

Sangkyu Lee

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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: 4.16/4.30) Seoul, Korea

Yonsei University Mar. 2021 – Feb. 2023
B.A. in Applied Statistics, B.S. in Computer Science and Engineering (CGPA: 4.06/4.30) 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 founding member and assisted with grant proposals for robotics foundation models

Research Scientist Intern Sep. 2024 – Present
Language Lab, LG AI Research (Mentors: Honglak Lee, Hosung Song, Janghoon Han) Seoul, Korea

- Researching adaptive length tokenization of visual modality for efficient autoregressive representations
- Investigating adaptive control of KL constraint during training steps on direct alignment algorithms

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: Kang Min Yoo, Sungdong Kim) Seongnam, Korea

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

Undergraduate Research Assistant Jul. 2022 – Aug. 2022
Big 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

KL Penalty Control via Perturbation for Direct Preference Optimization Under Review
Sangkyu Lee, Janghoon Han, Hosung Song, Stanley Jungkyu Choi, Honglak Lee, Youngjae Yu

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 **AAAI 2025**
Jiwan Chung, Seungwon Lim, Sangkyu Lee, Youngjae Yu

HyperCLOVA X Techinal Report arXiv
HyperCLOVA X Team

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)

EXTRACURRICULAR ACTIVITIES

Student Society: Lead of Data Science Team, YBIGTA, Yonsei University (Mar. 2022 – Feb. 2023)
Club Activity: Band Leader (Lead Vocalist), SRGB, Hanyang University (Mar. 2017 – Feb. 2019)

TECHNICAL SKILLS

Programming Languages: Python, C++, Java, R, MATLAB
Frameworks: PyTorch, PyTorch Lightning
Libraries: Transformers, TRL, Accelerate, DeepSpeed, vLLM, Diffusers, scikit-learn, Optuna
Math Coursework: Real Analysis, Mathematical Statistics, Linear Algebra, Numerical Analysis
Language Proficiency: Korean (Native), English (Fluent), Japanese (Fluent)