

# Sunghoon Im

Associate Professor (Distinguished Professor), Dept. of Electrical Engineering and Computer Science, DGIST

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## Summary

- **Expertise** - 3D Vision, Multi-modal Video Understanding, Multi-modal Generative AI
- **Publication** - Since 2015, I have published over **50 articles** including 36 or more as first or corresponding author, in prestigious conferences and SCI journals in the fields of AI {CVPR, ICCV, ECCV, ICML, NeurIPS, ICLR, AAAI} and Robotics {ICRA, IROS}, including 4 TPAMI (IF  $\geq 20$ ).
- **International experience** - I have conducted research at leading international institutions, including *Microsoft Research Asia* and *Carnegie Mellon University*. Additionally, I have also collaborated with researchers from *Stanford University* and *Adobe Research*, resulting in co-authored publications.
- **Research Funding** - Since 2020, I have led or contributed to 43 research projects, serving as Principal Investigator (PI or Co-PI) on 33 of them. These include 27 government-funded and 16 industry-funded initiatives.
- **Award** - Microsoft Research Fellowship, CVPR/NeurIPS Outstanding Reviewer  $\times 3$ , DGIST Faculty Academic Award  $\times 2$ , CVPR/ECCV Challenge Award  $\times 3$ , Samsung Humantec Award  $\times 4$ , ICT Paper Contest  $\times 3$ , AFCV Best Robot Vision Paper Award, IEIE Excellent Young Researcher Award, Qualcomm Innovation Award and KAIST Top EE Research Achievement Award.
- **Academic Activity** - Council member of Institute of Electronics and Information Engineers (IEIE), Board member of KCVS (Korea Computer Vision Society), Board member of Korea Multimedia Society (KMMS), Editorial board member IEIE Transactions on Smart Processing and Computing (SPC), Program Committee of IEEE VR Conference 2026, ITC-CSCC  $\times 2$ , KCCV  $\times 3$  and IPIU  $\times 3$ .

## Research Interest

- [3D Vision] - 3D Reconstruction, Visual SLAM, Self-Calibration, 3D Visual Perception, LiDAR Perception
- [Multi-modal Video Understanding] Video Reasoning, Video-Text Alignment, Vision-Language-Action
- [Multi-modal Generative AI] Efficient Video Diffusion, Image Story Generation, Text-driven Image Editing

## Education

### KAIST (Korea Advanced Institute of Science and Technology)

- |   |                  |
|---|------------------|
| <i>Ph.D. in School of Electrical Engineering</i>                          | <i>2016-2019</i> |
| <i>M.S. in School of Electrical Engineering</i>                           | <i>2014-2016</i> |
| ◦ <i>Advisor:</i> Prof. In So Kweon                                       |                  |
| ◦ <i>Thesis Title:</i> Robust 3D Imaging using a Single Hand-held Cameras |                  |
| ◦ Outstanding EE research achievement awards in 2017 and 2019.            |                  |

### Sogang University

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|---|------------------|
| <i>B.S. in Department of Electronic Engineering</i> | <i>2008-2014</i> |
| ◦ Summa Cum Laude                                   |                  |

## Experience

### DGIST (Daegu Gyeongbuk Institute of Science and Technology)

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|--|----------------------------|
| <i>Director, DGIST Supercomputing and AI Education &amp; Research Center</i>     | <i>Jan 2025 - Present</i>  |
| <i>DGIST Distinguished Professor</i>   | <i>Sep 2024 - Present</i>  |
| <i>Associate Professor, Dept. of Electrical Engineering and Computer Science</i> | <i>Mar 2023 - Present</i>  |
| <i>Assistant Professor, Dept. of Electrical Engineering and Computer Science</i> | <i>Feb 2019 - Mar 2023</i> |

### 10K1M

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|---|---------------------------|
| <i>Technical Advisor, Multi-Modal Generative AI</i> | <i>Jan 2023 - Present</i> |
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### Dabeoo

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|--|----------------------------|
| <i>Technical Advisor, 3D Reconstruction &amp; Perception</i> | <i>Feb 2020 - Jun 2020</i> |
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## Carnegie Mellon University (CMU)

*Visiting Scholar, Robotics Institute*

*Jun 2019 - Aug 2019*

- *Advisor:* Prof. Martial Hebert and Prof. Jean Oh.

