Byungwoo Jeon

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Research Interest

My research goal is to build a comprehensive system of visual recognition and generation beyond the human level. To this end, I focus on (i) how to extend cognitive abilities using generative models, (ii) how to ensure prior knowledge and temporal consistency using representations of foundation models, and (iii) how to develop a robust alignment of visual and language semantics under novel tasks.

- Self-supervised Learning
- Multi-modal Representation
- Generative Models
- Neural Rendering

Education

Korea University   *Seoul, Korea*

B.S. in Computer Science & Engineering, Statistics (Double Major)   *Mar 2020 - Aug 2024 (Expected)*

Experience

Algorithmic Intelligence Lab (ALINLAB), KAIST AI   *Jeongja, Korea*

Undergraduate Intern (advisor: Prof. Jinwoo Shin)   *Mar 2023 - Current*

- Researched Self-supervised Learning and Zero-shot Adaptation of Vision-Language Models
- Researched Depth Estimation with Neural Radiance Fields
- Participated in the ALINLAB weekly group paper study (*Paper reading & Implementation*)

ARCREAL   *Gangnam, Korea*

Research Intern (host: Prof. Jinwoo Shin)   *Jan 2023 - Current*

- Developed AI systems for medical equipment
- Developed segmentation projects
- Researched several 3d vision topics

Machine Learning & Vision Lab (MLVLAB), Korea Univ. CSE   *Anam, Korea*

Undergraduate Intern (advisor: Prof. Hyunwoo J. Kim)   *Jul 2022 - Dec 2022*

- Studied Open-Vocabulary Object Detection
- Studied Human-Object Interaction (HOI)
- Participated in the government policy supporting AI challenge team
- Participated in the MLVLAB weekly group paper study (*Paper reading & Implementation*)

M-Monstar   *Pangyo, Korea*

Full-stack Developer   *Jul 2021 - Aug 2021*

- Developed a modular e-commerce management platform page using Laravel framework
- Optimized and debugged the site, HAGO

Honors & Awards

K-Data Science Hackathon   *Siheung, Korea*
Second-Place (2th/200)   *Nov 2023*
- Award by the chairman of Korea Research Foundation, Prize 3,000,000 won
- Developed a multi-stage time-series forecasting model for predicting school-age population

Artificial Intelligence Grand Challenge   *Seoul, Korea*
Top 9 (8th Prize)   *Oct 2022 - Dec 2022*
- Developed AI for supporting the government policies based on natural language proceesing
- Developed query parser for pre-processing

Training

United Collegiate Programming Contest   *Seoul, Korea*
3 Problems solved   *Jul 2021*

Yonsei-NAVER CLOUD Data Science Course   *Seoul, Korea*
Completed financial engineering course   *Feb 2021 - Jun 2021*

Skills

Programming	Python (PyTorch, TensorFlow), C, C++, SQL, PHP, Javascript, R, SAS
Miscellaneous	Linux, Firebase, Git, LaTeX
Soft Skills	Teamwork, Problem-solving, Documentation, Engaging Presentation.

Extracurricular Activity

KUBIG
Member   *Jul 2023 - Jan 2024*
- Lectured Mathematics and Statistics for Deep Learning
- Developed personalized animated-video service using diffusion models
- Participated in Computer Vision and Time Series Seminar
- Participated in Stochastic Optimization Session (2024 Winter) of Professor Sungbin Lim, Korea Univ.
- Participated as a pacemaker in Deep Learning Session (2023 Summer) of Professor Sungbin Lim, Korea Univ.

Google Developer Student Clubs
Lead & Founder   *Jul 2022 - Aug 2023*
- Lectured Machine Learning, Databases, and Algorithm courses for undergraduate students
- Developed stable diffusion crawling with text summarization project
- Developed Horang-Studio, personalized AI profile service using diffusion models
- Developed 2024 Google Solution Challenge project (Recovery)
- Developed 2023 Google Solution Challenge project (digiHow)
- Lead three teams to the Global Top 100 in 2023 Google Solution Challenge
- Lead one team to the Global Top 10 in 2023 Google Solution Challenge
- Host of 2023 East Asia GDSC Global Hackathon in Tokyo

Korea Computer Science Academy (Academy club in Korea Univ.)
Member & Instructor   *Mar 2020 - Mar 2022*
- Lectured Data Structure course for undergraduate students
- Lectured C Programming course for undergraduate students

Languages

English	Professional proficiency
Korean	Native proficiency

Coursework

2020-1	**Fundamentals of Data Science**	
2020-2	**Computer Programming**	
2020-2	**Probability and Statistics**	
2020-2	**Data Structure**	
2021-1	**Algorithm**	
2021-1	**Theory of Computation**	
2021-1	**Discrete Mathematics**	
2021-1	**Linear Algebra**	
2021-2	**Databases**	*A+, Second-place*
2021-2	**Computer Network**	
2021-2	**Computer Architecture**	
2022-1	**Statistical Mathematics**	
2022-1	**Introduction to Probability Theory**	
2022-1	**Operating Systems**	
2022-1	**Artificial Intelligence**	*A+*
2022-2	**Machine Learning**	*A+*
2022-2	**Deep Learning**	*A+*
2022-2	**Regression Analysis**	
2022-2	**Mathematical Statistics**	
2022-2	**Probability and Random Process**	
2023-1	**Analysis**	
2023-1	**Natural Language Processing**	*A+*
2023-1	**Computer Vision**	*A+*
2023-1	**Statistical Data Science**	*A+, First-place*
2023-2	**Numerical Analysis**	*A+*
2023-2	**Introduction to Bayesian Statistics**	*A+*
2024-1	**Multivariate Statistical Analysis**	
2024-1	**Advanced Machine Learning**	