# Byungwoo Jeon

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## Research Interest

My research goal is to build a representation of the 3d world so that it can be used in real-time for real-world problems. To this end, I focus on (i) how to effectively reduce the computation and memory cost of 3d data and (ii) how to understand primitives in general in terms of neural networks.

- Self-supervised and Contrastive Learning
- Neural Radiance Fields
- Generative Models

## Education

**Korea University** — *Seoul, Korea*

B.S. in Computer Science & Engineering, Statistics (Double Major) — *Mar 2020 - Current*

## Experience

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

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

- Researched prompt optimization on Vision-Language Models
- Researched Self-supervised Learning on Label-free and Zero-shot Tasks
- 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

**LIM Lab, Korea Univ. STAT** — *Anam, Korea*

Undergraduate Intern (advisor: Prof. Sungbin Lim) — *Aug 2023 - Current*

- Researched Diffusion models with Genesis Lab

**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

**Artificial Intelligence Grand Challenge** *Seoul, Korea*

Top 9 ($8^{th}$ Prize) *Oct 2022 - Dec 2022*

- Developed AI for supporting the government policies based on natural language proceessing
- 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*

**LG Aimers** *Seoul, Korea*

Ranked Top 40 in Hackathon *Oct 2023*

## 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 - Jul 2024*

- Lectured Mathematics and Statistics for Deep Learning
- Participated in Computer Vision Seminar
- Participated in Time Series Analysis Seminar
- Developed personalized animated-video service using diffusion models
- Participated as a pacemaker in Deep Learning Session of Professor Sungbin Lim, Korea Univ.

**Google Developer Students Club**

Lead *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
- 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 | **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** | |
| 2023-2 | **Introduction to Bayesian Statistics** | |