




# Young Jin Kim

Postdoctoral Researcher  
in Center for Complex Systems, KI of Grid  
Modernization,  
Korea Institute of Energy Technology,  
(KENTECH)  
Naju, Jeonnam 58217, Korea

김영진 (in Korean)

Mobile: +82-10-3062-6113 (mobile)

Email: kimyoungjin06@gmail.com 

## RESEARCH INTERESTS

Data Analysis, Machine Learning, Network Analysis, Game Theory, Social Dilemma, Evolutionary Dynamics, numerical simulation

## EDUCATION

HANYANG UNIVERSITY, Ph.D. in Applied Physics Mar. 2013 – Aug. 2019  
Advisor: Dr. Seung-Woo Son  
Thesis: "[Patterns of success and cooperation in complex networks](#)"  
HANYANG UNIVERSITY, B.S. in Applied Physics Mar. 2006 – Feb. 2013  
Bachelor of Business Administration (double majors)  
Korean military service (Jan. 2008 – Dec. 2009)

## EXPERIENCE

Postdoc, KENTECH, KOREA Apr. 2022 - present,  
Postdoc, NIMS, KOREA Oct. 2019 - Mar. 2022,  
Student Researcher, [KISTI](#), KOREA Mar. 2018 - Aug. 2019  
Research Assistant, [HANYANG UNIVERSITY](#), KOREA Mar. 2015 - Feb. 2018  
Teaching Assistant, [HANYANG UNIVERSITY](#), KOREA Mar. 2013 - Dec. 2014

## HONERS & AWARDS

Best award, [2017 fall conference of Korea Academy of Complexity Studies](#) (Seoul, Korea) Nov. 2017  
Best award, [The 8<sup>th</sup> KIAS CAC Summer School](#) (Seoul, Korea) Jul. 2017  
Competition Award, 4<sup>th</sup> [Bigcontest](#) (Seoul, Korea) Oct. 2016  
Best award, [2016 NIMS-SKKU Big data Summer School](#) (Jeju, Korea) Jul. 2016  
Best poster award, [The 2015 KPS spring conference](#) (Daejeon, Korea) Apr. 2015  
Scholarly award, College of Science and Technology, Hanyang University Dec. 2013  
Best poster award, The 2013 KPS autumn conference (Changwon, Korea) Nov. 2013  
Best poster award, The 2013 KPS spring conference (Daejeon, Korea) Apr. 2013

## SPECIALITY & SKILLS

- **Python** programing language for data analysis, pre-processing, and visualization
- C and C++ programing language for numerical simulations of statistical physics problems and data pre-processing
- Scraping (crawling) for data collecting with python

- Gephi / D3.js for network visualization
- **Make Graph, visualization**, and Presentation (materials): Matplotlib, gnuplot, Powerpoint
- **Management of Linux system** and Windows applications
- **Visualization in Web** using HTML, JS(especially D3.js and Vue.js)
- Amateur Photographer, boxer, music performer (playing guitar and djembe, singing :)

