Younggun Kim

Email: younggun.kim@ucf.edu • Website: Profile, Github, Google Scholar, LinkedIn

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 Progr amming; 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] MMCAformer: 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).* **[Oral, Best Student Paper Award]** **Oct. 2025**

[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 **Aug. 2024 - Dec. 2025**
Fully funded by the University of Central Florida, covering tuition, insurance, and stipend.

Best Student Paper Award **Oct. 2025**
Oral presentation, 2COOOL Workshop, International Conference on Computer Vision (ICCV).

Dean's List: 4 times **Jul. 2021 - Aug. 2023**
Ajou University, South Korea
Awarded to students ranked in the top 5% of the department based on semester GPA.

University Scholarship: 7 times **Sep. 2021 - Sep. 2023**
Ajou University, South Korea

Encouragement prize in Academic Club Competition: 2 times **Jun. 2022, May. 2023**
Ajou University, South Korea

City Scholarship **Jun. 2023**
Asan-si Future Scholarship Foundation, Asan-si, South Korea
Awarded to students who are expected to lead the 4th Industrial Revolution in the future

1st Place in the Patent Competition **Jun. 2023**
Ajou University, South Korea

University Scholarship (1 out of 637) **Apr. 2023**
Daewoo Scholarship Foundation, Ajou University, South Korea
Awarded to a student ranked 1st in the College of Engineering based on semester GPA.

Best Paper Award **May. 2022**
Oral session, 17th Korean Robotics Society Annual Conference (KROS), South Korea

1st Place in College of Engineering Academic Club Competition **Sep. 2018**
Ajou University, South Korea

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 Cap tioning 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*.**

Undergraduate Research Assistant — Nov. 2023 - Jul. 2024

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.***

Undergraduate Research Assistant — Sep. 2021 - Jul. 2022

Interactive & Intelligent Robotics Laboratory, Ajou University, South Korea

(Advisor: Prof. Uikyum Kim, Email: ukim@ajou.ac.kr*)*

- 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

Coursework Project (Advanced Computer Vision, *Advisor: Prof. Mubarak Shah*) **Jan. 2025 - Aug. 2025**

- Safe-LLaVA: Privacy-Preserving Vision-Language Dataset and Benchmark for Biometric Safe ty
- 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**
Academic Club in Ajou University

- 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**

- Mandatory military service

Project Experience **Mar. 2018 - Mar. 2019**
Academic Club at Ajou University

- 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*