Junghyun Kim

Website: jhkim-snu.github.io
Email: justink7272@snu.ac.kr
Department: Graduate School of AI,
Seoul National University

Interests

My research focuses on enabling intelligent agents to comprehend human language by **grounding linguistic concepts in perception and action.** Ultimately, I aim to empower **generalist robots** with the capability to understand and interact with the real world under minimal human supervision.

Education

Seoul National University — Seoul, Korea
Integrated Ph.D. in Graduate School of Artificial Intelligence, Advised by B.T.Zhang. — 2021–2026 (expected)

- GPA: 4.27/4.3
- Main Courses: DL, ML, AI, Pattern Recognition, RL, LLM, Cognitive Science, Neuroscience, Data Science
- Research Paper Competition: Honorable Mention (2024)

Yonsei University — Seoul, Korea
B.S. in Electrical and Electronic Engineering — 2016–2021

- GPA: 4.13/4.5
- Main Courses: AI, Programming (C, Python, Matlab), Control Engineering, Mathematics, Probability, Data Structure and Algorithms, Signals, Circuits, OS, Communication Theory, Wireless and Mobile Networks
- Yonsei Evison Award (2016), 1 highest honor(2020), 1 high honor(2020), 4 honors(2016, 2017, 2019)

Experience

BioIntelligence Laboratory, Seoul National University
Lab Manager — 2023 - Current

Samsung AI EXPERT Program
Teaching Assistant (Machine Learning & Python Programming) — Jun 2023

SurroMind Corp.
Research Assistant (Developing Large-scale Visual Reasoning Model) — Aug-Dec 2022

Samsung AI Research Center, Samsung Advanced Institute of Technology (SAIT)
Research Assistant (SEM Depth Prediction via Auto Encoder) — Apr-Jun 2022

CS, Seoul National University
Teaching Assistant (Artificial Intelligence) — Mar-Aug 2022

Robotics and Mobile Networks Lab, Yonsei University
Undergraduate Intern (Advised by Prof. Seoung-Lyun Kim) — Summer 2019

QUEBON AI Mathematics
Company Intern — Summer 2018

Publications

* denotes equal contribution

International Conference

[6] **Towards Video Large Language Models for View-Invariant Understanding**
M. Jung, J. Xiao, **J. Kim**, I. J. Kwon, B. T. Zhang, A. Yao
Neural Information Processing Systems (NeurIPS 2025) (Under Review)

[5] **CLIP-RT: Learning Language-Conditioned Robotic Policies from Natural Language Supervision**
G. C. Kang*, **J. Kim***, K. Shim, J. K. Lee, B. T. Zhang
Robotics: Science and Systems (RSS 2025)
3rd Workshop on Language and Robot Learning @ The Conference on Robot Learning (CoRL 2024)

[4] **Socratic Planner: Inquiry-Based Zero-Shot Planning for Embodied Instruction Following**
S. Shin, S. Jeon*, **J. Kim***, G. C. Kang*, B. T. Zhang.
IEEE International Conference on Robotics and Automation (ICRA 2025)

[3] **PGA: Personalizing Grasping Agents with Single Human-Robot Interaction**
J. Kim, G. C. Kang*, J. Kim*, S. Yang, M. Jung, B. T. Zhang.
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024)

[2] **PROGrasp: Pragmatic Human-Robot Communication for Object Grasping**
G. C. Kang, **J. Kim**, J. Kim, B. T. Zhang.
IEEE International Conference on Robotics and Automation (ICRA 2024)

[1] **GVCCI: Lifelong Learning of Visual Grounding for Language-Guided Robotic Manipulation**
J. Kim, G. C. Kang*, J. Kim*, S. Shin, B. T. Zhang.
IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2023)
Oral Presentation

Domestic Journal

[1] **Tackling Entity Size-Based Bias in Visual Grounding**
J. Kim, G. C. Kang, H. Sul, B. T. Zhang.
KIISE Transactions on Computing Practices (KTCP 2023)

Domestic Conference

[10] **Learning Language-Conditioned Robotic Policies with Fast and Lightweight Architectures**
J. Kim, B. T. Zhang.
Korean Institute of Information Scientists and Engineers (KCC 2025)

[9] **Generalizing Language-Conditioned Robotic Policies via Large Language Models**
J. Kim, B. T. Zhang.
Korean Institute of Information Scientists and Engineers (KCC 2025)

[8] **Stochastic Trajectory Diversification for Language-Conditioned Robotic Policy Learning**
J. Kim, G. C. Kang, K. Shim, B. T. Zhang.
Korean Institute of Information Scientists and Engineers (KSC 2024, Best Paper Award)