## REVIEWED PUBLICATIONS

1. Y. Seo<sup>^</sup>, S. Kim<sup>^</sup>, H. S. Lee, J. Park, K. Lee, I. Jun, H. Seo, Y. J. Kim, Y. Yoo, B. C. Choi, H. K. Seok<sup>\*</sup>,  
[“Femtosecond Laser Induced Nano-textured Micropatterning to Regulate Cell Functions on Implanted Biomaterials”](#),  
 Acta Biomaterialia **116**, 138 (2020).
2. Y. Seo<sup>^</sup>, J. Hwang<sup>^</sup>, E. Lee, Y. J. Kim, K. Lee, C. Park, Y. Choi, H. Jeon, J. Choi<sup>\*</sup>,  
[“Engineering copper nanoparticles synthesized on the surface of carbon nanotubes for anti-microbial and anti-biofilm applications”](#),  
 Nanoscale **10**, 15529(2018).
3. Y.-J. Park<sup>^</sup>, D. W. Kim, S. H. Nam, Y. J. Kim, S.-W. Son<sup>\*</sup>,  
[“Korean Football Stylometry by Using the Football Events Networks”](#),  
 New Phys.: Sae Mulli **68**, 642 (2018).
4. Y. J. Kim<sup>^</sup>, S. Lim, Y. J. Park, S. W. Son<sup>\*</sup>,  
[“Quantitative Analysis of K-Pop Writers' Network by Using K-Pop Lyrics”](#),  
 New Phys.: Sae Mulli **68**, 700 (2018).
5. Y.-J. Park<sup>^</sup>, Y.-B Kim, S.-Y Jeong, Y. J. Kim, and S.-W. Son<sup>\*</sup>,  
[“Network Analysis in Korean Presidential Speeches by Using Word2Vec”](#),  
 New Phys.: Sae Mulli **67**, 569(2017).
6. Y. J. Kim<sup>^</sup>, M. Roh, S.-Y. Jeong, and S.-W. Son<sup>\*</sup>,  
[“Dynamics Motifs of Strategies in Prisoner's Dilemma Games”](#),  
 J. Korean Phys. Soc. **65**, 11 (2014) [arXiv:1412.5245](#).
7. Y. J. Kim<sup>^</sup>, M. Roh, and S.-W. Son<sup>\*</sup>,  
[“Network Structures between Strategies in Iterated Prisoners' Dilemma Games”](#),  
 J. Korean Phys. Soc. **64**, 341 (2014) [arXiv:1403.1048](#).
8. Y. J. Kim<sup>^</sup>, O. Kwon, H.-S. Song, J. Kim, and H. Kang<sup>\*</sup>,  
 “SLR estimation using CEEMDAN near the Korean Peninsula”,  
 In reviewing (2 Reviewer(s) accepted 8 Mar. 22).
9. Y. J. Kim<sup>^</sup>,  
 “Semi-supervised pruning optimization with modularity-based hierarchical clustering”,  
 In preparation (2021).
10. Y. J. Kim<sup>^</sup>, Y.-J. Park, and S.-W. Son<sup>\*</sup>,  
 “Effect of the mobility on iterated prisoners' dilemma game with reputation-based-strategy”,  
 in preparation (2016).
11. Y. J. Kim<sup>^</sup>, Y. Kim, S.-W. Son<sup>\*</sup>, and B. M. Weon<sup>\*</sup>,  
 “Symmetric distribution in the last digits of the prime numbers”,  
 in preparation (2015).
12. Y. J. Kim<sup>^</sup>, M. Roh, S.-Y. Jeong, and S.-W. Son<sup>\*</sup>,  
 “Fine phase structures in the payoff space of iterated prisoners' dilemma games”,  
 in preparation (2015).

## PRESENTATIONS

1. “Semi-supervised pruning optimization with modularity-based hierarchical clustering”  
[KDISS 2021 Fall Meeting](#) (Seoul, oral, Nov. 26, 2021)  
[KSIAM 2021 Winter](#) (Busan, oral, Dec. 2, 2021)

