

Kazuki Nakajima

Email: kazuibasou@gmail.com

Website: <https://kazuibasou.github.io>

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Professional Positions

- 10/2022–03/2023 Visiting Scholar
Department of Mathematics
State University of New York at Buffalo, USA
Host researcher: Prof. Naoki Masuda
- 10/2022–03/2023 Research Fellow (PD)
Japan Society for the Promotion of Science, at Tokyo Institute of Technology, Japan
Host researcher: Prof. Naoto Miyoshi
- 04/2021–09/2022 Research Fellow (DC2)
Japan Society for the Promotion of Science, at Tokyo Institute of Technology, Japan
Host researcher: Prof. Kazuyuki Shudo

Education

- 09/2022 Doctor of Science
Department of Mathematical and Computing Science
Tokyo Institute of Technology, Japan
Thesis title: Studies on Social Network Analysis: Sampling and Higher-order Interactions
Supervisors: Prof. Kazuyuki Shudo and Prof. Naoto Miyoshi
- 03/2020 Master of Science
Department of Mathematical and Computing Science
Tokyo Institute of Technology, Japan
Thesis title: Estimating Properties of Social Networks via Random Walk considering Private Nodes
Supervisor: Prof. Kazuyuki Shudo
- 03/2018 Bachelor of Science
Department of Information Sciences
Tokyo Institute of Technology, Japan
Supervisor: Prof. Kazuyuki Shudo
- 08/2021–04/2022 Academic year abroad
Department of Mathematics
State University of New York at Buffalo, USA
Host researcher: Prof. Naoki Masuda

Grants

- 04/2021–03/2023 Research Fellowships for Young Scientists
Japan Society for the Promotion of Science
Subject: Establishment of accurate analysis methods based on random walk sampling for social graphs
Amount: JPY 1,500,000
(Note: 73 accepted without interview out of 416 applicants. Originally in Japanese.)

Publications

Refereed Journal Papers

6. Kazuki Nakajima, Kazuyuki Shudo, Naoki Masuda.
Higher-order rich-club phenomenon in collaborative research grant networks.
Scientometrics. (2023).
DOI: <https://doi.org/10.1007/s11192-022-04621-1>
5. Kazuki Nakajima, Kazuyuki Shudo.
Random walk sampling in social networks involving private nodes.
ACM Transactions on Knowledge Discovery from Data. Vol. 17, Article No. 51 (2022).
DOI: <https://doi.org/10.1145/3561388>
4. Kazuki Nakajima, Kazuyuki Shudo, Naoki Masuda.
Randomizing hypergraphs preserving degree correlation and local clustering.
IEEE Transactions on Network Science and Engineering. Vol. 9, pp. 1139–1153 (2022).
DOI: <https://doi.org/10.1109/TNSE.2021.3133380>
3. Mei Fukuda, Kazuki Nakajima, Kazuyuki Shudo.
Estimating the Bot Population on Twitter via Random Walk Based Sampling.
IEEE Access. Vol. 10, pp. 17201–17211 (2022).
DOI: <https://doi.org/10.1109/ACCESS.2022.3149887>
2. Kazuki Nakajima, Kazuyuki Shudo.
Measurement Error of Network Clustering Coefficients Under Randomly Missing Nodes.
Scientific Reports. Vol. 11, Article No. 2815 (2021).
DOI: <https://doi.org/10.1038/s41598-021-82367-1>
1. Kazuki Nakajima, Kazuyuki Shudo.
Estimating High Betweenness Centrality Nodes via Random walk in Social Networks.
Journal of Information Processing. Vol. 28, pp. 436–444 (2020).
DOI: <https://doi.org/10.2197/ipsjjip.28.436>