[7] **Data Collection Method for Robotic Action Learning through Natural Language Commands**

J. Kim, G. C. Kang, K. Shim, B. T. Zhang.
Korean Institute of Information Scientists and Engineers (KSC 2024)

[6] **Personalizing Large Language Models via Interest Trait Summarization**
J. Kim, B. T. Zhang.
Korean Institute of Information Scientists and Engineers (KSC 2023)

[5] **Unsupervised Adaptation for Zero-shot Visual Grounding via Pseudo Query Generation**
J. Kim, B. T. Zhang.
Korean Institute of Information Scientists and Engineers (KCC 2023)

[4] **Referring Expression Segmentation on Small Objects**
J. Kim, G. C. Kang, H. Sul, B. T. Zhang.
Korean Institute of Information Scientists and Engineers (KSC 2022, Best Paper Award)

[3] **Attention-based Text Augmentation Method for Referring Expression Segmentation**
J. Kim, G. C. Kang, H. Sul, B. T. Zhang.
Korean Institute of Information Scientists and Engineers (KCC 2022)

[2] **Adaptive Spatial Comprehension via Object Relationship Learning with Home Robot**
J. Kim, S. Lee, Y. Yoo, B. T. Zhang
Korean Institute of Information Scientists and Engineers (KSC 2021)

[1] **Prediction of Professional Golfer's Score by using Data Mining**
J. Kim
Korean Institute of Information Scientists and Engineers (KCC 2015)

THESIS

[1] **Large-Scale Tiny Face Detection using Multi-Task Cascaded Convolutional Neural Networks**
Bachelor's Thesis, Yonsei University, 2020

PATENTS

- (PCT, KR) Method for Generating Artificial Intelligence Model Using Natural Language Instruction, Method and Apparatus for Driving Robot Using Said Artificial Intelligence Model
- (PCT, KR) Method and Apparatus for Generating Natural Language Instruction Based on Visual Recognition
- (PCT, KR) Method And Apparatus For Creating An Artificial Intelligence Model That Recognizes Personalized Objects, And Robot Control Method And System Using The Same

RESEARCH PROJECTS

Large-Parameter Action Foundation Models for Embodied Intelligent Agents Solving Real-life Problems of Real-World in Real-time
National Research Foundation of Korea (NRF)   2024–Present

Development of humanoid robots that feel like humans, communicate, and learn
Korea Evaluation Institute of Industrial Technology (KEIT)   2024–Present

Embodied Artificial Intelligence Interacting with Humans in Real World
National Research Foundation of Korea (NRF)   2023–Present

Self-directed AI Agents with Problem-solving Capability
Institute for Information & Communications Technology Planning & Evaluation (IITP)
Funded by the Ministry of Science and ICT (MSIT) 2022–Present

Development of Uncertainty-Aware Agents Learning by Asking Questions
Institute for Information & Communications Technology Planning & Evaluation (IITP)
Funded by the Ministry of Science and ICT (MSIT) 2022–Present

PROFESSIONAL ACTIVITIES

- **(Program Committee)** R4A: Spatial, Temporal, and Symbolic Reasoning for Physical Agents @NeurIPS 2025
- **(Reviewer)** IEEE Robotics and Automation Letters (RA-L) 2024
- **(Reviewer)** IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2024
- **(Mentor)** POSCO DX AI Youth Challenge 2022-2025
- **(Member)** Korean Institute of Information Scientists and Engineers (KIISE) 2021-Current

INVITED TALKS

- Korea AI Summit 2024, Seoul, Korea Dec 2024
- AI SEOUL 2024, Seoul, Korea Feb 2024
- AI Retreat, IPAI, SNU Nov 2023
- KOREA AI SUMMIT (spotlight session) Nov 2023
- IEEE RO-MAN Workshop on Learning by Asking for Intelligent Robots and Agents Aug 2023
- AI Symposium, AIGS, Korea Aug 2023

SKILLS

- **Programming:** Python, C, Matlab, Verilog
- **Robots:** UR5, Kinova Gen3, TurtleBot4, Pepper

LANGUAGES

- **Korean:** Native
- **English:** Fluent (New TEPS: 483)

EXTRACURRICULAR ACTIVITIES

- Seoul National University President's Cup 2025
  Amature Golfer / Runner-up in the finals
- Professional Golf Tour in Asia (Asian Tour) 2022
  Professional Golf Caddie
- Korea Professional Golfers' Association (KPGA) 2021-2022
  Professional Golf Caddie
- Seoul Junior Athletics Championships, Korean Olympic Committee (KOC) 2014
  Junior Athlete / 2nd place in Seoul, Korea
- Korea Junior Golf Association 2011–2013
  Junior Golfer