# Sangkyu Lee

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★ oddqueue.github.io

#### Research Interest

#### Embodied Agents, Multimodal Models, AI Alignment, Long-context Modeling, Continual Learning

# **EDUCATION**

Yonsei University

Mar. 2023 – Present

M.S. in Artificial Intelligence (Advisor: Youngjae Yu, CGPA: 4.16/4.3)

Seoul, Korea

Yonsei University

Mar. 2021 – Feb. 2023

B.A. in Applied Statistics, B.S. in Computer Science and Engineering (CGPA: 4.06/4.3)

Seoul, Korea

Hanyang University

Mar. 2017 – Feb. 2021

Major in Economics and Finance (Transferred, Includes a 2-year mandatory military service) Seoul, Korea

# RESEARCH EXPERIENCE

## **Graduate Research Assistant**

Mar. 2023 – Present

Multimodal Intelligence Research Lab, Yonsei University (Advisor: Youngjae Yu)

Seoul. Korea

- Researching alignment of large language models and tokenized visual representation for embodied agents
- Participated as a starting member and assisted with grant proposals for robotics foundation models

# Research Scientist Intern

Sep. 2024 – Present

Language Lab, LG AI Research (Mentors: Hosung Song, Janghoon Han)

Seoul, Korea

- Researching adaptive length tokenization of visual modality for efficient autoregressive representations
- Investigating self-improvement of language models that do not require training for self-assessment

Technical Lead

Jan. 2024 – May 2024

World Model for Robotics and Vehicle Control Team, maumAI

Seongnam, Korea

- Led the development project of a world model for robotics agents and autonomous vehicles
- Researched visual tokenizers aligned with text representations for fast adaptation of language models

# Research Scientist Intern

Jul. 2023 – Jan. 2024

Foundation Research Team, Naver Cloud (Mentors: <u>Kang Min Yoo</u>, <u>Sungdong Kim</u>) Seongnam, Korea

- Participated in the alignment of HyperCLOVA X, a large language model specialized in Korean
- Researched self-improvement of language models through a self-assessment process by LLM-as-a-judge

#### Undergraduate Research Assistant

Jul. 2022 – Aug. 2022

Biq Data Analytics and Learning Lab, Yonsei University (Advisor: Noseong Park)

Seoul, Korea

- Researched Neural Operators for the vision models to achieve resolution-free generative models
- Investigated Stratonovich SDE for accelerating the reverse-time process of diffusion models

# Publications

# SEAL: Entangled White-box Watermarks on Low-Rank Adaptation

Under Review

Giyeong Oh, Saejin Kim, Woohyun Cho, Sangkyu Lee, Jiwan Chung, Dokyung Song, Youngjae Yu

# MASS: Overcoming Language Bias in Image-Text Matching

Under Review

Jiwan Chung, Seungwon Lim, Sangkyu Lee, Youngjae Yu

# HyperCLOVA X Techinal Report

arXiv

Kang Min Yoo, Jaegeun Han, Sookyo In, Heewon Jeon, Jisu Jeong, Jaewook Kang, Hyunwook Kim, et al.

# Aligning Large Language Models by On-Policy Self-Judgment

**ACL 2024** 

Sangkyu Lee, Sungdong Kim, Ashkan Yousefpour, Minjoon Seo, Kang Min Yoo, Youngjae Yu

# Honors and Awards

Partial Scholarship, Yonsei University (Mar. 2023) Academic Honors, Yonsei University (Jan. 2022)

# ACADEMIC SERVICES

Reviewer, ICLR (2025)

## Teaching Experience

Teaching Assistant, AAI5012: Advanced Video Processing (Sep. 2023 – Dec. 2023)

Lecture Instructor, Samsung AI Specialist Course (Jul. 2023)

# TECHNICAL SKILLS

Programming Languages: Python, C++, Java, R, MATLAB

Frameworks: PyTorch, PyTorch Lightning

Libraries: Transformers, TRL, Accelerate, DeepSpeed, vLLM, scikit-learn, Optuna, NumPy Math Coursework: Real Analysis, Mathematical Statistics, Linear Algebra, Numerical Analysis

# LANGUAGE PROFICIENCY

Korean: Native English: Fluent Japanese: Fluent