Refereed Conference Papers

4. Rikuya Miyashita, Kazuki Nakajima, Mei Fukuda, Kazuyuki Shudo.
Randomizing Hypergraphs Preserving Two-mode Clustering Coefficient.
Proceedings of the 2023 IEEE International Conference on Big Data and Smart Computing (BigComp 2023).
pp. 316–317 (2023).
DOI: <https://doi.org/10.1109/BigComp57234.2023.00064>
(Note: Poster presentation)
3. Kazuki Nakajima, Kazuyuki Shudo.
Social Graph Restoration via Random Walk Sampling.
Proceedings of the 38th IEEE International Conference on Data Engineering (ICDE 2022). pp. 806–819
(2022).
DOI: <https://doi.org/10.1109/ICDE53745.2022.00065>
(Note: Out of 780 submissions, 27.1% of the papers were accepted.)
2. Kazuki Nakajima, Kazuyuki Shudo.
Estimating Properties of Social Networks via Random Walk considering Private Nodes.
Proceedings of the 26th ACM SIGKDD International Conference on Knowledge Discovery & Data Mining
(KDD 2020). pp. 720–730 (2020).
DOI: <https://doi.org/10.1145/3394486.3403116>
(Note: Out of 1,279 submissions, 17.0% of the papers were accepted.)
1. Kazuki Nakajima, Kenta Iwasaki, Toshiki Matsumura, Kazuyuki Shudo.
Estimating Top-k Betweenness Centrality Nodes in Online Social Networks.
Proceedings of the 11th IEEE International Conference on Social Computing and Networking (SocialCom
2018). pp. 1128–1135 (2018).
DOI: <https://doi.org/10.1109/BDC1oud.2018.00167>

Conference/Workshop Presentations (without refereed proceeding papers)

5. Kazuki Nakajima, Kazuyuki Shudo, Naoki Masuda.
Random Hypergraph Models Preserving Degree Correlation and Local Clustering.
The 11th International Conference on Complex Networks and Their Applications. November 2022.
(Note: Refereed, Oral presentation)
4. Kazuki Nakajima
Higher-order rich-club phenomenon in collaborative research grant networks.
Socioeconomic networks and network science workshop 2022. August 2022.
(Note: Oral presentation)
3. Kazuki Nakajima, Kazuyuki Shudo, Naoki Masuda.
Higher-order rich-club phenomenon in research funding.
The fifth Northeast Regional Conference on Complex Systems (NERCCS 2022). March 2022.
(Note: Refereed, Oral presentation)
2. Kazuki Nakajima, Kazuyuki Shudo, Naoki Masuda.
Configuration models for hypergraphs preserving local quantities of nodes and hyperedges.
The fourth Northeast Regional Conference on Complex Systems (NERCCS 2021). March 2021.
(Note: Refereed, Poster presentation)
1. Mei Fukuda, Kazuki Nakajima, Kazuyuki Shudo.
Comparison of Graph Generation Models focusing on Accuracy and Variation.
The 16th International Workshop on Mining and Learning with Graphs (MLG 2020) (in conjunction with KDD 2020 conference). August 2020.
(Note: Refereed, Oral presentation)

Professional Services

Organization of Workshops

2. Organizer (Coorganized with Naoki Masuda and Tomomi Kito),
Socioeconomic Networks and Network Science Workshop 2022.
Waseda University, Japan, Online, August 1–2, 2022.
1. Organizer (Coorganized with Naoki Masuda and Tomomi Kito),
Science of Innovation and Success Workshop 2021.
Waseda University, Japan (held also online due to COVID-19), August 2–3, 2021.

Referee for Peer-Reviewed Journals

ACM Transactions on Knowledge Discovery from Data; IEEE Transactions on Network Science and Engineering.

Work Experience

- 04/2020–03/2021 Research Assistant,
Department of Mathematical and Computing Science, Tokyo Institute of Technology, Japan.
- 01/2021 Teaching Assistant,
Department of Mathematical and Computing Science, Tokyo Institute of Technology, Japan.
- 12/2019 Teaching Assistant,
Department of Mathematical and Computing Science, Tokyo Institute of Technology, Japan.
- 12/2019 Teaching Assistant,
Department of Mathematical and Computing Science, Tokyo Institute of Technology, Japan.
- 12/2018 Teaching Assistant,
Department of Mathematical and Computing Science, Tokyo Institute of Technology, Japan.
- 08/2018 Teaching Assistant,
Department of Mathematical and Computing Science, Tokyo Institute of Technology, Japan.