

Jun Yamamoto

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EDUCATION

Central European University, Vienna, Austria Sep. 2023 | Current
Doctor of Philosophy in Network Science GPA: 4.00/4.00
Thesis Title: “*Toward a general theory for physical networks dynamics*” (tentative)
Supervisor: Prof. Dr. Márton Pósfai

Queen Mary University of London, London, United Kingdom Sep. 2022 | Sep. 2023
Master of Science in Mathematics Mark: Distinction
Thesis Title: “*Modelling Higher-Order Network Dynamics in the Presence of Triadic Interactions*”
Supervisor: Prof. Dr. Ginestra Bianconi

Hokkaido University, Sapporo, Japan Apr. 2017 | Mar. 2022
Bachelor of Engineering in Applied Science and Engineering GPA: 4.18/4.30
Thesis Title: “*Bifractality of Fractal Scale-Free Networks*”
Supervisor: Retired Prof. Dr. Kousuke Yakubo

PUBLICATION

1. **J. Yamamoto**, I. Bonamassa, & M. Pósfai “Localization-delocalization transition in physical networks.” In preparation.
2. M. Niedostatek, A. Baptista, **J. Yamamoto**, J. Kurths, R. Sanchez Garcia, B. MacArthur, and G. Bianconi “Mining higher-order triadic interactions.” arXiv preprint arXiv:2404.14997. DOI: 10.48550/arXiv.2404.14997. Under revision.
3. K. Yakubo, G. Shimojo, & **J. Yamamoto** “Random walks on bifractal networks.” Physical Review E 110, 064318 (2024). DOI: 10.1103/PhysRevE.110.064318.
4. **J. Yamamoto** & K. Yakubo “Bifractality of fractal scale-free networks.” Physical Review E 108, 024302 (2023). DOI: 10.1103/PhysRevE.108.024302.

PRESENTATION

ORAL

*Presenter is underlined.

1. **J. Yamamoto**, I. Bonamassa, and M. Pósfai “Localization-delocalization transition in physical networks.” The 29th International Conference on Statistical Physics (StatPhys29; Florence), July 14, 2025.
2. **J. Yamamoto**, I. Bonamassa, and M. Pósfai “Delocalization of Physical Laplacian Eigenvectors due to Degree-Volume Correlation.” The International School and Conference on Network Science (NetSci2025; Maastricht), June 4, 2025.
3. M. Niedostatek, A. Baptista, **J. Yamamoto**, B. MacArthur, J. Kurths, R. Sanchez-Garcia, G. Bianconi “Mining higher-order triadic interactions in gene-expression data” The International School and Conference on Network Science (NetSci2025; Maastricht), June 4, 2025.
4. **J. Yamamoto**, I. Bonamassa, and M. Pósfai “Reentrant localization in physical Laplacian eigenvectors” DYNASNET workshop on graphs, networks, and brains, May 13, 2025 (Budapest, Hungary).
5. **J. Yamamoto**, I. Bonamassa, and M. Pósfai “Laplacian Spectra and Angular Constraints in Physical Networks” Annual DYNASNET Meeting, October 16, 2024 (Valtice, Czech).
6. G. Shimojo, **J. Yamamoto**, and K. 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).
7. **J. Yamamoto** and K. Yakubo “Bifractal property of stochastic scale-free networks,” JPS 77th Annual Meeting, The Physical Society of Japan, March 15, 2022 (Online).
8. **J. Yamamoto** and K. Yakubo “The multifractality of scale-free networks,” JPS 2021 Autumn Meeting, The Physical Society of Japan, September 20, 2021 (Online).

POSTER

1. K. Yakubo and **J. Yamamoto**. “Bifractal property of scale-free networks,” The International School and Conference on Network Science (NetSci2024; Québec), June 15–21, 2024.
2. **J. Yamamoto**, G. Shimojo, and K. Yakubo “Bifractal nature of fractal scale-free networks and its implications,” Network Science Seminar 2022 (Kyoto), August 23–25, 2022.

