

# Shingo Kitagawa

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Date of birth: 4 December 1993 • Nationality: Japan • Hometown: Kyoto, Japan

## EDUCATION

### **The University of Tokyo**, Bunkyo, Tokyo, Japan

Ph.D. in Creative Informatics, Information Science and Technology

Apr 2019 – Mar 2022

Thesis: Robot system architecture of transversal learning between maneuvering and autonomy using tangible interface

Supervisor: Prof. Kei Okada

Focus: Robotics, Teleoperation, User Interface, Manipulation, Manipulation Learning, Deep Learning

M.S. in Creative Informatics, Information Science and Technology

Apr 2017 – Mar 2019

Thesis: Research on a self-supervised learning system of robotic recognition and behavior for manipulation tasks with dual-arm robot

Supervisor: Prof. Masayuki Inaba

Focus: Robotics, Manipulation, Manipulation Learning, Deep Learning

B.S. in Mechano-Informatics, Engineering

Apr 2012 – Mar 2017

Supervisor: Prof. Kei Okada

Focus: Robotics, Manipulation, Manipulation Learning, Deep Learning

### **École Polytechnique Fédérale de Lausanne**, Écublens, Canton of Vaud, Switzerland

Exchange student in Mechanical Engineering, Engineering

Sep 2014 – Aug 2015

## WORK EXPERIENCE

### **GITAI Japan, Inc.**, Ota, Tokyo, Japan

Robotics Software Engineer

Apr 2023 – Present

Project: Space robotics

Focus: Robotics, Manipulation, Teleoperation

### **The University of Tokyo**, Bunkyo, Tokyo, Japan

Project Assistant Professor

Apr 2022 – Mar 2023

Project: Automation for customer service at restaurants using robots

Focus: Robotics, Manipulation, Human Recognition, State Machine

### **Preferred Networks**, Chiyoda, Tokyo, Japan

Part-time Engineer

Feb 2018 – Dec 2018

Project: ChainerCV: Deep Learning Computer Vision Software

Focus: Robotics, Object Recognition, Instance Segmentation, Deep Learning

Internship

Aug 2018

Project: Manipulation Learning from Human Observation and Demonstration using Object Affordance Recognition

Focus: Robotics, Manipulation, Manipulation Learning, Deep Learning

## RESEARCH EXPERIENCE

### **German Aerospace Center, Institute of Robotics and Mechatronics**, Weßling, Bavaria, Germany

Visiting Researcher

Feb 2020

Project: Manipulation Learning from Human Direct Teaching using Gaussian Mixture Model

Supervisors: Dr. Daniel Leidner, Prof. Kei Okada

Focus: Robotics, Manipulation, Manipulation Learning, Gaussian Mixture Model

## PUBLICATIONS

### JOURNALS

- S. Kitagawa, S. Hasegawa, N. Yamaguchi, K. Okada and M. Inaba, “Miniature Tangible Cube: Concept and Design of Target-Object-Oriented User Interface for Dual-Arm Telemanipulation,” *IEEE Robotics and Automation Letters*, volume 6, Issue 4, pp. 6977–6984, Jul 2021.
- S. Kitagawa, K. Wada, S. Hasegawa, K. Okada and M. Inaba, “Few-experiential learning system of robotic picking task with selective dual-arm grasping,” *Advanced Robotics*, volume 34, issue 18, pp. 1171–1189, Jun 2020.

### BOOKS

- S. Kitagawa, K. Wada, K. Okada and M. Inaba, “Learning-Based Task Failure Prediction for Selective Dual-Arm Manipulation in Warehouse Stowing,” In: Strand, M., Dillmann, R., Menegatti, E., Ghidoni, S. (eds) *Intelligent Autonomous Systems 15. IAS 2018*, volume 867, pp. 428–439, Dec 2018.

