

# Masahiro NEGISHI

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## Education

### The University of Tokyo

Tokyo, Japan

#### MASTER OF INFORMATION SCIENCE AND TECHNOLOGY

Apr. 2023 - Mar. 2025

- GPA: 4.00/4.00
- Courses: Advanced Data Analysis, Information-Theoretic Learning Theory, Natural Language Processing, etc.

### The Vienna University of Technology

Vienna, Austria

#### RESEARCH EXCHANGE STUDENT

Mar. 2024 - Jul. 2024

- Grade: 1 (excellent), the highest rating on a 5-point scale
- Course: Project in Computer Science

### The University of Tokyo

Tokyo, Japan

#### BACHELOR OF SCIENCE IN INFORMATION SCIENCE

Apr. 2019 - Mar. 2023

- GPA: 3.85/4.00 (the top of 39 students in the department)
- Courses: Statistical Machine Learning, Statistics and Optimization, Discrete Mathematics, etc.

## Research Experience

### The University of Tokyo

Tokyo, Japan

#### BACHELOR'S AND MASTER'S THESES RESEARCH, UNDER PROF. MASASHI SUGIYAMA

Oct. 2022 - Mar. 2025

- (Bachelor): Thesis: "Pairwise-constraint classification in weakly supervised machine learning: Risk-consistent approach and classifier-consistent approach"
- (Master): Thesis: "Weakly Supervised Disentanglement from Distance-based Supervision"

### King Abdullah University of Science and Technology

Thuwal, Saudi Arabia

#### VISITING STUDENT RESEARCHER, UNDER PROF. DI WANG

Sep. 2024 - Feb. 2025

- Developing a generative model for sampling highly symmetric and physically/chemically valid crystals
- Gaining experience in evaluating generated crystals with first-principles calculations

### Vienna University of Technology

Vienna, Austria

#### RESEARCH EXCHANGE STUDENT, UNDER PROF. THOMAS GÄRTNER

Feb. 2024 - Jul. 2024

- Investigated metric properties of the distance between embeddings of graph neural networks
- Identified fragments of molecules that graph neural networks consider important for prediction

### OMRON SINIC X Corporation

Tokyo, Japan

#### RESEARCH INTERNSHIP

Nov. 2023 - Feb. 2024, Aug. 2024

- Developed a coefficient estimation algorithm for symbolic regression for scientific discovery
- Achieved a success rate of 58% on complex physics dataset, which is 33% higher than existing methods

### Matsuo Institute, Inc

Tokyo, Japan

#### RESEARCH INTERNSHIP

Oct. 2022 - Aug. 2023

- Verified the scaling law of generative models for autonomous driving and robotics
- Acquired experience in distributed training of up to a billion parameter models using deepspeed

## Awards & Scholarships

### President's PhD Scholarships

London, United Kingdom

#### IMPERIAL COLLEGE LONDON

Oct. 2025 - Mar. 2029

- Full funding of tuition fees and a stipend for 3.5 years
- A consumables fund for 3 years

## Funai Overseas Scholarship for postgraduate studies abroad

THE FUNAI FOUNDATION FOR INFORMATION TECHNOLOGY

- A living allowance for 3 years and full medical coverage

Tokyo, Japan

Oct. 2025 - Sep. 2028

## Scholarship for exchange programs

JAPAN STUDENT SERVICES ORGANIZATION

- A stipend for 6 months, plus airfare

Tokyo, Japan

Feb. 2024 - Jul. 2024

## Honorable mention

FACULTY OF INFORMATION SCIENCE, SCHOOL OF SCIENCE

- Ranked 1st in the department (38 students) based on the overall evaluation of my thesis and coursework

Tokyo, Japan

Mar. 2023

## 7th place in global hackathon on privacy-preserving machine learning

UNITED NATIONS PRIVACY ENHANCING TECHNOLOGIES LAB

- Ranked 7th among student teams, and 11th among all teams

Virtual

Nov. 2022

## Publications

### DOMESTIC

**Masahiro NEGISHI**, Makoto SATO, Ryosuke UNNO, Koudai TABATA, Taiju WATANABE, Junnosuke KAMOHARA, Taiga KUME, Ryo OKADA, Yusuke IWASAWA, and Yutaka MATSUO. Scaling Laws of Dataset Size for VideoGPT. Proceedings of the Annual Conference of JSAI, 2023, Volume JSAI2023, 37th (2023), Pages 2G6OS21f05.

Koudai TABATA, Junnosuke KAMOHARA, Ryosuke UNNO, Makoto SATO, Taiju WATANABE, Taiga KUME, **Masahiro NEGISHI**, Ryo OKADA, Yusuke IWASAWA, and Yutaka MATSUO. Construction and Validation of Action-Conditioned VideoGPT. Proceedings of the Annual Conference of JSAI, 2023, Volume JSAI2023, 37th (2023), Pages 1G4OS21a02.

Makoto SATO, Ryosuke UNNO, **Masahiro NEGISHI**, Koudai TABATA, Taiju WATANABE, Junnosuke KAMOHARA, Taiga KUME, Ryo OKADA, Yusuke IWASAWA, and Yutaka MATSUO. Scaling Laws of Model Size for World Models. Proceedings of the Annual Conference of JSAI, 2023, Volume JSAI2023, 37th (2023), Pages 2G5OS21e02.

### INTERNATIONAL

**Masahiro NEGISHI**, Yoshitomo MATSUBARA, Naoya CHIBA, Ryo IGARASHI, Yoshitaka USHIKU. Two-Stage Coefficient Estimation in Symbolic Regression for Scientific Discovery. Machine Learning and the Physical Sciences @ NeurIPS 2024 workshop

**Masahiro NEGISHI**, Pascal WELKE, Thomas GÄRTNER. WILting Trees: Interpreting the Distance Between MPNN Embeddings. (Notice of acceptance will be given on May 1, 2025.)

## Oral Presentation

The 37th Annual Conference of the Japanese Society for Artificial Intelligence, Kumamoto, Japan, 2023. "Scaling Laws of Dataset Size for VideoGPT", 20 minutes

## Skills

Machine Learning	Graph Neural Networks, Explainable AI, Generative Models, Weakly Supervised Learning
Programming	Python(PyTorch, PyTorch Geometric, pymatgen, etc), C++, Wandb, Docker, GitHub, HTML, JavaScript
Language	Japanese(Native), English(TOEFLiBT 104, C1), Mandarin(Beginner)

## Extracurricular Activity

### Educational workshop on responsible AI for peace and security

UNITED NATIONS AND STOCKHOLM INTERNATIONAL PEACE RESEARCH INSTITUTE

- Learned about what AI risks are and how to mitigate them with responsible research and innovation
- Discussed with selected Master's and Ph.D. students from around the world

Malmö, Sweden

Nov. 2023