# Minji Kim

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Hompage
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I am a 5th-year PhD student at SNU Computer Vision Lab, under the guidance of Prof. Bohyung Han. I am passionate about **designing cutting-edge deep neural networks** for **video understanding**, aiming to capture object, scene, and temporal dynamics at the level of human perception. To this end, my research focuses on: **Video Understanding, Video Action Recognition, Object Tracking, Multimodal Learning**, and **(Large) Vision-Language Models**.

## EDUCATION

**Ph.D. in Electrical and Computer Engineering, Seoul National University**          Mar 2020 — Present
Advisor: Prof. Bohyung Han                                                                                     *Seoul, Korea*

**B.S. in Electrical and Electronics Engineering, Konkuk University**          Mar 2016 — Feb 2020
GPA 4.31/4.50, Major GPA 4.43/4.50, Rank 2/86                                                          *Seoul, Korea*

## WORK EXPERIENCE

**NAVER AI Lab** — Research Intern                                                          Oct 2023 — Mar 2024
- Mentors: Taekyung Kim and Dongyoon Han at Backbone Research team          *Seongnam, Korea*
- Worked on enhancing CLIP's video understanding capability by integrating long-range temporal information
- Achieved SOTAs in 5 open-vocabulary action recognition benchmarks (Kinetics400/600, SSv2, HMDB51, UCF101)
- Published Temporally Contextualized CLIP (TC-CLIP) at ECCV 2024 [1]

## PUBLICATIONS

[1] **Leveraging Temporal Contextualization for Video Action Recognition**          **ECCV 2024**
    **Minji Kim**, Dongyoon Han, Taekyung Kim, Bohyung Han

[2] **Towards Sequence-Level Training for Visual Tracking**          **ECCV 2022**
    **Minji Kim***, Seungkwan Lee*, Jungseul Ok, Bohyung Han, Minsu Cho (*Equal Contribution)

[3] **Online Hybrid Lightweight Representations Learning: Its Application to Visual Tracking**          **IJCAI 2022**
    Ilchae Jung, **Minji Kim**, Eunhyeok Park, Bohyung Han

[4] **Top-down Thermal Tracking Based on Rotatable Elliptical Motion Model**          **Multimedia Systems 2020**
    **for Intelligent Livestock Breeding**
    **Minji Kim**, Wonjun Kim

## RESEARCH PROJECTS

**LLMs for Video Understanding (Ongoing)**          Present
**Tuning CLIP for Video Action Recognition** [1]          Oct 2023 — Jul 2024
- TC-CLIP: Internship project at NAVER AI Lab (see Work Experience section)

**Tiny Object Detection in EO/IR Images**          Jan 2022 — May 2023
- Funded by the Agency for Defense Development (ADD)
- Developed a multispectral data augmentation technique for training a unified EO/IR detection model

**Sequence-Level Training for Object Tracking** [2]          Apr 2021 — Oct 2022
- Proposed a reinforcement learning-based training strategy to resolve the training-testing inconsistency of trackers
- Improved tracking accuracy by up to 12%p only through RL fine-tuning, without modifying the architecture

## HONORS & AWARDS

**IPIU Best Paper Award**          Feb 2023
*Towards Sequence-Level Training for Visual Tracking (ECCV 2022)* [2]

**IPIU Undergraduate Best Paper Award**                                          Feb 2019
*Top-down Thermal Tracking Based on Rotatable Elliptical Motion Model for Intelligent Livestock Breeding* [4]

**Intel FPGA Design Contest (3rd Place)**, Intel Korea Ltd.                       Dec 2017
*Video Stabilization Based on Heterogeneous Computing Using OpenCL*

**Academic Excellence Scholarship**, Konkuk University                           2016 — 2019

## TEACHING EXPERIENCE

**Samsung Electronics** — Teaching Assistant
- Samsung AI Expert: Real-Time Video Object Segmentation for Automated Bottle Replacement    Sep 2024 — Present
- Samsung AI Academy, Advanced Course: Real-Time Visual Object Tracking    Jul 2020
- Samsung AI Academy, Advanced Course: Real-Time Visual Object Tracking    May 2020

**Seoul National University** — Teaching Assistant
- Dependable Deep Neural Networks (Prof. Bohyung Han)    Spring 2022
- Data Structures (Prof. Bohyung Han)    Fall 2021

## ACADEMIC SERVICE

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|---|---|
| **Conference Reviewer** | CVPR 2025, AAAI 2025 |
| | ECCV 2024, NeurIPS 2024 Workshop on Video-Language Models, WACV 2024 |
| | CVPR 2023, ICCV 2023, NeurIPS 2023 |
| **Journal Reviewer** | TPAMI, MVAP |

## LEADERSHIP

**President of BOOT&4DIM**                                                        2018
Electronics Engineering Academic Club, Konkuk University
- Delivered seminars for Image Processing with OpenCV, C/C++ Programming, and Data Structures
- Mentored junior teams in embedded software projects and algorithm competitions

## OTHER RESEARCH EXPERIENCE

**Computer Vision Lab, Seoul National University** — Student Research Intern    Jun 2019 — Sep 2019
- Developed an ensemble framework of object trackers, advised by Prof. Bohyung Han

**Deep Computer Vision Lab, Konkuk University** — Student Research Intern    Jan 2018 — Apr 2019
- Developed a deformable multi-object tracking framework using thermal sensors based on Kalman filter [4]
- Conducted research on low-light image enhancement with singular value decomposition (B.S. thesis)

## SKILLS

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|---|---|
| **Tools and Languages** | PyTorch, Python, C/C++, MATLAB, Git, Docker, LaTeX |
| **Communication** | Korean (Native), English (Fluent, TOEFL 104/120) |

## REFERENCE

**Advisor: Prof. Bohyung Han**
- bhhan@snu.ac.kr
- cv.snu.ac.kr/index.php/ bhhan