Sho Kuno

Machine Learning Researcher & Algorithm Engineer

Japanese (Native), English (TOEFL iBT 103, IELTS 7.5)

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Education

- **M.S. Mathematical Informatics** 2024–2026 (Expected)
  University of Tokyo, Graduate School of Information Science and Technology
  WINGS-IIW Fellowship recipient
- **B.S. Mathematical Engineering and Information Physics** 2019–2024
  University of Tokyo, Faculty of Engineering
- **Exchange Student** Sep 2021–Sep 2022
  ETH Zurich, Department of Mathematics
  Full academic year exchange (USTEP program)

Research Experience

- **Undergraduate Research** Sep 2023–Mar 2024
  Mathematical Informatics Lab No.8, University of Tokyo
  Supervisor: Prof. Hiroshi Kori
  - Developed reservoir computing models for forecasting forced van der Pol oscillators with phase shifts to the external drive
  - Published in *Machine Learning with Applications* [1] and presented at the Physical Society of Japan annual meeting [3].
- **Graduate Research** Apr 2024–Present
  Mathematical Informatics Lab No.3, University of Tokyo
  Supervisor: Prof. Kengo Nakajima
  - Designing latent flow matching frameworks for graph generation; benchmarking diffusion-based architectures on Wisteria/BDEC-01.
- **Research Assistant** Feb 2021–Mar 2021
  Dr. John Pazdziora
  - Conducted archival research on 19th-century English literature and produced annotated bibliographies supporting grant proposals.

Professional Experience

- **Algorithm Engineer & Machine Learning Researcher** Mar 2024–Present
  EQUES Inc. (University of Tokyo spin-off)
  - Enrolled in the METI/NEDO GENIAC consortium, researching and prototyping generative AI models for 2D line-art animation inbetweening.
  - Extended AnimeInbet (ICCV 2023) to support color/Diffusion features pipelines via graph-based vertex matching; co-authored SIGGRAPH 2025 poster submission.
  - Presented research outcomes at Visual Computing 2025 [4].
- **Data Science Intern** Dec 2024
  GMO Town WiFi Inc.
  - Applied BERTopic to cluster thousands of app store reviews.
  - Delivered dashboard summaries in the internal analytics workspace, enabling weekly sentiment tracking for leadership.

- **Machine Learning Intern** Sep 2024
  GMO Internet Group
  - Prototyped an e-commerce site recommendation system using LightGBM-based ranking models and feature pipelines during a 10-day internship, benchmarking against user logs.

Publications & Presentations

[1] Sho Kuno and Hiroshi Kori. "Forecasting the forced van der Pol equation with frequent phase shifts using Reservoir Computing." *Machine Learning with Applications*, vol. 19, p. 100654, 2025. DOI: 10.1016/j.mlwa.2025.100654

[2] Ryugo Morita, Sho Kuno, Ryunosuke Tanaka, Rongzhi Li, Hoang Dai Dinh, and Issey Sukeda. "SAWNA: Space-Aware Text to Image Generation." SIGGRAPH 2025 Posters. DOI: 10.1145/3721250.3743023

[3] Sho Kuno and Hiroshi Kori. "Time Series Prediction of Shift Work-Simulated Forced Oscillators using Reservoir Computer." 79th Annual Meeting of the Physical Society of Japan, Hokkaido University, September 16–19, 2024. **Oral** presentation.

[4] Sho Kuno, Ryugo Morita, Ryunosuke Tanaka, Rongzhi Li, Hoang Dai Dinh, and Issey Sukeda. "CAGI: Color-Informed Anime Graph Inbetweening." Poster presented at Visual Computing 2025, Waseda University, September 7–10, 2025. **Poster** presentation.

Scholarships

- **WINGS-IIW Fellowship:** ¥180,000/month for 3.5 years starting Fall 2025
- **Toyota Riken Scholarship:** ¥1,000,000 for overseas graduate school preparation (1 year)

Teaching Assistantships

- **Machine Learning & Optimization:** University of Tokyo Extension, Aug 2025 – Present

Technical Skills

- **Programming:** Python (5+ yrs), Rust (hands-on), C, MATLAB
- **Generative AI:** PyTorch, Diffusion & Flow Matching, Graph ML, Transformers, Hugging Face
- **Data & Tooling:** Pandas, NumPy, Matplotlib, BERTopic, Wisteria/BDEC-01 HPC, Microsoft Azure, Docker, Singularity, Git, ComfyUI, Streamlit