Byeongju Woo

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Education

University of Michigan — Starting Fall 2026
Ph.D. in Computer Science and Engineering (Advisor: Stella Yu) — Ann Arbor, MI
Incoming Ph.D. Student

Pohang University of Science and Technology (POSTECH) — Mar 2019 – Feb 2023
B.S. in Computer Science and Engineering — Pohang, South Korea
Summa Cum Laude

Publications

[1] **Aligning Forest and Trees in Images and Long Captions for Visually Grounded Understanding**
Byeongju Woo, Zilin Wang, Byeonghyun Pak, Sangwoo Mo, Stella Yu
Under Review

[2] **Textual Query-Driven Mask Transformer for Domain Generalized Segmentation**
Byeongju Woo*, Byeonghyun Pak*, Sunghwan Kim*, Dae-hwan Kim, Hoseong Kim
ECCV 2024

[3] **Human Pose Estimation in Extremely Low-Light Conditions**
Sohyun Lee*, Jaesung Rim*, Boseung Jeong, Geonu Kim, **Byungju Woo**, Haechan Lee, Sunghyun Cho, Suha Kwak
CVPR 2023

Work/Research Experience

Independent Research — Jan 2025 – Present
Remote Collaboration with University of Michigan (advisor: Prof. Stella Yu) — Daejeon, South Korea

- Researched language-grounded visual understanding
- 1 paper under review

Agency for Defense Development — Mar 2023 – Present
Research Officer for National Defense (ROND) — Daejeon, South Korea

- Project: Domain Generalized Object Detection for UAV detection
  - Developed robust detection algorithm for infrared imagery
  - Planned, collected, and preprocessed EO/IR datasets, and developed synthetic datasets
  - Researched synthetic-to-real domain generalization by integrating vision-language models (VLMs)
  - 1 Publication in ECCV 2024 [project page]

Machine Learning Lab @ POSTECH — Aug 2022 – Dec 2022
Undergraduate Research Intern (advisor: Prof. Sungsoo Ahn) — Pohang, South Korea

- Researched topological neural networks incorporating molecular structure (e.g., functional group)

Computer Vision Lab @ POSTECH — Dec 2021 – May 2022
Undergraduate Research Intern (advisor: Prof. Suha Kwak) — Pohang, South Korea

- Researched robust human pose estimation under adverse condition (e.g., extremely low-light)
- 1 Publication in CVPR 2023 [project page]

SK Hynix Jun 2021 – Jul 2021
Computer Vision Research Intern Daejeon, South Korea

- Developed an automated algorithm to pre-check for rejects in 3D NAND manufacturing with DL models

Honor, Awards and Scholarship

Director's Award, Agency for Defense Development Dec 2022

- Second place, national defense research projects (miliTECH Challenge)
- *Topic: Autonomous mobile robot with friend-or-foe identification*

Excellence Research Award, POSTECH Jun 2022

- Second place, undergraduate CSE research project
- *Topic: Human pose estimation in extremely low-light conditions*

Minister's Award, Ministry of Science and ICT Dec 2021

- First place, national defense research projects (miliTECH Challenge)
- *Topic: Designing adversarial patches to protect friendly forces from deep-learning detectors*

SK Hynix Industry-Academia Scholarship Sep 2021 – Feb 2023

- **Stipend** scholarship for outstanding performance in industry-academia research

Korea National Scholarship of Excellence in Science and Technology Mar 2021 – Feb 2023

- **Full-ride** scholarship for selected research officers in defense science and technology

Jigok Tuition Scholarship, POSTECH Mar 2019 – Feb 2021

- **Full-ride** merit-based scholarship for academic excellence

Teaching Experience

POSTECH AIGS102: Introduction to Artificial Intelligence II Sep 2022 – Dec 2022

- Teaching Assistant for Prof. Eunyoung Youn, managed course assignments

POSTECH AIGS101: Introduction to Artificial Intelligence I Mar 2022 – Jun 2022

- Teaching Assistant for Prof. Eunyoung Youn, weekly lab sessions and grading

Skills

Programming Languages: Python, C/C++, Java, R, SQL

Frameworks & Tools: PyTorch, TensorFlow, NumPy, OpenCV, Pandas, Docker, Git

Certificate: Engineer Big Data Analysis (acquired Oct. 2023)