Taewoong Kim

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Summary Statement

- **Embodied AI** researcher advancing real-world capabilities through advanced perception and reasoning.
- Focused on **data-efficient** interaction through few-shot planning and zero-shot affordance learning.
- Strong mechanical engineering foundation for developing **practical intelligent robotic** systems.

Education

Yonsei University *Mar. 2023 – Aug. 2024*
M.S. in Artificial Intelligence (Advisor: Prof. Jonghyun Choi)
- Overall GPA: 4.04/4.3
- Relevant Coursework : Multimodal Deep Learning, Machine Learning and Programming

Yonsei University *Mar. 2016 – Aug. 2023*
B.S. in Mechanical Enginnering
- Major GPA: 4.16/4.3
- Overall GPA: 3.83/4.3
- Relevant Coursework : Dynamics, Mechatronics, Mechanical System Control, Intelligent Control

Publications

A paper about zero-shot affordance grounding using GenAI Under Review
B. Kim, **Taewoong Kim**, J. Nam, J. Min, J. Kim, J. Kim, H. Kim, H. Jeon, J. Choi

A paper about grounded planning for an embodied agent Under Review
Taewoong Kim, B. Kim, J. Choi

ReALFRED: An Embodied Instruction Following Benchmark in Photo-Realistic Environments ECCV 2024
Taewoong Kim*, C. Min*, B. Kim, J. Kim, W. Jeong, J. Choi

ECLAIR: Event-Cognizant Language Interaction Embodied Robots Workshop on LA4IRA
J. Kim, B. Kim, C. Min, Y. Kim, **Taewoong Kim**, J. Choi IEEE RO-MAN 2023

Research Experience

SNU Machine Perception and Reasoning Lab **Seoul National University**
Research Assistant (Advisor: Prof. Jonghyun Choi) *Sep. 2024 – Current*
- **Affordance grounding**
  - Implemented image generation models to achieve zero-shot affordance grounding
  - Developed a framework that treats occlusions as interaction signals to identify affordance regions

Yonsei Vision & Learning Lab **Yonsei University**
Graduate Research Assistant (Advisor: Prof. Jonghyun Choi) *Mar. 2023 – Aug. 2024*
- **Large language models (LLMs) as planners for embodied agents**
  - Developed a multimodal planner with LLM for enhanced grounded planning capabilities
  - Designed an efficient replanning system that corrects partially misleading subgoals
- **Bridging the reality gap**
  - Proposed a photo-realistic benchmark with 3D-captured indoor scenes with interactive objects

Work Experience

Samsung Electronics — **Suwon, Korea**
Full-Time Engineer, Robot Business Team — *Sep. 2022 – Feb. 2023*
- Designed and developed mechanical components for exoskeleton robot

Samsung Electronics — **Suwon, Korea**
Intern, Mobile Experience Divison — *July. 2021 – Aug. 2021*
- Conducted personal project about foldable mobile devices

Honors and Awards

Outstanding Paper Award (Silver Prize), IPIU 2024 — *Feb. 2024*
1st Place Award, CVPRW 2023 Embodied AI Workshop Challenge — *June 2023*
Academic High Honors Award, Yonsei University — *Fall 2019, Fall 2020*
Academic Honors Award, Yonsei University — *Spring 2019*
Academic Scholarship, Gwacheon City — *Spring 2020 - Fall 2020*
Volunteer Scholarship, Yonsei University — *Spring 2019 - Fall 2019*
Veritas (Academic) Scholarship, Yonsei University — *Spring 2019, Fall 2019, Spring 2020, Spring 2021, Spring 2022*

Leadership Experience

School of Mechanical Engineering at Yonsei University — *Dec. 2018 - Dec. 2019*
56th Student President
- Organized, led, and made decisions for the department and student council

Military Service for Republic of Korea — *Apr. 2017 - Jan. 2019*
Sergeant
- Served as machine gun shooter at The 17th Infantry Division, ROK Army

Teaching Experience

Teaching Assistant, Seoul National University — *Fall 2024*
TA for graduate AI seminar
- Managed and addressed students requests

Volunteer Experience

Korean University Mentors Union — *Sept. 2020 - Feb. 2021*
Mentor
- Conducted major introduction sessions and addressed high school students questions

Academic Services

Reviewer: RO-MAN'24

Skills

Languages: Korean, English
Programming: Python, C, MATLAB
General: GitHub, LaTeX, PyTorch, MS Office