Makoto Sato

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Education

The University of Tokyo   *2024-Present*

GRADUATE SCHOOL OF ENGINEERING / DEPARTMENT OF TECHNOLOGY MANAGEMENT FOR INNOVATION   *Tokyo*

Scalable Imitation Learning and Test-Time Scaling for Robot Foundation Models (Matsuo-Iwasawa Lab)

Nara Institute of Science and Technology (NAIST)   *2022-2024*

GRADUATE SCHOOL OF ADVANCED SCIENCE AND TECHNOLOGY / INFORMATION SCIENCE   GPA: 3.20/4.0   *Nara*

Task And Motion Planning for Contact-Rich Manipulation (Robot Learning Lab)

Saitama University   *2018-2022*

FACULTY OF ENGINEERING / DEPARTMENT OF MECHANICAL ENGINEERING AND SYSTEM DESIGN,   GPA: 3.30/4.0   *Saitama*

Object Identification Using Visual and Surface-Tracing Vibration Signals (Design Lab)

Experience

Research
- **Sakana AI, Inc. (2025-Present)**
- **AI Robot Association (AIRoA) (2025-2026)**
- **Matsuo Institute, Inc. (2020-2025)**
- **National Institute of Advanced Industrial Science and Technology (AIST) (2020-2020)**

Teaching
- **Physical AI Spring Seminar**: Kinematics, AI Models
- **Deep RL Spring Seminar**: Model-Based Reinforcement Learning and World Models
- **World Model Course**: Simulation and Computer Graphics

Working
- **Sony Semiconductor Solutions Corporation, Full-time (2024-2024)**

Publications

Recent Working Drafts
- "SAIL: Test-Time Scaling for In-Context Imitation Learning with VLM"
    - **Makoto Sato**, Yusuke Iwasawa, Yujin Tang, So Kuroki **Arxiv 2026**

Domestic Conference Papers
- "Imitation Learning with Mid-Level Representations for Object Rearrangement"
    - **Makoto Sato**, Ryosuke Unno, Hiroki Furuta, Tatsuya Matsushima, Ryo Okada, Pavel Savkin, Genki Sano, Yutaka Matsuo, **JSAI2022**
- "Scaling Laws of Model Size for World Models"
    - **Makoto Sato**, Ryosuke Unno, Masahiro Negishi, Koudai Tabata, Taiju Watanabe, Junnosuke Kamohara, Taiga Kume, Ryo Okada, Yusuke Iwasawa, Yutaka Matsuo, **JSAI2023**
- "Scaling Laws of Dataset Size for VideoGPT"
    - Masahiro Negishi, **Makoto Sato**, Ryosuke Unno, Koudai Tabata, Taiju Watanabe, Junnosuke Kamohara, Taiga Kume, Ryo Okada, Yusuke Iwasawa, Yutaka Matsuo, **JSAI2023**
- "Construction and Validation of Action-Conditioned VideoGPT"
    - Koudai Tabata, Junnosuke Kamohara, Ryosuke Unno, **Makoto Sato**, Koshi Makihara, Ryo Okada, Yusuke Iwasawa, Yutaka Matsuo, **JSAI2023**
- "Task And Motion Planning Using Residual Reinforcement Learning For Long-Horizon Precise Object Manipulation Task"
    - **Makoto Sato**, Yuhwan Kwon, Yoshihisa Tsurumine, Takamitsu Matsubara, **SCI2024**

Projects

Exploratory Task And Motion Planning Using Uncertainty-Aware VLM   *2025-2026*
- A Study on Uncertainty-Aware VLM for Generating Exploratory Subgoals with Task And Motion Planning

Large-Scale Demonstration Generation for VLA via Generative Simulation   *2024-2025*
- A Study on a Data Generation Framework for Autonomous Robot Foundation Model Training using Generative Models
- Generated datasets here!

Large-Scale Imitation Learning for Bimanual Dexterous Manipulation   *2024-2025*
- A Study of Large-Scale Imitation Learning for Humanoid Robots using Data Augmentation in Simulated Environments.

Reinforcement Learning and Semantic Mapping for Autonomous Drone Navigation *2025-2025*

- A Study on Semantic Mapping Using Visual Foundation Models in Simulation Environments.

Policy Optimization on Differentiable Simulation *2024-2025*

- A Study of Large-Scale Imitation Learning for Humanoid Robots using Data Augmentation in Simulated Environments.

Long-Horizon Manipulation with Task and Motion Planning *2022-2023*

- A Study of Robot Motion Planning using Task and Motion Planning for Long-Horizon Tasks.

Large-Scale World Models *2022-2023*

- A Study of Scaling Laws for Large-Scale World Models.

Legged Locomotion via Reinforcement Learning *2022*

- A Study on Learning Locomotion by Sim2Real Reinforcement Learning for Quadruped Robots.

Multimodal Object Identification *2022*

- A Study of Object Localization using Multimodal Image and Tactile Information.

Vision-based Imitation Learning *2020-2022*

- A Study of Learning Object Manipulation using Image-Based Imitation Learning in Clutter Environment.
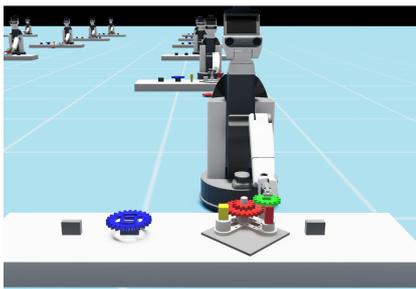
Skills

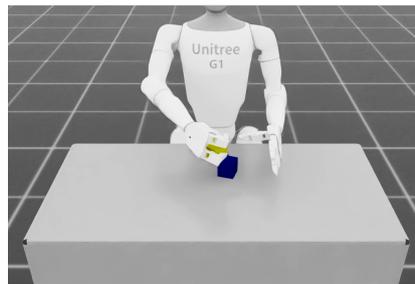|	
Knowledge	Task And Motion Planning (TAMP), Physics Simulator, Imitation Learning, Reinforcement Learning, Foundation Models
Languages	Python, C++
Frameworks	PyTorch, Tensorflow, Warp, ROS, Docker
Simulators	Isaac Sim, Newton, PyBullet, MuJoCo, SAPIEN, Gazebo, CARLA

Gallery

(a) Contact-Rich Manipulation using TAMP and Residual RL

(b) Ego-Centric Image Imitation Learning
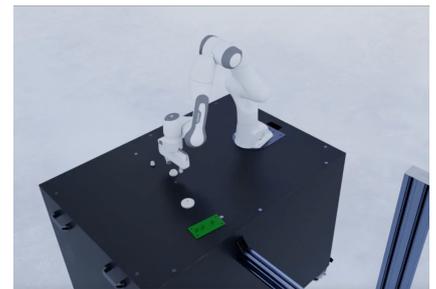
(c) Long-Horizon Manipulation using LLM Planning

(d) YCB Sorting using Code as Policies

(e) Block Stacking with PDDLStream

(f) Dexterous Bimanual Manipulation in Kitchen