Korean)
  - 한국경제: 정보 틀어쥔 소수가 가짜뉴스를 집단지성으로 눈속임한다 (in Korean)
  - 파이낸셜뉴스: 가짜뉴스+여론조작 빅 마우스 찾아냈다 (in Korean)
  - 헬로디디: 집단지성 형성 비밀?…빅데이터로 풀다 (in Korean)
  - 내외뉴스통신: KISTI, 빅데이터로 집단지성 형성과정의 비밀 풀어 (in Korean)
  - e경제뉴스: 인터넷여론...집단지성인가 바보들의 행진인가 (in Korean)
  - 뉴스웍스: 온라인 여론 소수가 쉽게 독점한다 (in Korean)

  - UPI뉴스: 정보 가진 소수가 여론 독점하고 왜곡 (in Korean)
  - 이웃집과학자: 위키백과 집단지성보다 소수독점 경향↑ (in Korean)
  - IT NEWS: 정보 가진 소수가 여론 독점하고 왜곡 (in Korean)
- Intellectual interchanges in the history of the massive online open-editing encyclopedia, Wikipedia
  - APS Physics Focus: Wikipedia Articles Separate into Four Categories
  - The Washington Post: Wikipedia's social structures resemble a bureaucratic corporation, studies say
  - The Speaker: Wikipedia Vulnerabilities Explored In New Research
  - Asian Scientist: What The Editing History Of Wikipedia Reveals
  - Gizmodo: Wikipedia Is Basically a Corporate Bureaucracy, According to a New Study
  - Science Alert: Wikipedia is basically just another giant bureaucracy, study finds
  - Fudzilla: Wikipedia has become 20th century bureaucracy
  - Weekendavisen: Leksikalt kartel (in Danish)
  - Die Tageszeitung: Der aussterbende mnnliche Schwarm (in German)
  - Der Standard.: Wikipedia: Es droht das Ende der Schwarmintelligenz (in German)
  - Actualite Houssenia Writing: Wikipedia, juste une norme bureaucratie ? (in French)
  - Boa Informacao: Como a Wikipdia se tornou uma comunidade mais fechada, e como resolver isto (in Portuguese)
  - ギズモドジャパン (Gizmodo Japan): ウィキペディアは少のスパエディタが支配する官僚社 (in Japanese)
  - SG: Szomor jv vrhat a Wikipdira (in Hungarian)
  - Hankyoreh ScienceOn (한겨레 사이언스온): 위키백과 15년 문서 편집의 빅데이터 분석해보니… (in Korean)
  - Physics and High Technology (물리학과 첨단기술): 위키백과의 장기간 편집 기록 분석을 통한 위키백과 문서의 분류와 집단지성의 형성과정 (in Korean)
- Anatomy of Scientific Evolution
  - Physics Today: The Dayside : The psychohistory of scientific evolution