3. **J. Yamamoto** and K. Yakubo “Bifractality of scale-free networks,” Network Science Seminar 2021 (Kanawaza), December 11–12, 2021. *Poster Award*.

PROFESSIONAL SERVICE

Review Activity

- **Nature Communication** Since 2025.
- **Transactions of the Japanese Society for Artificial Intelligence** Since 2025.

Organization

- **Organizer, Physical Networks III Satellite** Dec. 2024 | Jun. 2025
The International School and Conference on Network Science (NetSci2025) Maastricht, Netherland
- **Organizer, Data Stories 11th Edition** Nov. 2024 | May 2025
Department of Network and Data Science, Central European University Vienna, Austria

TEACHING

Central European University

- **Scientific Python**, Department of Network and Data Science Fall AY2025/26
- **Introduction to Linear Algebra**, Undergraduate Program Winter AY2024/25

Hokkaido University

- **Statistical Mechanics I**, School of Engineering Spring AY2022/23
- **Applied Mathematics II**, School of Engineering Spring AY2022/23
- **Computational Science**, Education and Research Centre for Mathematics and Data Sciences Spring AY2022/23
- **Introduction to Statistics** (As a part of Mathematics and Data Science/AI Seminar Series), Education and Research Centre for Mathematics and Data Sciences Fall AY2021/22
Spring AY2021/2022

AWARD & SCHOLARSHIP

First-Year PhD Award, Central European University Vienna, Austria
Awarded for outstanding coursework and performance during the comprehensive exam. Feb. 2025

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

ITO Scholarship Award for Japanese Students, ITO Foundation for International Education Exchange Tokyo, Japan
Awarded ¥3,000,000 tuition fee & \$2,000/month stipend for Japanese students studying master's degree abroad. Sep. 2022 | Sep. 2023

Dean's Award for Academic Achievement, School of Engineering, Hokkaido University Sapporo, Japan
Awarded to students with outstanding academic achievements at the School of Engineering. Mar. 2022

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

Scholarship for Study Abroad under Agreement, Japan Student Service Organization Tokyo, Japan
Awarded ¥80,000/month for the duration of the exchange programme. Sep. 2019 | May 2020

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

PROFESSIONAL EXPERIENCE

Fujitsu, DX Large Data Platform Business Group

Data Scientist

Tokyo, Japan

Jul 2022 | Sep 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.

INTERNSHIP

Japan Atomic Energy Agency

Summer Research Intern

Kashiwa, Japan

Jul 2020 | Aug 2020

- Implement the self-learning hybrid Monte Carlo method to accelerate molecular dynamics.
- Simulate titanium dioxide using the self-learning hybrid Monte Carlo method to validate the method.

Okinawa Institute of Science and Technology

Research Intern

Onna, Japan

Feb 2018 | Mar 2018

- Operate scanning electron microscope (SEM), environmental transmission electron microscope (ETEM), and focused ion beam (FIB).
- Construct a vacuum system and test cold field emitters in the system.
- Prepare samples of gold particles and carbon nanotubes for experiments.

WORKSHOP & SCHOOL

- **IceLab Camp** (Umeå, Sweden) 23 | 26 Sep 2025
- **Workshop on Graphs, Networks, and Brains** (Budapest, Hungary) 12 | 13 May 2025
- **Winter Workshop on Complex Systems** (Lambordy, Italy) 26 | 31 Jan 2025
- **Annual DYNASNET Meeting 2024** (Valtice, Czech) 14 | 18 Oct 2024

MEMBERSHIP

- **The Physical Society of Japan** Since Nov 2020.
- **Austrian Physical Society** Since Mar 2024.

SKILL

- **Language:** Japanese (native); English (fluent); German (beginner)
- **Programming:** Python; C++; Julia; Fortran
- **Software:** Linux; Git; L^AT_EX; Mathematica