## Microsoft Research Asia (MSRA)

*Research Intern, Internet Graphics Group*

*Feb 2018 - Aug 2018*

- *Advisor:* Dr. Stephen Lin.

## Research Projects (Fund)

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- [P43] **Chain-of-Thought-based Video Generation Model following Physical Laws**
  - **(PI)** Ministry of Science and ICT – HRHR, DGIST
  - Period: 2025.07.01 – 2025.12.31
- [P42] **Learning Multi-Visual Perception Tasks Using Multi-Camera Robust to Environmental Changes**
  - **(PI)** Ministry of Science and ICT – Excellent Young Researcher Program
  - Period: 2023.03.01 – 2026.02.28
- [P41] **AI Star Fellowship Program (DGIST)**
  - Ministry of Science and ICT – AI Star Fellowship Support Project
  - Period: 2025.04.01 – 2030.12.31
- [P40] **Reliable and Symbiotic Bio-Embodied Artificial Intelligence**
  - Ministry of Science and ICT, InnoCORE Research Group
  - Period: 2025.06.01 – 2029.12.31
- [P39] **LLM 2.0: Enhanced Reasoning, Multi-Modal Expansion, and Trustworthy AI**
  - Ministry of Science and ICT, InnoCORE Research Group
  - Period: 2025.06.01 – 2029.12.31
- [P38] **Multi-Sensor Based 3D Battlefield Information Construction and Analysis**
  - **(Co-PI)** Agency for Defense Development – Defense Innovation Enterprise R&D Program
  - Period: 2023.12.20 – 2028.12.19
- [P37] **VLM-Based Navigation for Understanding Dynamic Environments in Unseen Spaces**
  - Ministry of Trade, Industry and Energy – Machinery & Robot Equipment Technology Development Program
  - Period: 2024.07.01 – 2027.12.31
- [P36] **AI Data Fusion Innovation Based on Large Language Models and 3D Point Clouds**
  - **(Co-PI)** National IT Industry Promotion Agency – AI Data Convergence Flagship Project
  - Period: 2024.07.01 – 2026.12.31
- [P35] **Wildfire Ignition Position Estimation and Dynamic Spread Prediction System**
  - **(PI)** Ministry of Science and ICT – Industry-Academic R&BD Collaboration Project
  - Period: 2025.05.01 – 2025.12.31
- [P34] **Development of Multi-Camera-Based Depth Estimation Technology**
  - **(PI)** Industry-Academic Project – Hyundai NGV
  - Period: 2024.06.10 – 2025.06.09
- [P33] **Real-Time SLAM Implementation for Dental Oral Scanners**
  - **(PI)** Industry-Academic Project – Huvitz
  - Period: 2024.12.31 – 2025.07.07
- [P32] **Development of Drone-Based Hull Block Measurement Automation Technology**
  - **(PI)** Industry-Academic Project – Korea Shipbuilding & Offshore Engineering
  - Period: 2025.01.01 – 2025.12.31
- [P31] **Development of Sustainable Real-Time Camera-Based Detection Software**
  - **(PI)** Industry-Academic Project – Company “K\*\*\*\* Electronics”
  - Period: 2025.03.01 – 2025.08.31

