

Hiroki Furuta

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EDUCATION

The University of Tokyo

Tokyo, Japan

Ph.D. Student

April 2022 - (March 2025)

- Department of Technology Management for Innovation, Graduate School of Engineering
- Supervisor: [Yutaka Matsuo](#) (Chairperson, AI Strategy Council, Cabinet Office, Japan)
- Research Topic: Web Navigation with Large Language Models, Foundation Models for Decision Making

Master of Engineering

April 2020 - March 2022

- Department of Technology Management for Innovation, Graduate School of Engineering
- Supervisor: [Yutaka Matsuo](#), Advisor (Adjunct Professor): [Shixiang Shane Gu](#)
- Research Topic: Deep Reinforcement Learning for Continuous Control, Data-Centric View of Deep Reinforcement Learning
- Coursework: Statistical Machine Learning, Deep Learning, Artificial Intelligence, Advanced Programming Techniques, Internet Engineering, Biosignal Processing, etc. (GPA: 3.9)
- **Dean's Award**, from Graduate School of Engineering (2022)

Bachelor of Engineering

April 2016 - March 2020

- Department of Systems Innovation, School of Engineering
- Research Topic: Application of Machine Learning for Space Exploration Research, Object Detection for Planetary Science Images
- Coursework: Statistical Machine Learning, Artificial Intelligence, Image Processing, Applied Statistics, Data Mining, Algorithms and Data Structures, Mathematical Programming and Optimization, Probability theory, Human Interface Engineering, Multi-Agent System, System Control Theory, Complex Theory, etc.

EMPLOYMENT

Google DeepMind

July 2022 – (March 2025)

Student Researcher Program

Tokyo, Japan

- Research Topic: Real-World Web Navigation with Large Language Models. Multimodal Web Navigation.
- Hosts: [Heiga Zen](#), [Izzeddin Gur](#), Main Collaborators: [Kuang-Huei Lee](#), [Sherry Yang](#), [Aleksandra Faust](#), [Shixiang Shane Gu](#), etc.

Matsuo Institute, Inc.

September 2019 – March 2022

Part-time Researcher

Tokyo, Japan

- Research Topic: Reinforcement and Imitation Learning for Robotics. Object Detection for Autonomous Driving.

NABLAS Inc.

August 2018 – March 2019

Research Intern

Tokyo, Japan

- Research Topic: Probabilistic Generative Models for Anomaly Detection of Chemistry Industrial Process.

SELECTED PUBLICATION

Conference Publications

- [Hiroki Furuta](#), [Kuang-Huei Lee](#), [Shixiang Shane Gu](#), [Yutaka Matsuo](#), [Aleksandra Faust](#), [Heiga Zen](#), [Izzeddin Gur](#). [Geometric-Averaged Preference Optimization for Soft Preference Labels](#). **NeurIPS 2024**.
- [Kuang-Huei Lee](#), [Xinyun Chen](#), [Hiroki Furuta](#), [John Canny](#), [Ian Fischer](#). [A Human-Inspired Reading Agent with Gist Memory of Very Long Contexts](#). **ICML 2024**.
- [Izzeddin Gur*](#), [Hiroki Furuta*](#), [Austin Huang](#), [Mustafa Safdari](#), [Yutaka Matsuo](#), [Douglas Eck](#), [Aleksandra Faust](#). (*Equal Contribution). [A Real-World WebAgent with Planning, Long Context Understanding, and Program Synthesis](#). **ICLR 2024 (Oral)**
- [Hiroki Furuta](#), [Kuang-Huei Lee](#), [Ofir Nachum](#), [Yutaka Matsuo](#), [Aleksandra Faust](#), [Shixiang Shane Gu](#), [Izzeddin Gur](#). [Multimodal Web Navigation with Instruction-Finetuned Foundation Models](#). **ICLR 2024**. (Also accepted to ICLR 2023 Workshop on Multimodal Representation Learning as **Spotlight**, [Project Page](#))

