

# Kentaro Wada

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**EDUCATION**      **University of Tokyo**, Tokyo, Japan      *April 2012 – Present*  
MS in Information Science and Technology  
BE in Mechano-Informatics  
Advisor: Prof. Masayuki Inaba, Associate Prof. Kei Okada.

**RESEARCH EXPERIENCE**      **JSK Robotics Laboratory**, The University of Tokyo

- Graduate Research Student, Computer Science Department      October 2016 – Present
  - Project: Study of Robotic Manipulation with Learning for Object Segmentation (Master Thesis)
  - Supervisors: Prof. Masayuki Inaba and Associate Prof. Kei Okada
  - Focus: Deep Learning, 3D Vision, Robotic Manipulation
- Research Assistant      October 2015 – March 2017
  - Project: Picking General Objects with Verification-based Vision System
  - Supervisors: Associate Prof. Kei Okada
  - Focus: Deep Learning, 3D Vision, Robotic Manipulation
- Undergraduate Research Student, Engineering Department      April 2015 – March 2016
  - Project: Learning for Picking through Experience of Verification-based Perception System (Bachelor Thesis)
  - Supervisors: Prof. Masayuki Inaba and Associate Prof. Kei Okada
  - Focus: Deep Learning, 3D Vision, Robotic Manipulation

**Tanaka Kenji Laboratory**, The University of Tokyo

- Research Assistant      May 2014 – March 2015
  - Project: Customer Clustering with Big Data Analysis of Purchase History
  - Supervisors: Associate Prof. Kenji Tanaka
  - Focus: Machine Learning, Data Mining

**PUBLICATIONS**      **JOURNALS**

[7] K. Wada, I. Yanokura, M. Sugiura, Y. Inagaki, K. Okada, and M. Inaba, “Pick-and-Verify: Verification-based Highly Reliable Picking System for Various Target Objects in Clutter”, *Journal of Advanced Robotics*, March 2017.

## INTERNATIONAL CONFERENCES

- [14] K. Wada, S. Hasegawa, S. Kitagawa, Y. Uchimi, N. Yamaguchi, K. Okada, and M. Inaba, “Few-shot Learning based on Context-aware Network Expansion with Artificial Training Data for Picking in Warehouse Automation”, in *Proceedings of the 2018 IEEE International Conference on Robotics and Automation (ICRA2018)*, (Under Review)
- [9] K. Wada, K. Okada, and M. Inaba, “Probabilistic 3D Multilabel Real-time Mapping for Multi-object Manipulation”, in *Proceedings of the 2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2017)*, Vancouver, Canada. September 2017.
- [8] S. Hasegawa, K. Wada, Y. Niitani, K. Okada, and M. Inaba, “A Three-Fingered Hand with a Suction Gripping System for Picking Various Objects in Cluttered Narrow Space”, in *Proceedings of the 2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS2017)*, Vancouver, Canada. September 2017.
- [6] K. Wada, M. Murooka, K. Okada, and M. Inaba, “3D Object Segmentation for Shelf Bin Picking by Humanoid with Deep Learning and Occupancy Voxel Grid Map”, in *Proceedings of the 2016 IEEE-RAS International Conference on Humanoid Robotics (Humanoids 2016)*, Cancun, Mexico. November 2016.
- [5] Y. Furuta, K. Wada, M. Masaki, S. Nozawa, Y. Kakichi, K. Okada and M. Inaba, “Transformable Semantic Map Based Navigation using Autonomous Deep Learning Object Segmentation”, in *Proceedings of the 2016 IEEE-RAS International Conference on Humanoid Robotics (Humanoids 2016)*, Cancun, Mexico. November 2016.