- [P30] **Security and Safety AI Object Detection Model Development and Robustness Enhancement**
  - (PI) Industry-Academic Project – “PiaSpace”
  - Period: 2025.04.01 – 2025.06.30
- [P29] **Federated Learning AI for Multi-Institutional Brain Imaging Data Analysis**
  - Ministry of Science and ICT – DGIST General Project (with Stanford University)
  - Period: 2024.06.01 – 2024.12.31
- [P28] **Vision Picking System for Logistics Industry Based on AI Object Recognition**
  - (PI) Daegu Digital Innovation Agency – Industry-Academic R&BD Commercialization Project
  - Period: 2023.07.01 – 2024.12.31
- [P27] **3D Posture Estimation and Shape Restoration of Refined Pharmaceuticals**
  - (PI) Ministry of Science and ICT – ETRI
  - Period: 2024.10.14 – 2024.11.30
- [P26] **Algorithm Development for Automated Image Processing of Stereo Cameras**
  - (PI) Industry-Academic Project – HD Korea Shipbuilding & Offshore Engineering
  - Period: 2024.04.01 – 2024.09.30
- [P25] **Dental Intraoral Scanning Software Development (Phase 2)**
  - (PI) Industry-Academic Project – Huvitz
  - Period: 2023.11.28 – 2024.08.31
- [P24] **Development of Depth Generation Software Using Multi-Camera**
  - (PI) Industry-Academic Project – Company “K\*\*\*\* Electronics”
  - Period: 2024.01.15 – 2024.07.14
- [P23] **CCTV Event Detection Module Based on Deep Learning and Foundation Models**
  - (PI) Ministry of Science and ICT – ETRI
  - Period: 2023.11.01 – 2024.02.28
- [P22] **Object Identification Software for Metaverse Streaming Services**
  - (PI) Ministry of Science and ICT – KETI
  - Period: 2023.09.19 – 2023.12.31
- [P21] **Dental Intraoral Scanning Software Development (Phase 1)**
  - (PI) Industry-Academic Project – Huvitz
  - Period: 2023.06.01 – 2023.11.30
- [P20] **GUI Module for Object Segmentation Consistency Evaluation in Temporal Video Streams**
  - (PI) Ministry of Science and ICT – ETRI
  - Period: 2023.05.09 – 2023.11.30
- [P19] **Research on Video Analysis and Retrieval Technology**
  - (PI) Industry-Academic Project – 10K1M Baekman Co.
  - Period: 2023.02.01 – 2023.07.31
- [P18] **Preliminary Research on Multi-Task Learning-Based Network**
  - (PI) Industry-Academic Project – Hyundai NGV
  - Period: 2022.11.07 – 2023.11.06
- [P17] **Visual Discovery Platform for Real-Time Understanding and Prediction of Large-Scale Video**
  - Ministry of Science and ICT – IITP
  - Period: 2021.03.01 – 2023.12.31
- [P16] **Study on Neural Network and Stereo Matching-Based Depth Image Acquisition**
  - (PI) Ministry of Science and ICT – ETRI
  - Period: 2021.03.01 – 2023.12.31
- [P15] **Low-Latency VR/AR Streaming Technology Based on 5G Edge Cloud**

- **(Co-PI)** IITP
- Period: 2020.04.01 – 2023.12.31
- [P14] **Multispectral Stereo-Based Dynamic Situation Recognition Technology**
  - **(PI)** Ministry of Science and ICT – Young Researcher Program
  - Period: 2020.03.01 – 2023.02.28
- [P13] **High-Reliability Remote Autonomous Driving Cloud Mobility Based on Collaborative AI**
  - Ministry of Science and ICT – DGIST General Project (P-COE)
  - Period: 2020.05.01 – 2022.12.31
- [P12] **3D Reconstruction Using Multi-View Aerial Imagery**
  - **(PI)** Industry-Academic Project – Dabeeco Co.
  - Period: 2022.02.01 – 2022.12.31
- [P11] **Multi-Camera Based 3D Driving Environment Recognition as a Replacement for LiDAR**
  - **(Co-PI)** Ministry of SMEs and Startups
  - Period: 2022.05.01 – 2022.12.31
- [P10] **Development of Road Object Position and Speed Estimation Module**
  - **(PI)** Ministry of Science and ICT – ETRI
  - Period: 2022.09.13 – 2022.11.30
- [P9] **Heterogeneous Optical System Calibration Parameters and GUI Development**
  - **(PI)** Ministry of Science and ICT – ETRI
  - Period: 2022.05.26 – 2022.11.30
- [P8] **Prototype Production of 3D Robot Vision Program for Transparent Container Bin-Picking**
  - **(PI)** Ministry of Science and ICT – ETRI
  - Period: 2022.04.28 – 2022.11.30
- [P7] **Advanced GIS Data Construction and Multi-Object Tracking Technology Using Deep Learning**
  - Industry-Academic Project – Dabeeco Co.
  - Period: 2021.07.01 – 2021.12.31
- [P6] **Dataset and Performance Evaluation GUI for Domain Adaptation-Based Object Detection**
  - **(PI)** Ministry of Science and ICT – ETRI
  - Period: 2021.06.28 – 2021.11.30
- [P5] **Synthetic Learning Data Generation System Using Domain Adaptation Techniques**
  - Ministry of Science and ICT – ETRI
  - Period: 2021.06.21 – 2021.11.30
- [P4] **Unsupervised 3D Object Detection and Refinement System with Multi-View Cameras**
  - **(PI)** Industry-Academic Project – Hyundai NGV
  - Period: 2021.04.15 – 2022.04.14
- [P3] **Defect Image Generation Technology for Deep Neural Network Training Dataset**
  - **(PI)** Industry-Academic Research – Dworld Co.
  - Period: 2021.02.01 – 2021.03.31
- [P2] **Advanced GIS Data Construction System Using Deep Learning**
  - Industry-Academic Project – Dabeeco Co.
  - Period: 2020.06.15 – 2021.02.15
- [P1] **Virtual Viewpoint Synthesis Algorithm Based on Machine Learning for Multi-View LF Images**
  - **(PI)** Ministry of Science and ICT – IITP
  - Period: 2020.03.01 – 2020.11.30

