

Younggun Kim

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EDUCATION

University of Central Florida, Florida, U.S.

Aug. 2024 - Dec. 2025

- ✓ Master of Science in Civil Engineering, Smart City Track
- ✓ Advisor: [Dr. Mohamed Abdel-Aty](#)
- ✓ Cumulative GPA: **4.0/4.0**
- ✓ Selected Coursework: *Advanced Computer Vision; Machine Learning; Computer Vision; Connected Autonomous Vehicles; Algorithms and Models for Smart Cities; Data Mining*

Ajou University, Suwon, South Korea

Mar. 2018 - Feb. 2024

- ✓ Bachelor of Science in Mechanical Engineering
- ✓ Cumulative GPA: **4.28/4.5 (3.9/4.0) (top 2%)**
- ✓ Selected Coursework: *Data Structure; Computer Programming and Practice; Convergent Programming; Fundamental of Machine Learning; Numerical Analysis and Machine Learning*

PUBLICATIONS (* and † indicate corresponding authors and equal contributions, respectively.)

Accepted Publications (incl. minor revision)

- [1] Multi-view Structural Convolution Network for Domain-Invariant Point Cloud Recognition of Autonomous Vehicles
 - ✓ [Younggun Kim](#), Mohamed Abdel-Aty, Beomsik Cho, Seonghoon Rhoo, and Soomok Lee*
 - ✓ Minor Revision at *IEEE Transactions on Intelligent Vehicles*. [Impact Factor: 14.3, JCR Quartiles: Q1]
- [2] Region-Level Vision-Language Model for Detecting Distraction Behaviors and Mobility Attributes of Vulnerable Road Users
 - ✓ Dai Quoc Tran*, Mohamed Abdel-Aty, [Younggun Kim](#), Ahmed Abdelrahman, and Zybayer Islam
 - ✓ *IEEE Transactions on Intelligent Transportation Systems*. [Impact Factor: 8.4, JCR Quartiles: Q1]
- [3] VRU-Accident: A Vision-Language Benchmark for Video Question Answering and Dense Captioning for Accident Scene Understanding
 - ✓ [Younggun Kim](#), Ahmed Abdelrahman*, and Mohamed Abdel-Aty
 - ✓ *International Conference on Computer Vision Workshop (ICCVW)*, 2025. [**Oral, Best Student Paper Award**]
- [4] Pedestrian Crossing Direction Prediction at Intersections for Pedestrian Safety
 - ✓ [Younggun Kim](#)*, Mohamed Abdel-Aty, Keechoo Choi, Zubayer Islam, Dongdong Wang, and Shaoyan Zhai
 - ✓ *IEEE Open Journal of Intelligent Transportation Systems*, 2025. [Impact Factor: 5.3, JCR Quartiles: Q1]
- [5] 3D Adaptive Structural Convolution Network for Domain-Invariant Point Cloud Recognition
 - ✓ [Younggun Kim](#) and Soomok Lee*
 - ✓ *Asian Conference on Computer Vision (ACCV)*, 2024.

Under Review & arXiv Preprint

- [1] Safe-LLaVA: A Privacy-Preserving Vision-Language Dataset and Benchmark for Biometric Safety
 - ✓ [Younggun Kim](#)†, Swetha Sirnam†, Fazil Kagdi, and Mubarak Shah
 - ✓ Under review at *IEEE/CVF Computer Vision and Pattern Recognition (CVPR)*.
- [2] MMCFormer: Macro-Micro Cross-Attention Transformer for Traffic Speed Prediction with Microscopic Connected Vehicle Driving Behaviors
 - ✓ Lei Han*, Mohamed Abdel-Aty, [Younggun Kim](#), Yang-Jun Joo, and Zybayer Islam
 - ✓ Under review at *IEEE Transactions on Intelligent Transportation Systems*. [Impact Factor: 8.4, JCR Quartiles: Q1]
- [3] Gated Kinematic–Visual Fusion for Right-Turn Pedestrian Conflict Risk Assessment
 - ✓ Dai Quoc Tran*, Mohamed Abdel-Aty, Qianqian Jin, [Younggun Kim](#), Zubayer Islam, Seunghee Park
 - ✓ Under review at *IEEE Transactions on Intelligent Transportation Systems*. [Impact Factor: 8.4, JCR Quartiles: Q1]

PROFESSIONAL SERVICES

- [1] Reviewer, *Science of Remote Sensing*, 2025.
- [2] Reviewer, *Transportation Research Board Annual Meeting*, 2025. (**5 times**)
- [3] Reviewer, *IEEE Open Journal of Intelligent Transportation Systems*, 2025.
- [4] Reviewer, *International Conference on Computer Vision Workshop (ICCVW)*, 2025.

