Keigo Kusumegi

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Computational Social Scientist and PhD Student in Information Science with expertise in network science, machine learning, and data-driven methods to study collective phenomena and innovation. Seeking to apply advanced analytical techniques to projects focused on **the broad impact of AI on scientific discovery and societal impact**

Education

Cornell University (Ithaca, NY), PhD program in Information Science — Aug. 2023 –
Advisor: Yian Yin
University of Tsukuba (Ibaraki, Japan), MSs in Policy and Planning Sciences — Apl. 2021 – Mar. 2023
University of Tsukuba (Ibaraki, Japan), B.S. in Policy and Planning Sciences — Apr. 2017 – Mar. 2021

Publications

¶ denotes equal contributions

1. **Kusumegi, K.,** ¶ Yang, X., ¶ Ginsparg, P., De Vaan, M., Stuart, T., Yin, Y. Scientific production in the era of large language models. *Science*, 390, 1240-1243 (2025) link
2. **Kusumegi, K.,** Yin, Y. The Specialization of interdisciplinary innovators in science and technology. (working paper)
3. **Kusumegi, K.,** Daniel E. A., Yukie S. Dissecting the Gender Divide: Authorship and Acknowledgment in Scientific Publications. (under review) link
4. **Kusumegi, K.**, Sano, Y. Dataset of identified scholars mentioned in acknowledgement statements. *Scientific Data* 9, 461 (2022). link
5. **Kusumegi K.**, Sano, Y. 2021. Citations and Gender Diversity in Reciprocal Acknowledgement Networks. Preprint at *arXiv:2104.01729* (2021). link

Research Experiences

Yin's Lab at Cornell University — Aug. 2023 – Current
Graduate Research Assistant — *Ithaca, NY*

- Quantified the influence of Large Language Models on scientific production using large-scale publication metadata analysis applying difference-in-differences framworks
- Developed a systematic approach to estimate AI usage in scientific articles and quantify its impact on writing styles and citation behavior
- Evaluated the application of AI across various scientific fields to acceleration in scientific discovery
- Explored the complex interaction between individual knowledge expertise and project alignment

Mentorships

- Supervised undergrad and master's student research projects, providing weekly guidance on methodology
- Provided technical assistance of coding and text analysis for Humanity PhD students at Summer Graduate Fellowship in Digital Humanities

Sano Lab at University of Tsukuba — Apr. 2021 – Jun. 2023
Graduate Research — *Ibaraki, Japan*

- Uncovered hidden academic collaboration networks by parsing contribution acknowledgments in scientific articles, providing a deeper understanding of team dynamics

Research Internships and Industrial Experiences

G-RIPS Jun. 2021 – Aug. 2021
Research internship *Sendai, Japan*

- Designed and implemented an optimization algorithm of wireless base station placement using topology and graph theory

OPTiM Corporation Sep. 2020 – Oct. 2020
Research internship *Tokyo, Japan*

- Developed CNN-based multi-object detection model for industrial quality control

MARK Creative Jan. 2019 – Jul. 2023
Software engineer *Ibaraki, Japan*

- Designed and implemented graph database and its API for data analysis and system optimizations

Awards

- Funai Overseas Scholarship ($120K) *2023*
- QUAD Fellowship ($50K) *2023*
- University of Tsukuba President's Commendation *2023*
- Tsukuba Graduate Study Scholarship *2023*
- Nakagawa Ikueikai Scholarship *2021*
- Best Poster Award *2021*
- Scholarship from the Japan Society for The Promotion of Science *2018*

Technical skills

Python • Polars • FastAPI • SQL • BigQuery • S3 • PyTorch • Neo4j • LATEX • Docker • Git • Bash