# Chung Hee (John) Kim

**CURRICULUM VITAE**


CONTACT INFORMATION

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## EDUCATION

**Carnegie Mellon University** — AUG 2021 –
*Ph.D. in Robotics* (Advisor: Dr. George Kantor)

**The Hong Kong University of Science and Technology** — FEB 2018 – FEB 2020
*M.Phil. in Electronic and Computer Engineering* (Advisor: Dr. Jungwon Seo)

**The Hong Kong University of Science and Technology** — SEP 2012 – DEC 2017
*B.Eng. in Mechanical Engineering (First Class Honors)*
* Overseas Student Exchange Program: **Georgia Institute of Technology**

## RESEARCH EXPERIENCE

**Research Assistant** — AUG 2021 –
*The Robotics Institute, Carnegie Mellon Univeristy, Pittsburgh PA*
- Research focus: Intelligent manipulation, perception, and reinforcement learning in agricultural robotics

**Research Assistant** — FEB 2018 – JUN 2020
*Robotic Manipulation Lab, HKUST Robotics Institute, Hong Kong*
- Research focus: Dexterous robotic manipulation
- Utilized the industrial robot arm to develop an award-winning novel manipulation technique that can readily be applied to assembly automation

**Undergraduate Research Opportunities Program** — JUN 2017 – DEC 2017
*The Hong Kong University of Science and Technology*
- Research focus: Underwater remotely operated vehicle (ROV)
- Successfully demonstrated a working prototype of an underwater robot featured in Robotics Day 2017

## PUBLICATIONS AND PATENTS

[1] **C. H. Kim**, G. Kantor, "Occlusion Reasoning for Skeleton Extraction of Self-Occluded Tree Canopies", *International Conference on Robotics and Automation (ICRA)*, 2023

[2] H. Freeman, E. Schneider, **C. H. Kim**, "3D Reconstruction-Based Seed Counting of Sorghum Panicles for Agricultural Inspection", *International Conference on Robotics and Automation (ICRA)*, 2023

[3] **C. H. Kim**, K. H. Mak, J. Seo, "Planning for Dexterous Ungrasping: Secure Ungrasping through Dexterous Manipulation", *IEEE Robotics and Automation Letters*, 2022

[4] K. H. Mak, **C. H. Kim**, J. Seo, "Robust Ungrasping of High Aspect Ratio Objects Through Dexterous Manipulation", *IEEE Robotics and Automation Letters*, 2022

[5] Z. Tong, Y. H. Ng, **C. H. Kim**, T. He, J. Seo, "Dig-Grasping via Direct Quasistatic Interaction Using Asymmetric Fingers: An Approach to Effective Bin Picking", *IEEE Robotics and Automation Letters*, 2021

[6] Z. Tong, T. He, **C. H. Kim**, Y. Ng, Q. Xu, and J. Seo, "Picking Thin Objects by Tilt-and-Pivot Manipulation and Its Application to Bin Picking", *International Conference on Robotics and Automation (ICRA)*, 2020

[7] **C. H. Kim**, J. Seo, "System and Methods for Robotic Precision Placement and Insertion," *U.S. Patent Application 16/871,884*, filed February 25, 2021.

[8] **C. H. Kim**, J. Seo, "Shallow-Depth Insertion: Peg in Shallow Hole through Robotic In-Hand Manipulation", *IEEE Robotics and Automation Letters*, 2019

- *Best Paper Award in Robot Manipulation (ICRA 2019)*

## Professional Experience

**Engineer** Aug 2020 – Jul 2021

*Hong Kong Applied Science and Technology Research Institute, Hong Kong*

- Developed web application for users to submit machine learning tasks to be executed on GPU server
- Conducted research in SOTA methods for synthetic face generation and customization using GANs

**Robotics Engineer (Intern)** June 2019 – Aug 2019

*XYZ Robotics Inc., Shanghai, China*

- Developed a Mini-ASRS (Automated Storage & Retrieval System) software package for calibration, robot trajectory planning and execution
- Received Outstanding Intern Award for contributing to optimizing company's Goods-to-Robot system

**Sergeant** Oct 2014 – Jul 2016

*First Army Battalion, 177$^{th}$ Army Brigade, Republic of Korea Army, South Korea*

- Led a team of 8 members as a squad leader, educating and applying hands-on training for the team to succeed in operations and tasks
- Received Soldier of the Year Award from battalion commander for respectful leadership to soldiers

## Honors and Awards

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| ICRA 2022 RAS Travel Grant | 2022 |
| ICRA 2019 Best Paper Award in Robot Manipulation | 2019 |
| ICRA 2019 RAS Travel Grant | 2019 |
| University Grants Committee (UGC) Research Travel Grant | 2019 |
| HKUST Academic Achievement Medal (*top 1% of graduates*) | 2017 |

## Graduate Courseworks

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|---|---|---|
| CMU 16-825 | Learning for 3D Vision | Spring 2023 |
| CMU 16-711 | Kinematics, Dynamics, and Control | Spring 2023 |
| CMU 16-740 | AI for Manipulation | Fall 2022 |
| CMU 10-715 | Advanced Introduction to Machine Learning | Fall 2022 |
| CMU 11-785 | Introduction to Deep Learning | Spring 2022 |
| CMU 16-833 | Robot Localization and Mapping | Spring 2022 |
| CMU 16-720 | Computer Vision | Fall 2021 |
| CMU 16-811 | Math Fundamentals for Robotics | Fall 2021 |
| HKUST ELEC5660 | Introduction to Aerial Robotics | Spring 2019 |
| HKUST ELEC5640 | Robotic Manipulation | Fall 2018 |
| HKUST COMP5212 | Machine Learning | Fall 2018 |
| HKUST ELEC6910 | Robot Perception and Learning | Spring 2018 |
| HKUST EESM5730 | Modern Control Systems Design | Spring 2018 |

## Competences

**Languages** English (*native*), Korean (*native*), Mandarin Chinese (*conversational*)

**Skills** Python, C++, MATLAB, PyTorch, ROS, git, SolidWorks, Adobe Photoshop & Illustrator, LaTeX

**Hobbies** Acoustic Guitar (*self-taught*), Tennis

Last update: January 20, 2023