CONFERENCE PRESENTATIONS

- [1] **Five papers** (including two as first authors and three as co-authors) were accepted and will be presented at *105th Transportation Research Board Annual Meeting*. Jan. 2026
- [2] **Younggun Kim**, Ahmed Abdelrahman*, and Mohamed Abdel-Aty, “VRU-Accident: A Vision-Language Benchmark for Video Question Answering and Dense Captioning for Accident Scene Understanding”, *International Conference on Computer Vision Workshop (ICCVW)*. Oct. 2025
- [Oral, Best Student Paper Award]**
- [3] **Younggun Kim** and Soomok Lee* “3D Adaptive Structural Convolution Network for Domain-Invariant Point Cloud Recognition”, *the Asian Conference on Computer Vision (ACCV)*, 2024. **[BK21(Brain Korea) Distinguished Conference Paper List]** Dec. 2024
- [4] **Younggun Kim**, Yooseong Lee, Uikyum Kim*, “Design of capable of Grasping and Manipulating Various objects”, Oral session presented at the *17th Korean Robotics Society Annual Conference (KROS)*. **[Best Paper Award]** May. 2022

PATENTS

- Younggun Kim**, Minjoung Sim, Hojun Lee, Wonjun Choi, and Hanbin Choi,
Intelligent cradle for a device (Patent No. 10-2506732, KR)

Mar. 2023

AWARDS AND SCHOLARSHIPS

- UCF Research Assistantship**
Fully funded by the University of Central Florida, covering tuition, insurance, and stipend. Aug. 2024 - Dec. 2025
- Best Student Paper Award**
Oral presentation, 2COOOL Workshop, International Conference on Computer Vision (ICCV). Oct. 2025
- Dean's List: 4 times**
Ajou University, South Korea
Awarded to students ranked in the top 5% of the department based on semester GPA. Jul. 2021 - Aug. 2023
- University Scholarship: 7 times**
Ajou University, South Korea Sep. 2021 - Sep. 2023
- Encouragement prize in Academic Club Competition: 2 times**
Ajou University, South Korea Jun. 2022, May. 2023
- City Scholarship**
Asan-si Future Scholarship Foundation, Asan-si, South Korea
Awarded to students who are expected to lead the 4th Industrial Revolution in the future Jun. 2023
- 1st Place in the Patent Competition**
Ajou University, South Korea Jun. 2023
- University Scholarship (1 out of 637)**
Daewoo Scholarship Foundation, Ajou University, South Korea
Awarded to a student ranked 1st in the College of Engineering based on semester GPA. Apr. 2023
- Best Paper Award**
Oral session, 17th Korean Robotics Society Annual Conference (KROS), South Korea May. 2022
- 1st Place in College of Engineering Academic Club Competition**
Ajou University, South Korea Sep. 2018

TECHNICAL SKILLS

- [1] **Specialties:** Deep Learning, Computer Vision, Large Language Models, Dataset and Benchmark Curation
[2] **Programming:** Python, C/C++, Matlab [2] **Framework:** Pytorch, OpenCV, HF Transformers [3] **OS:** Linux, Windows
[4] **Analysis:** Ansys Workbench [5] **Manufacturing:** 3D printing, Laser cutting [6] **CAD:** SolidWorks

RESEARCH EXPERIENCES (EMPLOYMENT)

Graduate Research Assistant Aug. 2024 - Dec. 2025

Smart & Safe Transportation Laboratory, University of Central Florida, USA

(*Advisor: Prof. Mohamed Abdel-Aty, Board of Trustees Chair Professor, Pegasus Professor,*

Email: m.aty@ucf.edu)

- VRU-Accident: A Vision-Language Benchmark for Video Question Answering and Dense Captioning for Accident Scene Understanding
- Proposal of a large-scale benchmark comprising 1K VRU-related crash videos, 6K VQA questions with 24K candidate options, and 1K dense scene-level captions.
- Proposal of a semi-automatic benchmark curation pipeline to effectively generate VQA and Caption.
- ✓ Accepted at ***International Conference on Computer Vision Workshop (ICCVW).***
- Pedestrian Crossing Direction Prediction at Intersections for Pedestrian Safety
- A novel transformer-based framework to predict future human crossing direction from CCTV.
- Proposal for Geometric-Invariant Space Embedding System to ensure pedestrian size-invariance, intersection geometric-invariance, and CCTV location-invariance.
- ✓ Accepted at ***IEEE Open Journal of Intelligent Transportation Systems.***