\* The top conferences (CVPR, ICCV, ECCV, NIPS, ICML, ICLR, AAAI) are highly competitive with acceptance rates between 20-30%, and their oral and spotlight papers have acceptance rates of <2% and <9%, respectively.

\* IEEE TPAMI (IF: 20.8, Top 1%), IJCV (IF:11.6, Top 3%) and TIP (IF: 10.8, Top 3%) have the highest impact factors across all computer science categories.

[C43] Seunghun Lee, Jiwan Seo, Minwoo Choi, Kiljoon Han, Jaehoon Jeong, Zane Durante, Ehsan Adeli<sup>†</sup>, Sang Hyun Park, **Sunghoon Im<sup>†</sup>**, “Latest Object Memory Management for Temporally Consistent Video Instance Segmentation”, *In Proc. of IEEE International Conference on Computer Vision (ICCV)*, Oct 2025.

[C42] Seunghun Lee\*, Jiwan Seo\*, Kiljoon Han, Minwoo Choi, **Sunghoon Im<sup>†</sup>**, “CAVIS: Context-Aware Video Instance Segmentation”, *In Proc. of IEEE International Conference on Computer Vision (ICCV)*, Oct 2025. ([State-of-the-Art of Video Instance Segmentation on YouTube-VIS val](#), [YouTube-VIS 2021](#), [OVIS val](#), [State-of-the-Art of Video Panoptic Segmentation on VIPSeg](#))

[C41] Woo Kyoung Han, Yongjun Lee, Byeonghun Lee, Sang Hyun Park, Sang Hyun Park, **Sunghoon Im<sup>†</sup>**, Kyong Hwan Jin<sup>†</sup>, “JPEG Processing Neural Operator for Backward-Compatible Coding”, *In Proc. of IEEE International Conference on Computer Vision (ICCV)*, Oct 2025.

[C40] Jihun Park\*, Jongmin Gim\*, Kyoungmin Lee\*, Seunghun Lee and **Sunghoon Im<sup>†</sup>**, “Style-Editor: Text-driven object-centric style editing”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)* [[Highlight](#), [Accept Rate 3.7%](#)], Jun 2025. ([Encouragement prize by Samsung HumanTech paper award](#))

[C39] Woo Kyoung Han, Byeonghun Lee, Hyunmin Cho, **Sunghoon Im<sup>†</sup>** and Kyong Hwan Jin<sup>†</sup>, “Towards Lossless Implicit Neural Representation via Bit Plane Decomposition”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun 2025.