### CONFERENCES

- T. Yoshida, N. Okazaki, K. Takaki, M. Hirose, S. Kitagawa, and M. Inami, “Flexel: A Modular Floor Interface for Room-Scale Tactile Sensing,” *UIST ’22: Proceedings of the 35th Annual ACM Symposium on User Interface Software and Technology*, Oct 2022.
- S. Wakabayashi, S. Kitagawa, K. Kawaharazuka, T. Murooka, K. Okada and M. Inaba, “Grasp Pose Selection Under Region Constraints for Dirty Dish Grasps Based on Inference of Grasp Success Probability through Self-Supervised Learning,” *Proceedings of 2022 International Conference on Robotics and Automation (ICRA)*, pp. 8312-8318, May 2022.
- T. Hirose, S. Kitagawa, S. Hasegawa, Y. Kakiuchi, K. Okada and M. Inaba, “Waterproof Soft Robot Hand with Variable Stiffness Wire-driven Finger Mechanism Using Low Melting Point Alloy for Contact Pressure Distribution and Concentration,” *Proceedings of 2022 IEEE 5th International Conference on Soft Robotics (RoboSoft)*, pp. 109-116, Apr 2022.
- A. Fujii, K. Kochigami, S. Kitagawa, K. Okada and M. Inaba, “Development and Evaluation of Mixed Reality Co-eating System: Sharing the Behavior of Eating Food with a Robot Could Improve Our Dining Experience,” *Proceedings of 2020 29th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*, pp. 357-362, Sep 2020.
- S. Hasegawa, K. Wada, S. Kitagawa, Y. Uchimi, K. Okada and M. Inaba, “GraspFusion: Realizing Complex Motion by Learning and Fusing Grasp Modalities with Instance Segmentation,” *Proceedings of 2019 International Conference on Robotics and Automation (ICRA)*, pp. 7235-7241, May 2019.
- S. Kitagawa, K. Wada, S. Hasegawa, K. Okada and M. Inaba, “Multi-stage Learning of Selective Dual-arm Grasping Based on Obtaining and Pruning Grasping Points Through the Robot Experience in the Real World,” *Proceedings of 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 7123-7130, Oct 2018.
- K. Wada, S. Kitagawa, K. Okada and M. Inaba, “Instance Segmentation of Visible and Occluded Regions for Finding and Picking Target from a Pile of Objects,” *Proceedings of 2018 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, pp. 2048-2055, Oct 2018.

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## AWARDS & SCHOLARSHIPS

- JSPS Research Fellowship for Young Scientists (DC2), Apr 2020 – Mar 2022  
Japan Society for the Promotion of Science
- 2019 IEEE RAS Japan Joint Chapter Young Award (ICRA2019) May 2019  
S. Hasegawa, K. Wada, S. Kitagawa, Y. Uchimi, K. Okada and M. Inaba: GraspFusion:Realizing Complex Motion by Learning and Fusing Grasp Modalities with Instance Segmentation
- Toyota Dwango Advanced Artificial Intelligence Scholarship, Apr 2018 – Mar 2019  
Toyota, Dwango
- 2018 IEEE RAS Japan Joint Chapter Young Award (IROS2018) Oct 2018  
K. Wada, S. Kitagawa, K. Okada and M. Inaba: Instance Segmentation of Visible and Occluded Regions for Finding and Picking Target from a Pile of Objects
- Amazon Picking Challenge, Amazon Robotics Challenge 2016 – 2017  
5th Picking Task Award, 8th Stowing Task Award  
Leader of the UTokyo Team (Team-K)
- International Bio-molecular Design Competition 2012 (BIOMOD 2012), Nov 2012  
Gold Project Award, 3rd Audience Choice Award, 3rd Best Project Website Award, 2nd Best Presentation Award  
Member and Presenter of the UTokyo Team (Team-Komaba)

## LANGUAGES

- Japanese: Native language.
- English: Fluent (speaking, reading, writing).
- French: Basic (speaking, reading, writing).

## SKILLS

Linux (Ubuntu, Debian), Windows, Mac OS, Python, C++, Lisp, C, Java Script, Cuda, Perl, PHP, Scala, Java, L<sup>A</sup>T<sub>E</sub>X, MongoDB, InfluxDB, MATLAB, Adobe InDesign, Adobe Photoshop, Adobe Illustrator, Microsoft Word, Microsoft Excel, Microsoft PowerPoint, Davinci Resolve.

## INTERESTS

Skiing, hiking, swimming, watching movies.