Munjung Kim

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Objective

Utilize computational methods to comprehend the mechanisms through which human innovation arises and scientific theories are formulated. By illuminating these processes, my research aims to enhance the practices of scientific communities, fostering improved scientific methodologies, and laying the groundwork for the automation of science.

Education & Training

Indiana University Bloomington — Aug 2022–Present
Doctor of Philosophy, Informatics
- Advisor: Dr. Yong-Yeol Ahn

Pohang University of Science and Technology — Feb 2017 - Feb 2022
Bachelor of Science, Physics

Santa Fe Institute Complex Systems Summer School — Jun 2023 - July 2023

Academic Positions

Indiana University Bloomington — *Bloomington, IN, USA*
Research Assistant — Aug 2022– Present
- Advisor: Prof. Yong-Yeol Ahn

Pohang University of Science and Technology — *Pohang, S. Korea*
Research Assistant — May 2019 - Aug 2021
- Advisor: Prof. Hyunuk Kim, Prof. Woo-Sung Jung

Research Interest

Machine Learning (neural network embedding, language model)
Science of Science (innovation, philosophy of science, history of science, epistemology)

Publications

Articles

[A1] Matthew R DeVerna, Rachith Aiyappa, Wanying Zhao, Manita Pote, Bao Tran Truong, David Axelrod, Aria Pessianzadeh, Zoher Kachwala, **Munjung Kim**, Ozgur Can Seckin, et al. "A multi-platform collection of social media posts about the 2022 US midterm elections". In: *arXiv preprint arXiv:2301.06287* (2023).

[A2] **Munjung Kim**, Jisung Yoon, Woo-Sung Jung, and Hyunuk Kim. "Quantifying the topic disparity of scientific articles". In: *Companion Proceedings of the Web Conference 2022* (2022), pp. 769–773.

Working Papers

Munjung Kim, Sadamori Kojaku, and Yong-Yeol Ahn, "Defining and identifying disruptive papers using neural embedding method" [Abstract]

Oral Presentations

[O1] **Munjung Kim**, Sadamori Kojaku, and Yong-Yeoal Ahn. "Quantifying disruptiveness using neural embedding method". Netsci 2023. 2023. URL: `https://munjungkim.github.io/files/2023_02_13_Disruptiveness_Netsci.pdf`.

[O2] **Munjung Kim**, Jisung Yoon, Hyunuk Kim, and Woo-Sung Jung. "Neural embedding of research papers reveals characteristics of policy research institutes". Networks 2021: A Joint Sunbelt & NetSci Conference. 2021. URL: `https://munjungkim.github.io/files/report2vec_abstract.pdf`.

[O3] **Munjung Kim**, Jisung Yoon, and Woo-Sung. "Quantitative Analysis on Institutions' Activity Policy Research with Embedding Method". Korea Academy of Complexity Studies. 2019.

Poster Presentations

[P1] **Munjung Kim**, Sadamori Kojaku, and Yong-Yeoal Ahn. *Quantifying disruptiveness using neural embedding method*. IC2S2. 2023. URL: `https://munjungkim.github.io/files/ic2s2_2023_03_02_disruptiveness.pdf`.

[P2] **Munjung Kim**, Sadamori Kojaku, and Yong-Yeoal Ahn. *Quantifying disruptiveness using neural embedding method*. ICSSI. 2023.

Honors &Awards

National Scholarship for Excellence (Sci. & Eng.), Korea Student Aid Foundation, 2017-2021 / ca. $20,000
Global Talent Attraction Program (Postponed due to Covid19), Indiana University, 2020 / ca. $4,000
Bachelor's Thesis Award, 2nd Prize, POSTECH, 2020
Semester of High Honor, 2019,2020,2021
Senior Mentoring Program Scholarship, 2019,2020
Residential College Advisor Scholarship, 2019

Teaching Experience

Senior Mentoring Program — Pohang University of Science and Technology
Tutor — *Pohang, S. Korea*

- Computational Physics (PHYS312), 2019
- Calculus 2 (PHYS312), 2019, 2020

Skills

Computer Language: Python, R, Matlab, C, C++, Cython

Workflow for Reproducible Data Analysis: Snakemake

Analysis Modules: Pytorch, Sci-kit Learn, Numpy, Scipy, Pandas, igraph, NetworkX

Languages: English (Proficient), Korean (Native), Japanese (Elementary)

Service

Reviewer

- International Society for Scientometrics and Informetrics 2023 conference
- International Workshop on Cyber Social Threats (CySoc '23)

References

Dr. Yong-Yeol Ahn, ***Associate Professor***
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Dr. Hyunuk Kim, ***Assistant Professor***
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Boston University, Boston, MA 02215, USA
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Dr. Sadamor Kojaku, ***Assistant Professor***
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