- Open X-Embodiment Collaboration, et al (One of 170+ authors). Open X-Embodiment: Robotic Learning Datasets and RT-X Models. **ICRA 2024 (Best Conference Paper Award)**. ([Project Page](#))
- [Hiroki Furuta](#), Yusuke Iwasawa, Yutaka Matsuo, Shixiang Shane Gu. [A System for Morphology-Task Generalization via Unified Representation and Behavior Distillation](#). **ICLR 2023 (Spotlight)**. (Also accepted to NeurIPS 2022 Offline Reinforcement Learning Workshop as **Contributed Talk**, [Project Page](#))
- [Hiroki Furuta](#), Yutaka Matsuo, Shixiang Shane Gu. [Generalized Decision Transformer for Offline Hindsight Information Matching](#). **ICLR 2022 (Spotlight)**. ([Project Page](#))
- [Hiroki Furuta](#), Tadashi Kozuno, Tatsuya Matsushima, Yutaka Matsuo, Shixiang Shane Gu. [Co-Adaptation of Algorithmic and Implementational Innovations in Inference-based Deep Reinforcement Learning](#). **NeurIPS 2021**.
- [Hiroki Furuta](#), Tatsuya Matsushima, Tadashi Kozuno, Yutaka Matsuo, Sergey Levine, Ofir Nachum, Shixiang Shane Gu. [Policy Information Capacity: Information-Theoretic Measure for Task Complexity in Deep Reinforcement Learning](#). **ICML 2021**. (Also accepted to ICLR 2021 Workshop on Never-Ending RL as **Contributed Talk**)
- Tatsuya Matsushima*, [Hiroki Furuta](#)*, Yutaka Matsuo, Ofir Nachum, Shixiang Gu (*Equal Contribution). [Deployment-Efficient Reinforcement Learning via Model-Based Offline Optimization](#). **ICLR 2021**.

Journal Publications

- [Hiroki Furuta](#), Gouki Minegishi, Yusuke Iwasawa, Yutaka Matsuo. [Towards Empirical Interpretation of Internal Circuits and Properties in Grokked Transformers on Modular Polynomials](#). **TMLR**, 2024. (Also accepted to ICLR 2024 Workshop Bridging the Gap Between Practice and Theory in Deep Learning as **Oral**).

Preprints

- [Hiroki Furuta](#), Yutaka Matsuo, Aleksandra Faust, Izzeddin Gur. [Exposing Limitations of Language Model Agents in Sequential-Task Compositions on the Web](#). ICLR 2024 Workshop on Large Language Model (LLM) Agents.

ACADEMIC ACTIVITIES

- Co-organizer for [Ecological Theory of RL Workshop](#) at NeurIPS 2021.
- Reviewer for International Conference on Learning Representations (ICLR), 2022[†], 2023, 2024, 2025.
- Reviewer for Neural Information Processing Systems (NeurIPS), 2021, 2022[†], 2023[†], 2024.
- Reviewer for International Conference on Machine Learning (ICML), 2021, 2022, 2023, 2024.
- Reviewer for Transactions on Machine Learning Research (TMLR).
- Reviewer for Advanced Robotics (AR).
- Program Committee for [Foundation Models for Decision Making Workshop](#) at NeurIPS 2022, 2023, 2024.

[†]Highlighted as **Top Reviewer**

AWARDS AND HONOURS

- **Forbes JAPAN 30 UNDER 30 2023**, Forbes JAPAN, 2023
- **The Japan Society for the Promotion of Science Research Fellow (DC1)**, April 2022 - March 2025 (2,400,000 JPY + research grants 1,100,000 JPY per year).
- **Toyota/Dwango Scholarship for Advanced Artificial Intelligence Researcher**, April 2021 - March 2022 (1,200,000 JPY).
- **Dean's Award** (Research), from Graduate School of Engineering, The University of Tokyo, 2022.
- **Specially Selected Bachelor Thesis Award**, from Department of Systems Innovation, School of Engineering, The University of Tokyo, 2020. "Automated Identification of Gravel Particles in High-Resolution Images of Asteroids using Convolutional Neural Networks".
- **Specially Selected Student Award**, Global Consumer Intelligence Endowed Chair, The University of Tokyo, 2018.

TECHNICAL SKILLS

Languages: Python (Expert), MATLAB (Proficient), JavaScript (Proficient), ROS (Proficient), C (Proficient), R (Familiar), Java (Familiar)

Frameworks: JAX (Expert), TensorFlow (Expert), PyTorch (Expert), NumPy (Expert)

TEACHING

World Models Endowed Course

Winter 2023

Lecturer

Tokyo, Japan

- Held in Winter 2023 at The University of Tokyo (about 300 students).
- Giving lectures about Transformer, Foundation Models and Large Language Models.

Deep Reinforcement Learning Course

Summer 2020 – Spring 2023

Organizer, Lecturer and Teaching Assistant

Tokyo, Japan

- Held in Summer 2020, Spring 2021, Fall 2021, and Spring 2023 at The University of Tokyo (about 150 students per course).
- Giving lectures about Imitation Learning, Offline Reinforcement Learning, Unsupervised (Reward-Free) Reinforcement Learning, and Foundation Models.

OTHERS

- Extensive experience in international collaborative research conducted remotely for over 5 years (Google Brain, Google DeepMind, University of Alberta, University of Toronto, UC Berkeley, etc).