

# Kim Jisoo

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| [Personal Website](#) | [GitHub](#) |

## RESEARCH INTERESTS

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### Deep Learning based Machine perception understanding including:

Multi-modal Learning, Representation Learning, Data efficient Learning, and Data Augmentation

## EDUCATION

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### Ewha Womans University

*Bachelor of Computer Science*

Mar. 2018 – Mar. 2023

*Seoul, Korea*

- CGPA: 3.76/4.3, Major GPA: 3.86/4.3, *Magna Cum Laude*
- Academic Excellence Scholarship (full-tuition scholar during 4 years)

## PUBLICATIONS

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(Equal contribution are denoted by “\*”).

[1] M. Ye-Bin, **Kim Jisoo**, K. Hong-Yeob, S. Kil-Ho, O. Tae-Hyun “TextManiA: Enriching Visual Feature by Text-driven Manipulation and Augmentation” submitted to *CVPR*, 2023.

[2] K. Da-yeon\*, **Kim Jisoo**\*, K. Do-yeon, K. Hye-Jin, C. Ki-Jun “Grape Grade Discrimination System using Step-by-Step Deep Learning Model and Drone Path Planning Algorithm”, *Korean Institute of Information Scientists and Engineers: KIISE*, 2021.

## RESEARCH EXPERIENCE

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### Algorithmic Machine Intelligence Lab, POSTECH

*External Research Participant (Advisor : Prof. TaeHyun Oh)*

Jul. 2022 - Present

*Pohang, Korea*

- Researched on Text-driven Visual Augmentation, paper submitted for CVPR 2023.
- Validated research hypothesis by designing experiments such as text-guided image editing and text embedding visualization with dimensionality reduction methods.
- Implemented baseline and conducted a comparison experiment on long-tail classification, achieved 11.54% accuracy gain in tail classes compared to the baseline.

### NuviLab, Inc.

*AI Software Engineer Intern*

Jan. 2022 – Jun. 2022

*Seoul, Korea*

- Researched on Zero-Shot Classification model that leverages Vision-Language representation.
- Re-implemented CLIP and DeepSORT in Pytorch Lightning to classify 2,000+ food categories in image and videos.
- Proposed new loss measurement method in CLIP and enhanced food classification performance by 4.9%
- Managed over 140k images by building automated synchronizing system between AWS S3 and local database and adapted an anomaly detection system; used AWS lambda, fast api and MySQL.
- Built multi-conditional validation set sampling API and analyzed domain gap problem between train data sources.

### Computer Vision Lab, POSTECH

*Undergraduate Research Intern (Advisor : Prof. Jaesik Park)*

May 2021 – Sep. 2021

*Pohang, Korea*

- Researched on Generative Model and Representation Learning.
- Implemented ‘Repurposing GANs for One-shot Semantic Part Segmentation’ in PyTorch and extended to an ablation study on other tasks and dataset. [\[Github\]](#)

## PROJECTS

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### GGDS: Generalizable Grape Development System

Sep. 2021 – Jun. 2022

*Project Leader, AI Engineer*

*Seoul, Korea*

- Built an intelligence system for grape farms that provides grape grading, yield management, and grape thinning assistance service; technologies consists drone autonomous driving, detection, tracking, segmentation.
- Consolidated a feature extractor and a regression model to estimate total number of berries including occluded ones from a monocular image.
- Introduced and presented as best practice at the UIC Barcelona (Universitat Internacional de Catalunya).

### AWS CIC Challenge

Nov. 2021 – May 2022

*AI Software Researcher & Engineer*

*Seoul, Korea*

- Constructed leaf segmentation system and calculated the leaf area to build database for perilla leaf farming; applied them to local farms in Geumnsan, Korea.
- Provincial government project, funded by the Geumsan county.

### Naver AI BoostCamp

Jul. 2021 – Dec. 2021

*AI Engineer*

*Seoul, Korea*

- Implemented custom CutMix module and improved performance by 3% for trash semantic segmentation model.
- Developed diary application for companion animals using Multimodal Model CLIP; Generated diary text by classifying emotion, action, and locations from pet photos.

### Junction X Seoul AI Hackathon

May 2021

*AI Software Engineer*

*Seoul, Korea*

- Segmented major facilities (i.e. building, road) from satellite images and adapted proposal algorithms including building clustering and road adjacency measurement to establish a location proposal model for fire stations. [\[Github\]](#)

## AWARDS & HONORS

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**Gold Prize**, Graduation Project Competition, Ewha Womans University

*May 2022*

**2<sup>nd</sup> Place**, Smart Farm AI Challenge, Ministry of Agriculture, Food, and Rural Affairs, Korean Gov.

*Mar. 2022*

**Best Poster Award**, Graduation Project Competition, Ewha Womans University

*Nov. 2021*

**2<sup>nd</sup> Place**, SW Startup Competition, Ewha Womans University

*Nov. 2021*

**Finalist** in Animal Datathon Korea, Ministry of Agriculture, Food, and Rural Affairs, Korean Gov.

*Aug. 2021*

**2<sup>nd</sup> Place**, JunctionXSeoul AI Hackathon, Junction Korea

*May 2021*

**ADsP certificate**, Advanced Data Analytic Semi-Professional certified by Korea Data Agency

*Mar. 2021*

**Dean's List**, every eligible quarter

*2020 – 2021*

## TEACHING EXPERIENCE

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### Udacity Mentor

Sep. 2022 - Current

- Mentor for Udacity Nanodegree for AI programming and code reviews with Python

## EXTRA

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### Technical Skills

Advanced: Python, PyTorch, Pytorch Lightning, Java, C/C++, Git, SQL, Linux, PHP

Moderate: AWS EC2, AWS S3, AWS Cloudwatch,  $\text{\LaTeX}$ , FastAPI

**Languages:** Korean (native fluency), English (full-professional proficiency), Spanish (limited working proficiency)

**Theater Troupe:** Led 50+ members as a president, participated as actress and director.