Hoonhee Cho

Ph.D candidate in KAIST
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PERSONAL DATA

- **Birth / Nationality**: 8th December, 1997 / Republic of Korea
- **Language**: First language Korean, Fluent in English

EDUCATION

- **Korea Advance Institute of Science and Technology (KAIST)** Daejeon, Korea
  Ph.D candidate in Robotics Program (GPA: 4.17/4.3) March 2022 - Present
  Advisor: Kuk-Jin Yoon

- **Korea Advance Institute of Science and Technology (KAIST)** Daejeon, Korea
  MS in Robotics Program (GPA: 4.15/4.3) Sep 2020 - February 2022
  Advisor: Kuk-Jin Yoon
  Thesis: Event-image Fusion Stereo using Cross-modality Feature Propagation

- **Korea Advance Institute of Science and Technology (KAIST)** Daejeon, Korea
  BS in Mechanical Engineering (GPA: 3.55/4.3) March 2016 - August 2020

RESEARCH INTEREST

- **Computer Vision and Deep Learning for Robotics, Autonomous Driving and Virtual Reality**

  - Stero-based vision, depth estimation
  - Image enhancement, image restoration
  - Domain adaptation
  - Event Camera-based Vision
  - End-to-end Autonomous Driving

PUBLICATIONS

*: Co-first authors

- **Hoonhee Cho***, Jae-Young Kang*, Giwon Lee* Hyemin Yang* Heejun Park, Seokwoo Jung, and Kuk-Jin Yoon "VR-Drive: Viewpoint-Robust End-to-End Driving with Feed-Forward 3D Gaussian Splatting" Neural Information Processing Systems (NeurIPS) 2025

- **Hoonhee Cho***, Yuhwan Jeong*, and Kuk-Jin Yoon "Learning from Intermediate Representations with a High-Resolution Optical Flow Dataset Featuring Long-Range Dynamic Motion" IEEE/CVF International Conference on Computer Vision (ICCV) 2025

- Jae-Young Kang*, **Hoonhee Cho***, and Kuk-Jin Yoon "Unleashing the Temporal Potential of Stereo Event Cameras for Continuous-Time 3D Object Detection" IEEE/CVF International Conference on Computer Vision (ICCV) 2025

- Youngho Kim*, **Hoonhee Cho***, and Kuk-Jin Yoon "From Sharp to Blur: Unsupervised Domain Adaptation for 2D Human Pose Estimation Under Extreme Motion Blur Using Event Cameras" IEEE/CVF International Conference on Computer Vision (ICCV) 2025

- **Hoonhee Cho***, Jae-Young Kang*, Youngho Kim, and Kuk-Jin Yoon "Ev-3DOD: Pushing the Temporal Boundaries of 3D Object Detection with Event Cameras" IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2025 (Highlight), (Highlight 3.0%)

- **Hoonhee Cho**, Jae-Young Kang, Taewoo Kim, Yuhwan Jeong, and Kuk-Jin Yoon "Unifying Low-Resolution and High-Resolution Alignment by Event Cameras for Space-Time Video Super-Resolution" IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2025

- **Hoonhee Cho***, Taewoo Kim*, Yuhwan Jeong, and Kuk-Jin Yoon "A Benchmark Dataset for Event-Guided Human Pose Estimation and Tracking in Extreme Conditions" Neural Information Processing Systems (NeurIPS) 2024

- **Hoonhee Cho***, Jae-Young Kang*, and Kuk-Jin Yoon "Temporal Event Stereo via Joint Learning with Stereoscopic Flow" European Conference on Computer Vision (ECCV 2024)

- **Hoonhee Cho***, Sung-Hoon Yoon*, Hyeokjun Kweon*, and Kuk-Jin Yoon. "Finding Meaning in Points: Weakly-Supervised Semantic Segmentation for Event Cameras" European Conference on Computer Vision (ECCV 2024)

- Taewoo Kim*, **Hoonhee Cho***, and Kuk-Jin Yoon. "CMTA: Cross-Modal Temporal Alignment for Event-guided Video Deblurring" European Conference on Computer Vision (ECCV 2024)

- Taewoo Kim, Jaeseok Jeong, **Hoonhee Cho**, Yuhwan Jeong, and Kuk-Jin Yoon. "Towards Real-world Event-guided Low-light Video Enhancement and Deblurring" European Conference on Computer Vision (ECCV 2024)

- Yuhwan Jeong*, **Hoonhee Cho***, and Kuk-Jin Yoon. "Towards Robust Event-based Networks for Nighttime via Unpaired Day-to-Night Event Translation" European Conference on Computer Vision (ECCV 2024)

- **Hoonhee Cho**, Taewoo Kim, Yuhwan Jeong, and Kuk-Jin Yoon. "TTA-EVF: Test-Time Adaptation for Event-based Video Frame Interpolation via Reliable Pixel and Sample Estimation" IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2024

- Taewoo Kim*, **Hoonhee Cho*** and Kuk-Jin Yoon. "Frequency-aware Event-based Video Deblurring for Real-World Motion Blur" IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2024

- **Hoonhee Cho***, Hyeonseong Kim*, Yujeong Chae, and Kuk-Jin Yoon, "Label-Free Event-based Object Recognition via Joint Learning with Image Reconstruction from Events" International Conference on Computer Vision (ICCV) 2023 (Oral) (Oral presentations: 1.8%)

- **Hoonhee Cho**, Yuhwan Jeong, Taewoo Kim, and Kuk-Jin Yoon, "Non-Coaxial Event-guided Motion Deblurring with Spatial Alignment" International Conference on Computer Vision (ICCV) 2023