[C38] Wonhyeok Choi\*, Kyumin Hwang\*, Wei Peng, Minwoo Choi and **Sunghoon Im<sup>†</sup>**, “Self-supervised Monocular Depth Estimation Robust to Reflective Surface Leveraged by Triplet Mining”, *International Conference on Learning Representations (ICLR)*, May 2025. ([The Top Award](#), [16th ICT Paper Award](#), [Electronic Newspaper](#))

[J13] Jaeyeul Kim, Jungwan Woo, Ukcheol Shin, Jean Oh, and **Sunghoon Im<sup>†</sup>**, “Flow4D: Leveraging 4D Voxel Network for LiDAR Scene Flow Estimation”, *IEEE Robotics and Automation Letters (RAL)*, Apr 2025. ([1st place](#), [LiDAR Scene Flow of Argoverse Challenge](#), [CVPRw24](#), [This paper was presented at IEEE/RSJ International Conference on Intelligent Robots and Systems \(IROS\).](#))

[C37] Wonhyeok Choi\*, Kyumin Hwang\*, Kiljoon Han, Wonjoon Choi, Mingyu Shin and **Sunghoon Im<sup>†</sup>**, “Intrinsic Image Decomposition for Robust Self-supervised Monocular Depth Estimation on Reflective Surfaces”, *The Association for the Advancement of Artificial Intelligence (AAAI)*, Feb 2025.

[C36] Jongmin Gim\*, Jihun Park\*, Kyoungmin Lee\* and **Sunghoon Im<sup>†</sup>**, “Content-Adaptive Style Transfer: A Training-Free Approach with VQ Autoencoders”, *Asian Conference on Computer Vision (ACCV)*, Dec 2024.

[C35] Jaeyeul Kim\*, Jungwan Woo\*, Jeonghoon Kim and **Sunghoon Im<sup>†</sup>**, “Rethinking LiDAR Domain Generalization: Single Source as Multiple Density Domains”, *In Proc. of European Conference on Computer Vision (ECCV)*, Oct 2024.

[C34] EungGu Kang, Byeonghun Lee, **Sunghoon Im<sup>†</sup>** and Kyong Hwan Jin<sup>†</sup>, “BurstM: Deep Burst Multi-scale SR using Fourier Space with Optical Flow”, *In Proc. of European Conference on Computer Vision (ECCV)*, Oct 2024.

[C33] Jaeyeul Kim\*, Jungwan Woo\*, Ukcheol Shin, Jean Oh and **Sunghoon Im<sup>†</sup>**, “Density-aware Domain Generalization for LiDAR Semantic Segmentation”, *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Oct 2024.

[C32] Woo Kyoung Han, **Sunghoon Im**, Jaedeok Kim and Kyong Hwan Jin, “JDEC: JPEG Decoding via Enhanced Continuous Cosine Coefficients”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun 2024.

[C31] Wonhyeok Choi\*, Mingyu Shin\*, Hyukzae Lee, Jaehoon Cho, Jaehyeon Park and **Sunghoon Im<sup>†</sup>**, “Multi-task Learning for Real-time Autonomous Driving Leveraging Task-adaptive Attention Generator”, *IEEE International*

*Conference on Robotics and Automation (ICRA)*, May 2024. ([Excellence Award](#), [15th ICT Paper Award](#), [Electronic Newspaper](#))

[J12] Jinwoo Bae, Kyumin Hwang and **Sunghoon Im**<sup>†</sup>, “A Study on the Generality of Neural Network Structures for Monocular Depth Estimation”, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Apr 2024.

[C30] Hojin Kim, Seunghun Lee, Hyeon Kang and **Sunghoon Im**<sup>†</sup>, “IOffline-to-Online Knowledge Distillation for Video Instance Segmentation”, *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)* [[Oral](#), [Accept Rate 3%](#)], Jan 2024.

[C29] Minsu Kim, Jaewon Lee, Byeonghun Lee, **Sunghoon Im** and Kyeonghwan Jin, “Implicit Neural Image Stitching With Enhanced and Blended Feature Reconstruction”, *IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, Jan 2024.

[C28] Wonhyeok Choi\*, Mingyu Shin\* and **Sunghoon Im**<sup>†</sup>, “Depth-discriminative Metric Learning for Monocular 3D Object Detection”, *Neural Information Processing Systems (NeurIPS)*, Dec 2023. ([Bronze prize by Samsung HumanTech paper award](#))

[C27] Changjae Kim, Seunghun Lee and **Sunghoon Im**<sup>†</sup>, “Multi-Target Domain Adaptation with Class-Wise Attribute Transfer in Semantic Segmentation”, *British Machine Vision Conference (BMVC)*, Nov 2023.