Nov. 2023 - Jul. 2024

Undergraduate Research Assistant

Machine Learning & Mobility Laboratory, Ajou University, South Korea

(*Advisor: Prof. Soomok Lee, Email: soomoklee@ajou.ac.kr*)

- 3D Adaptive Structural Convolution Network for Domain-Invariant Point Cloud Recognition
- A novel deep learning network proposal for domain-invariant point cloud recognition
- Adaptive neighborhood sampling method proposal based on principal component analysis
- Experiments about intra-domain and cross-domain environments
- ✓ Accepted at ***Asian Conference on Computer Vision (ACCV).***
- Multi-view Structural Convolution Network for Domain-Invariant Point Cloud Recognition of Autonomous Vehicles
- A new deep learning model, which is developed from ASCN, for domain-invariant PCD recognition
- 2D image-based domain generalization framework modification to adapt it to point clouds
- Proposal for a synthetic point cloud dataset from MORIA simulator
- ✓ Minor revision at ***IEEE Transactions on Intelligent Vehicles.***

Sep. 2021 - Jul. 2022

Undergraduate Research Assistant

Interactive & Intelligent Robotics Laboratory, Ajou University, South Korea

(*Advisor: Prof. Uikyum Kim*)

- Design of a soft gripper capable of Grasping and Manipulating Various Objects
- Structure Analysis of the soft gripper through Finite Element Method
- Manipulating force optimization using Ansys
- ✓ Accomplished Best Paper Award at ***Korean Robotics Society (KROS).***
- Force Feedback-based Robot Arm Control
- Calibration and integration of a 6-DOF force/torque (F/T) sensor with a Franka Emika robot arm
- Force-torque-driven end-effector position adjustment enabling adaptive pick-and-place manipulation

ADDITIONAL EXPERIENCES

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| Coursework Project (Advanced Computer Vision, Advisor: Prof. Mubarak Shah) | Jan. 2025 - Aug. 2025 |
| <ul style="list-style-type: none">• Safe-LLaVA: Privacy-Preserving Vision-Language Dataset and Benchmark for Biometric Safety- Originally developed as a coursework project (Jan. 2025 to May. 2025).- Proposal for captioning and instruction fine-tuning dataset to protect biometric leakage from VLM.- Proposal for a benchmark to thoroughly evaluate leakages of biometric information from VLMs.✓ Under review at IEEE/CVF Computer Vision and Pattern Recognition (CVPR). | |
| Project Experience | Mar. 2021 – Feb. 2024 |
| <i>Academic Club in Ajou University</i> | |
| <ul style="list-style-type: none">• President of the academic club from Mar.2021 to Feb.2022• Intelligent cradle for a device- User heading angle and position recognition system design based on key point recognition- System control from information about user heading angle and position✓ Registered South Korea patent as the first inventor• Design of a robotic gripper based on an under-actuated mechanism to grasp various objects- Kinematic model Analysis of a robotic gripper to grasp various objects- Gripper motion simulation using Matlab and SolidWorks- Gripper's real-time state visualization via OpenGL✓ Accomplished 1st Place in the Patent Competition | |
| Republic of Korea Army | Apr. 2019 - Nov. 2020 |
| <ul style="list-style-type: none">• Mandatory military service | |
| Project Experience | Mar. 2018 - Mar. 2019 |
| <i>Academic Club at Ajou University</i> | |
| <ul style="list-style-type: none">• Design of Turtle Ship Using Conventional Power Sources- A turtle ship design using SolidWorks✓ Accomplished 1st place in College of Engineering academic club competition | |

REFERENCES

Academic Advisors

Dr. Mohamed Abdel-Aty (Email: m.aty@ucf.edu)

- Trustees Chair Professor and Pegasus Professor, University of Central Florida, FL, U.S.
- Citations: 41,500+, H-index: 107
- Fellow of ASCE and ITE
- Editor-in-Chief Emeritus, *Accident Analysis & Prevention*

Dr. Mubarak Shah (Email: shah@crcv.ucf.edu)

- Trustee Chair Professor and Founding Director of the Center for Research in Computer Vision at UCF, FL, U.S.
- Citations: 111,700+, H-index: 147
- Fellow of IEEE, AAAS, IAPR, and SPIE
- Editor-in-Chief, *Machine Vision and Applications*

Dr. Soomok Lee (Email: soomoklee@ajou.ac.kr)

- Assistant Professor, Department of Artificial Intelligence and Department of Mobility Engineering, Ajou University, Sowon, South Korea

Career & Life Mentor

Dr. Keechoo Choi (Email: keechoo@ajou.ac.kr)

- President, Ajou University, Suwon, South Korea
- Founding Editor-in-Chief, *International Journal of Sustainable Transportation*