## DOMESTIC CONFERENCES

- [10] K. Wada, K. Okada and M. Inaba, “Fully Convolutional Object Depth Prediction for 3D Segmentation from 2.5D Input”, in *Annual Conference of the Japanese Society for Artificial Intelligence 2017*, Aichi, Japan. May 2017.
- [11] M. Murooka, Y. Niitani, K. Wada, S. Nozawa, Y. Kakiuchi, K. Okada and M. Inaba, “Motion Prediction of Object in Image by Deep Learning for Robot Manipulation”, in *Annual Conference of the Japanese Society for Artificial Intelligence 2017*, Aichi, Japan. May 2017.
- [12] S. Kitagawa, K. Wada, K. Okada and M. Inaba, “Learning-based Task Failure Prediction and Selective Execution of Dual-arm Support Motion for Stowing Task”, in *Annual Conference of the Japanese Society for Artificial Intelligence 2017*, Aichi, Japan. May 2017.
- [13] S. Hasegawa, K. Wada, K. Okada and M. Inaba, “Development of Suction Pinching Hand for Picking Task in Narrow Space”, in *2017 JSME Conference on Robotics and Mechatronics*, Fukushima, Japan. May 2017.
- [4] Y. Niitani, K. Wada, S. Hasegawa, S. Kitagawa, M. Bando, K. Okada, and M. Inaba, “Semantic Image Segmentation and 3D Object Outline Extraction with Deep Learning for Picking Objects from Shelf-bin”, in *Annual Conference of The Robotics Society of Japan*, Yamagata, Japan. September 2016.
- [3] K. Wada, K. Okada and M. Inaba, “Advanced Multi-layered Perception for Picking in Clutter with Parameter Reinforcement Learning via Experiment in Task” (in Japanese), in *The Robotics and Mechatronics Conference 2016*, Kanagawa, Japan. June 2016.
- [2] K. Wada, I. Yanokura, M. Sugiura, Y. Inagaki, K. Okada and M. Inaba, “Daily Object Picking System with Visual Verification and Vacuum Gripper on Dual-arm Robot” (in Japanese), in *Annual Conference of Robotics Society Japan 2015*, Tokyo, Japan. March 2015.
- [1] K. Wada, K. Kawakami, Y. Honda, K. Tanaka, “Customer Clustering with Big Data Analysis of Purchase History” (in Japanese), in *Japanese Artificial Intelligence Conference, SIG-KST 23th*, Tokyo, Japan. November 2014.

## PROFESSIONAL AFFILIATIONS & ACTIVITIES

### Amazon Robotics Challenge 2017, Nagoya, Japan

- K. Wada, S. Hasegawa, S. Kitagawa, Y. Uchimi, N. Yamaguchi, K. Okada and M. Inaba
- 12th/13th place in 16 teams for pick/stow tasks.
- A core member the team composed of 5 students and 2 professors.
- Especially worked for object recognition.

April 2017 – July 2017

### Amazon Picking Challenge 2016, Leipzig, Germany

- K. Wada, S. Hasegawa, S. Kitagawa, Y. Niitani, M. Bando, K. Okada and M. Inaba
- 5th/8th place in 16 teams for pick/stow tasks.
- A core member of the team composed of 5 students and 2 professors.
- Especially worked for object recognition.

April 2016 – July 2016

### Google Summer of Code 2016, Tokyo, Japan

- K. Wada, F. Proctor, S. Edwards
- Student, Passed the Final Evaluation

May 2016 – August 2016

### Amazon Picking Challenge 2015, Seattle, USA

- K. Wada, I. Yanokura, M. Sugiura, Y. Inagaki, K. Okada and M. Inaba
- 8th place in 28 teams.
- A core member of the team composed of 4 students and 2 professors.
- Worked for object recognition and robotic manipulation.

October 2014 – May 2015

## OTHER WORK EXPERIENCE

### Donuts Co. Ltd., Tokyo, Japan

- Internship as a system integrator
  - Frontend of e-commerce site with HTML, CSS and Javascript.
  - Posting system construction with PHP.

September 2013 – January 2014

### Honda Research Institute, Tokyo, Japan

- Internship as a researcher
  - Road scene recognition with deep learning

August 2014 – September 2014

- LANGUAGES**
- Japanese: Native language.
  - English: Fluent (listening, speaking, reading, writing).
  - Chinese: Basic (listening, speaking, reading, writing).
- SKILLS**
- Programming Languages: Python, C++, C, Bash, Zsh, HTML, CSS, Javascript, PHP, Lisp
  - Frameworks: Chainer, Caffe, scikit-learn, ROS, PCL, OpenCV, scikit-image, flask
- INTERESTS**      Deep learning, Scene understanding, 3D reconstruction, Real-time vision system.
- REFERENCES**
- **Professor Masayuki Inaba**  
Professor of Mechano-Informatics Department  
The University of Tokyo  
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  - **Associate Professor Kei Okada**  
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