2. "Understanding local differences in the sea-level rise nearby the Korean Peninsula using CEEMDAN"  
[KSIAM 2021](#) (Gangneung, oral, Jun. 25, 2021)  
[AGU Fall Meeting 2021](#) (New Orleans, poster, Dec. 15, 2021)
3. "Diabetes prediction with KoGES data using Machine Learning"  
[KPS 2020 Fall conference](#) (Online, oral, Nov. 6, 2020)
4. "Prediction of sea level rise and volatility analysis near the Korean Peninsula"  
[KPS 2020 Spring conference](#) (Online, oral, Jul. 14, 2020)  
[KSIAM 2020 Annual Meeting](#) (Jeju, oral, Nov. 12, 2020)
5. "Quantitative analysis of success of repositories in GitHub"  
[KPS 2019 Spring conference](#) (Daejeon, oral, Apr. 25, 2019)  
[KPS 2018 Fall conference](#) (Changwon, oral, Oct. 26, 2018)  
[NetSciX2019](#) (Santiago, Chile, poster, Jan. 4, 2019)
6. "[Quantitative analysis of K-pop writers' network using K-pop lyrics](#)",  
[NSPCS2018](#) (Seoul, Korea, poster, Jul. 9, 2018)
7. "Network Analysis using K-POP lyrics",  
 The 19<sup>th</sup> Workshop for Statistical Physics (Mungyeong, Korea, Aug. 29, 2017)  
 KPS 2017 Fall conference (Gyeongju, Korea, poster, Oct. 25, 2017)  
 2017 fall Korea Academy of Complexity Studies (Seoul, Korea, Nov. 25, 2017)
8. "K-POP genre prediction using CNN",  
 The 8<sup>th</sup> KIAS CAC Summer School (Seoul, Korea, Jul. 5, 2017)
9. "Machine learning based insurance fraud forecast",  
 4<sup>th</sup> Bigcontest, (Seoul, Korea, Competition, Oct. 20, 2016)
10. "Effect of the mobility on iterated prisoners' dilemma game with reputation-based-strategy",  
 NSPCS16 (Seoul, Korea, poster, Jul. 4, 2016)
11. "Composer network using morphological analysis of K-POP lyrics",  
 2016 NIMS-SKKU MDA-TDA Summer school (Jeju, Korea, oral, Jul. 2, 2016)
12. "Structure of player-interaction networks on iterated prisoners' dilemma game with mobility",  
**NetSci 2016** (Seoul, Korea, poster, Jun. 1, 2016)  
 KPS 2016 Spring conference (Daejeon, Korea, poster, Apr. 21, 2016)
13. "Mobile prisoners' dilemma game with reputation",  
 KPS 2015 Autumn conference (Gyeongju, Korea, oral, Oct. 22, 2015).
14. "How does reputation affect spatial prisoners' dilemma game?",  
 The 18<sup>th</sup> Workshop for Statistical Physics (Jeonju, Korea, oral, Aug. 21, 2015).
15. "Network analysis of iterated prisoners' dilemma games with a single step memory",  
 Granada Seminar on Computational and Statistical Physics (Granada, Spain, June 15, 2015)
16. "Symmetric distribution in the last digits of prime numbers",  
 KPS 2015 Spring conference (Daejeon, Korea, poster, Apr. 23, 2015).
17. "Diverse network structures of strategies in iterated prisoners' dilemma games",  
 Application of Econophysics and Social Physics : Summer Workshop (Incheon, Korea, oral, Aug. 21, 2014).
18. "Fine phase structures (Network analysis) of iterated prisoners' dilemma games",  
 KPS 2014 Spring conference (Daejeon, poster, Apr. 23, 2014).  
 KIAS 2014 Summer School on Active Systems (Gwangju, oral, June 22 – July 4, 2014).  
 The 6<sup>th</sup> Conference on Statistical Physics NSPCS 2014 (Seoul, Korea, poster, July 8 – 11, 2014).
19. "Analysis of win-lose circulations between strategies in iterated prisoners' dilemma game",  
 The 17<sup>th</sup> Workshop for Statistical Physics (Tongyeong, Korea, oral, Oct. 31 – Nov. 3, 2013)  
 KPS 2013 Autumn conference (Daejeon, poster, Oct. 24, 2013).
20. "Iterated prisoners' dilemma game with a limited memory",  
 KPS 2013 Spring conference (Daejeon, poster, Apr. 24, 2013).

## REFERENCES

### **Dr. Seung-Woo Son**

Associate Professor

Department of Applied Physics, Hanyang University

55 Hanyangdeahak-ro, Sangnok-gu, Ansan, Gyeonggi-do, 15588, South Korea

Email: [sonswoo@hanyang.ac.kr](mailto:sonswoo@hanyang.ac.kr)

### **Dr. Beom Jun Kim**

Professor

Department of Physics, Sungkyunkwan University

Suwon-si, Gyeonggi-do, 16419, South Korea

Email: [beomjun@skku.ac.edu](mailto:beomjun@skku.ac.edu)

### **Dr. Jinhyuk Yun**

Assistant Professor

Department of Smart Systems Software, Soongsil University

369 Sangdo-ro, Dongjak-gu, Seoul, 06978, Republic of Korea

Email: [jinhyuk.yun@ssu.ac.kr](mailto:jinhyuk.yun@ssu.ac.kr)

### **Dr. Sang Hoon Lee**

Assistant Professor

Department of Physics, Gyeongsang National University

501 Jinju-daero, Jinju 52828, South Korea

Email: [lsjlj82@gnu.ac.kr](mailto:lsjlj82@gnu.ac.kr)