

# AI Graduate Seminar

March 16<sup>th</sup>,  
2022 4p.m.

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## “Visually Grounding Language Instruction for History-Dependent Manipulation”

### ● Abstract

- In this talk, a recent paper from the presenter will be introduced. The paper name is "Visually Grounding Language Instruction for History-Dependent Manipulation", and it will be published to the proceeding of International Conference on Robotics and Automation (ICRA), 2022. In this work, we propose a task of history-dependent manipulation, which aims to enable a robot to refer to its task history when executing a series of pick-and-place operations instructed by a language. In this task, two main challenges can arise: (1) the language instruction omitting details but using expressions referring to the past can be given, and (2) the objects occluded after pick-and-place operations need to be inferred. To solve this, a dataset with synthetic images and human language instructions, and a neural network-based model as a baseline are proposed. Experimental results show that the proposed end-to-end trainable model can successfully learn how to understand the history by abstracting the visual, language, and time information from previous operations. For more information, visit <https://sites.google.com/view/history-dependent-manipulation/>

### ● Biography

- Hyemin Ahn (She/Her) received B.S. and Integrated MSc/PhD degrees in Electrical and Computer Engineering from Seoul National University, Seoul, in 2014 and 2020, respectively. Currently, she is a postdoctoral researcher in Institute of Robotics and Mechatronics, German Aerospace Center (DLR), Wessling, Germany. From April 2020 to April 2021, she was a postdoctoral researcher in Human-centered Assistive Robotics Group, Technical University of Munich, Munich, Germany. Her research interests lie in the machine learning based human-robot interaction, motion generation, and vision and language perception. For more information, please visit <https://hyeminahn.oopy.io/>