STEVEN OH

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EDUCATION

Waseda University Sep. 2022 – Sep. 2026 (expected)

- Bachelor of Engineering in Mechanical Engineering — GPA: 3.95/4.00
- Relevant courseworks: Control Systems, Modeling and Analysis of Dynamic Systems, Mechatronics, Mechatronics Laboratory Advanced, Mechatronics Laboratory Fundamentals, Statics, Kinematics and Dynamics of Mechanisms

PUBLICATIONS

[1] K. Yamane, C. C. Beltran-Hernandez, **S. Oh**, M. Hamaya, S. Sakaino. "Refinement of Accelerated Demonstrations via Incremental Iterative Reference Learning Control for Fast Contact-Rich Imitation Learning". **(Under review at ICRA 2026)** Paper

[2] **S. Oh***, T. Takahashi*, C. C. Beltran-Hernandez, Y. Kuroda, M. Hamaya. "A Soft Wrist with Anisotropic and Selective Stiffness for Robust Learning in Contact-rich Manipulation". **(Under review at RAL)** Paper Website

[3] **S. Oh***, Q. Cong*, W. Fan*, S. Luo, K. Althoefer, D. Zhang. "TacEva: A Performance Evaluation Framework for Vision-Based Tactile Sensors". **(Under review at Advanced Intelligent Systems)** Paper Website

[4] **S. Oh***, T. Inui*, M. Kuan*, J. Y. Lin . "MicCheck: Repurposing Off-the-Shelf Pin Microphones for Easy and Low-Cost Contact Sensing". **(Best Presentation Award at IEEE CACS 2025)** Paper

[5] **S. Oh***, T. Takahashi*, C. C. Beltran-Hernandez, Y. Kuroda, M. Hamaya. "Safe Robot Learning in Contact-Rich Manipulation via A Low-Cost Soft Gripper and Haptic Feedback Teleoperation". **(CoRL Open Hardware Workshop, 2025)** Paper

EXPERIENCE

Carnegie Mellon University Oct. 2024 – Present

Visiting Scholar with Prof. Deepak Pathak and Prof. Nancy Pollard

- **Force-aware imitation learning:** Investigating how proprioceptive signals can be leveraged to infer contact cues and provide a stronger inductive bias for robust, contact-rich behavior cloning in bimanual hand-arm system.

OMRON SINIC X Corporation Oct. 2024 – Present

Robotics Research Intern with Dr. Masashi Hamaya

- **Imitation learning pipeline:** Developed data-collection and learning framework for contact-rich manipulation; designed bilateral teleoperation hardware and control system for position-controlled robot arm (patented).
- **Variable stiffness robot wrist:** Co-first-authored CLAW, a low-cost, variable stiffness robot wrist for contact-rich manipulation. Improves learning performance in peg-in-hole tasks, enhances teleoperation safety, and provides the ability to actively switch between three stiffness modes.

Sugano Lab, Waseda University Oct. 2024 – Present

Undergraduate Researcher with Prof. Shigeki Sugano

- **Hand–arm imitation learning:** Developed a hand–arm teleoperation system in ROS2 using a Manus glove and Allegro Hand, integrating the GELLO framework with GeoRT-based retargeting algorithms and ACT for policy learning.
- **Nail manipulation:** Collaborating with XELA Robotics to design a robotic fingernail with embedded magnetic tactile sensors and integrate it into a force-aware imitation learning framework.

Multi-Scale Embodied Intelligence Lab, Imperial College London Jul. 2024 – Sep. 2024

Visiting Student with Dr. Dandan Zhang

- **VBTS benchmarking:** Co-led TacEva, the first unified benchmarking framework for vision-based tactile sensors; validated the pipeline across four sensors through experimental setup, learning pipeline, and data analysis.

Tokyo Robotics Jul. 2023 – Jul. 2024

Software Engineering Intern

- **Motion planning:** Implemented inverse kinematics for a mobile manipulator in a MoveIt plugin and motion constraint database using MongoDB, both deployed in logistics robotics solutions at data centers and transport factories.
- **VLA finetuning:** Built data collection pipelines and performed VLA fine-tuning for bimanual pick-and-place tasks using Octo with AWS SageMaker and S3; work featured on the company's YouTube channel (video).

RIKEN CBS-TOYOTA Collaboration Center Jul. 2020 – Jun. 2022

Research Intern with Prof. Shingo Shimoda

- Developed a robotic pencil sketching system by processing internet images with vector-flow stroke generation; created control code for a robot hand using torque control and tactile feedback.

HONORS

Best Presentation Award, 2025 International Automatic Control Conference	2025
ETH Summer Fellowship **Top 106** of 2000+ Applicant (Top 5 %)	2025
1st Place, "Robot as an Unexpected Artist", TEDx Speaker Competition (Top 6%)	2025
Kawamori–Moto NEC Scholarship (**Total of $10,000**)	2023
Peace Bell University Entrance Scholarship (**Total of $27,600**)	2022
International Chemistry Quiz **Merit Award**	2022
2nd Place of Japan, Purple Comet! Math Meet, Japan	2021

TECHNICAL SKILLS

Languages: English (Native), Mandarin (Native), Japanese (Business Fluent)
Robotics: UR5e, XArm, Piper, Allegro hand, Torobo Humanoid Robots
Tactile Sensors: GelSight, USkin, DIGIT, ViTacTip, MagicTac
Development: Python, ROS, Autodesk Fusion, PyTorch, ReactJS

PRESENTATIONS

Poster Presentation, CoRL 2025 Open Hardware Workshop — Presented work on safe robot learning in contact-rich manipulation using soft grippers and teleoperation.

Oral Presentation, IEEE CACS 2025 — Delivered a 15-minute talk on tactile contact sensing using off-the-shelf pin microphones; awarded **Best Presentation Award**.

TEDx Waseda Speaker Finalist (Top 6%), 2025 — Delivered a 15-minute talk on robotics, art, and human creativity with a live robot-sketching demonstration.

TEACHING EXPERIMENCE

Introduction to Engineering, CAD and Robotics

Course Facilitator

- Designed and taught a 36-hour intensive course on CAD, robotics, and motion planning, training 140+ students in finite element analysis, inverse kinematics, and reinforcement learning.

Kuma Lab

Founder

- Founded and grew a 300+-member robotics and AI community; built a full-stack platform (AWS + React + MongoDB) with blog, event, and role-management features (link).
- Organized 4 hands-on workshops on reinforcement learning, GPT fine-tuning, and robotic art; developed algorithms enabling 4-DoF robotic arm sketch generation and live demos.