- **Hoonhee Cho**, Jegyeong Cho, and Kuk-Jin Yoon. "Learning Adaptive Dense Event Stereo from the Image Domain" IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR) 2023

- Youngrae Kim*, Jinsu Lim*, **Hoonhee Cho***, Minji Lee*, Dongman Lee, Ho-Jin Choi, and Kuk-Jin Yoon. "Efficient Reference-based Video Super-Resolution (ERVSR): Single Reference Image Is All You Need." IEEE/CVF Winter Conference on Applications of Computer Vision (WACV 2023)

- **Hoonhee Cho** and Kuk-Jin Yoon. "Selection and Cross Similarity for Event-Image Deep Stereo." European Conference on Computer Vision (ECCV 2022)

- **Hoonhee Cho** and Kuk-Jin Yoon. "Event-image Fusion Stereo using Cross-modality Feature Propagation." Thirty-Six AAAI Conference on Artificial Intelligence (AAAI 2022) (accept rate: 15%)

- **Hoonhee Cho**, Jaeseok Jeong and Kuk-Jin Yoon. "EOMVS: Event-Based Omnidirectional Multi-View Stereo." IEEE Robotics and Automation Letters 6 (2021) with IROS : 6709-6716. (IF: 3.74 (2020), Q1 journal)

RESEARCH EXPERIENCES

○
Project Leader   December 2024 - Present

강건한 자율주행을 위한 데이터 증강 및 센서 융합 기술 개발 참여
Participated in the technology development of Data Augmentation and Sensor Fusion Techniques for Robust Autonomous Driving
Funded by 42DOT

○
Project Leader   March 2022 - Present

강건한 자율 주행을 위한 멀티모달 카메라 기반 컴퓨터 비전 기술 연구
Participated in the technology development of the computer vision research based on multi-modal cameras for robust autonomous driving
Funded by National Research Foundation of Korea (NRF)

○
Project Member   July 2024 - Present

AI연구거점프로젝트
Participated in the technology development of the artificial intelligence research hub project
Funded by Institute for Information & communication Technology Planning & evaluation (IITP)

○
Project Leader   September 2020 - October 2024

국방과학연구소 미래도전기술 주관 감시 · 정찰 · 수색 임무용 사족보행 로봇시스템 기술개발 참여
Participated in the technology development of the quadrupedal robot system for surveillance, reconnaissance, and search missions supervised by the Defense Science Research Institute
Funded by Agency for Defense Development (ADD)

○
Project Member   January 2021 - February 2022

네이버랩스 주관 자율 주행을 위한 주변 물체 경로 예측 기술 개발 참여
Participated in developing technology for predicting the path of surrounding objects for autonomous driving
Funded by NAVER LABS

- **Project Member**   March 2021 - December 2021

  ETRI 주관 복합 상황 이해 및 예측을 통한 영상 내 이상 차량 검출 연구 참여
  Participation in research on detecting abnormal vehicles in images through understanding and prediction of complex situations
  Funded by ETRI (Electronics and Telecommunications Research Institute)

News and Awards

- **IEEE SPECTRUM News**   August 2021

  Event-based Omnidirectional Multi-view Stereo (EOMVS) was introduced in IEEE Spectrum, with the title "This Camera Can "See" the Bigger Picture: Researchers' new camera spots fast-moving objects over a wide angle of view".
  https://spectrum.ieee.org/new-camera-sees-more

- **Vision Systems Design Main News**   November 2021

  Event-based Omnidirectional Multi-view Stereo (EOMVS) was introduced in vision systems design main news.
  https://www.vision-systems.com/non-factory/article/14212132/multiview-stereo-method-uses-eventbased-omnidirectional-imaging

- **Mohamed Bin Zayed International Robotics Challenge (MBZIRC) Final Team**   December 2022

  The Mohamed Bin Zayed International Robotics Challenge (MBZIRC) aims to be one of the world's largest and most prestigious international robotics competitions.
  https://www.mbzirc.com/

Skills Summary

- **Programming Tools**:   Python, PyTorch, MATLAB, ROS, OpenCV

Extracurricular Activities

- **Teaching Assistant (Introduction to Visual Intelligence)**   March 2022 - June 2022
  시각지능개론 수업 조교

- **Teaching Assistant (Intelligent Robot Design Lab)**   March 2022 - June 2025
  지능로봇 설계공학 실험 수업 조교

- **Teaching Assistant (Samsung AI Expert)**   September 2023
  삼성 AI Expert 실험 수업 조교

- **Invited Talk (NAVER LABS)**   April 11, 2025
  네이버랩스 초청 세미나

Academic Services

- **I have been serving the research community as reviewers**
  2021 IEEE Transactions on Instrumentation & Measurement
  2023 Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI)
  2023 International Conference on Computer Vision (ICCV)
  2024 Thirty-Eight AAAI Conference on Artificial Intelligence (AAAI)
  2024 IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)
  2024 IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
  2024 European Conference on Computer Vision (ECCV)
  2025 Thirty-Eight AAAI Conference on Artificial Intelligence (AAAI)
  2025 IEEE / CVF Computer Vision and Pattern Recognition Conference (CVPR)
  2025 IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
  2025 International Conference on Computer Vision (ICCV) (Outstanding Reviewers)
  2025 Neural Information Processing Systems (NeurIPS) (Top Reviewers)
  2026 Thirty-Eight AAAI Conference on Artificial Intelligence (AAAI)