Jun Yamamoto

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Education

Central European University (Vienna, Austria)
Department of Network and Data Science.
Doctor of Philosophy, Network Science, September 2023 - Present
GPA: 4.00/4.00 (as of April 24, 2024).
Supervisor: Assist. Prof. Dr. Márton Pósfai

Queen Mary University of London (London, UK)
School of Mathematical Sciences
Master of Science, Mathematics, September 2022 - September 2023
Grade: 96/100, distinction.

Dissertation: "**Modelling Higher-Order Network Dynamics in the Presence of Triadic Interactions**"
Supervisor: Prof. Dr. Ginestra Bianconi
  Investigated the model of node dynamics on networks with triadic interactions, in which a node can regulate positively/negatively the interaction between two other nodes. Showed that the triadic interactions result in nontrivial dependence of conditional correlation coefficients between the node states on the conditional variable and that the triadic interactions in real networks may be inferred from the conditional correlation coefficients.

Hokkaido University (Sapporo, Japan)
Department of Applied Science and Technology, School of Engineering.
Bachelor of Engineering, Applied Physics, April 2017 - March 2022
GPA: 4.18/4.30. Nitobe College Summa Cum Laude.

Dissertation: "**Bifractality of Fractal Scale-Free Networks**"
Supervisor: Prof. Dr. Kousuke Yakubo
  Investigated analytically and numerically the multifractal property of fractal scale-free networks (FSFNs) generated by deterministic hierarchical, stochastic hierarchical, and non-hierarchical models and showed that they are bifractal and that the two local fractal dimensions implied by bifractality correspond to two types of substructures, one near the infinitely high degree hubs and the other near finite degree nodes that are infinitely distant from the infinitely high degree hubs.

ETH Zürich (Zürich, Switzerland)
Department of Physics
Exchange Programme, September 2019 - May 2020
*Terminated before the end of the acedemic year due to the COVID-19 pandemic.

Employment

Fujitsu (Tokyo, Japan)
Data Scientist (Part Time), DX Large Data Platform Business Group
July 2022 - September 2022
  Analysed large-scale datasets of newspaper articles using natural language processing and network analysis. Quantified the trends of markets by employing the dynamic topic model and developed software that visualises the correlation between the trending topics/keywords and economic indices. Analysed the topology of collocation networks of keywords in the news articles and bipartite networks of keywords and newspaper articles. Developed a portfolio in which the collocation networks are visualised and used to recommend related news articles or keywords.

Publications	1. <u>Jun Yamamoto</u>, Kousuke Yakubo. "Bifractality of fractal scale-free networks", Phys. Rev. E 108, 024302 (2023). 2. Anthony Baptista, Marta Niedostatek, <u>Jun Yamamoto</u>, Ben MacArthur, Jürgen Kurths, Ruben Sanchez Garcia, Ginestra Bianconi. "Mining higher-order triadic interactions", arXiv:2404.14997 [nlin.AO] (2024).

Presentations

Oral:
1. <u>Jun Yamamoto</u> and Kousuke Yakubo. "The multifractality of scale-free networks," JPS 2021 Autumn Meeting, The Physical Society of Japan, September 20, 2021 (Online).
2. <u>Jun Yamamoto</u> and Kousuke Yakubo. "Bifractal property of stochastic scale-free networks," JPS 77th Annual Meeting, The Physical Society of Japan, March 15, 2022 (Online).
3. Gentaro Shimojo, <u>Jun Yamamoto</u>, and Kousuke Yakubo. "Anomalous diffusion with two spectral dimensions on a fractal scale-free network" JPS 2023 Autumn Meeting, The Physical Society of Japan, September 16, 2023 (Tohoku, Japan).

Poster:
1. <u>Jun Yamamoto</u> and Kousuke Yakubo. "Bifractality of scale-free networks," Network Science Seminar 2021 in Kanawaza, December 11–12, 2021. *Poster Award.*
2. <u>Jun Yamamoto</u>, Gentaro Shimojo, and Kousuke Yakubo. "Bifractal nature of fractal scale-free networks and its implications," Network Science Seminar 2022 in Kyoto, August 23–25, 2022.

Awards and Scholarships

Principal's Prize, Queen Mary University of London
Queen Mary University of London, November 2023
Awarded for outstanding academic achievements during my MSc studies.

Scholarship, Ito Foundation for International Education Exchange
September 2022 - September 2023
¥ 3,000,000 (tuition fee) + $ 2,000/month + flight fees

Dean's Award for Academic Achievement, Hokkaido University
School of Engineering, Hokkaido University, March 2022
Awarded to students with outstanding academic achievements at the School of Engineering. (one of the 14 recipients in 2022).

Scholarship, Japan Student Service Organisation
September 2019 - May 2020
¥ 80,000/month

Lane Memorial Award, Hokkaido University
Hokkaido University, July 2019
Awarded to the eight students with outstanding grades in English in the first and second years of undergraudate studies.

Nitobe Award, Hokkaido University
Hokkaido University, July 2018
Awarded to the best student at each school by GPA of the first year.

Teaching   **Teaching Assistant**, **Statistical Mechanics I**, Spring 2022, School of Engineering, Hokkaido University.

Teaching Assistant, **Applied Mathematics II**, Spring 2022, School of Engineering, Hokkaido University.

Teaching Assistant, **Computational Science**, Autumn 2021 / Spring 2022, Education and Research Centre for Mathematics and Data Sciences, Hokkaido University.

Teaching Assistant, **MDS/AI Seminar**, Spring 2021, Education and Research Centre for Mathematics and Data Sciences, Hokkaido University.

Research   **Japan Atomic Energy Agency**
Internships   Summer Research Intern, Centre for Computational Science and e-Systems
Project: Application of machine learning to accelerate molecular dynamics simulation
July 2020 - August 2020

Okinawa Institute of Science and Technology
Research Intern, Quantum Wave Microscopy Unit
Project: Observation of protein nanocrystals using diffraction electron microscope
February 2018 - March 2018

Languages   Japanese (native), English (advanced; IELTS 8.0)
and Skills   Python, C++, Mathematica, Julia, Fortran, LaTeX, Linux, GitHub