[J11] Hae-Gon Jeon, **Sunghoon Im**<sup>†</sup>, Byeong-Uk Lee, François Rameau, Dong-Geol Choi, Jean Oh, In So Kweon, and Martial Hebert, “A Large-scale Virtual Dataset and Egocentric Localization for Disaster Responses”, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Jun 2023.

[C26] Sungho Moon, Jinwoo Bae and **Sunghoon Im**<sup>†</sup>, “Rotation Matters: Generalized Monocular 3D Object Detection for Various Camera System”, *IEEE Conference on Computer Vision and Pattern Recognition Workshop (CVPRw)*, Jun 2023.

[C25] Wonhyeok Choi and **Sunghoon Im**<sup>†</sup>, “Dynamic Neural Network for Multi-Task Learning Searching across Diverse Network Topologies”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun 2023.

[C24] Jinwoo Bae, Sungho Moon, and **Sunghoon Im**<sup>†</sup>, “Deep Digging into the Generalization of Self-supervised Monocular Depth Estimation”, *The Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI)*, Feb 2023.

[J10] Jeonghoon Kim, **Sunghoon Im**, and Sunghyun Cho, “ProFeat: Unsupervised Image Clustering via Progressive Feature Refinement”, *Pattern Recognition Letters (PRL)*, Nov 2022.

[C23] Jungwan Woo\*, Jaeyeul Kim\*, and **Sunghoon Im**<sup>†</sup>, “LiDAR 3D Object Detection via Self-Training and Knowledge Distillation”, *ECCV workshop on 3D Perception for Autonomous Driving (ECCVw)*, Oct 2022. ([Asian Federation of Computer Vision \(AFCV\) Best Robot Vision Paper Award](#), [18th Korea Robotics Society Annual Conference \(KRoC\)](#), [3rd place, LiDAR self-supervised learning challenge, ECCVw22](#))

[C22] Minjun Kang, Jaesung Choe, Hyowon Ha, Hae-Gon Jeon, **Sunghoon Im**, In So Kweon, and Kuk-Jin Yoon, “Facial Depth and Normal Estimation using Single Dual-Pixel Camera”, *In Proc. of European Conference on Computer Vision (ECCV)*, Oct 2022.

[J8] Seokju Lee, Francois Rameau, **Sunghoon Im**, and In So Kweon, “Self-supervised Monocular Depth and Motion Learning in Dynamic Scenes: Semantic Prior to Rescue”, *International Journal of Computer Vision (IJCV)*, Jul 2022.

[J9] Jaeyeul Kim\*, Jungwan Woo\*, and **Sunghoon Im**<sup>†</sup>, “RVMOS: Range-View Moving Object Segmentation leveraged by Semantic and Motion Features”, *IEEE Robotics and Automation Letters (RAL)*, Jun 2022. ([This paper was presented at IEEE/RSJ International Conference on Intelligent Robots and Systems \(IROS\)](#).)

[C21] Seunghun Lee, Wonhyeok Choi, Changjae Kim, Minwoo Choi, and **Sunghoon Im**<sup>†</sup>, “ADAS: A Direct Adaptation Strategy for Multi-Target Domain Adaptive Semantic Segmentation”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun 2022. ([Encouragement prize by Samsung HumanTech paper award](#))

[J7] Hae-Gon Jeon, **Sunghoon Im**<sup>†</sup>, Jaesung Choe, Minjun Kang, Joon-Young Lee, and Martial Hebert, “CMSNet: Deep Color and Monochrome Stereo”, *International Journal of Computer Vision (IJCV)*, Jan 2022.

[C20] Jaesung Choe, **Sunghoon Im**, François Rameau, Minjun Kang, and In So Kweon, “VolumeFusion: Deep Depth Fusion for 3D Scene Reconstruction”, *In Proc. of IEEE International Conference on Computer Vision (ICCV)*, Dec 2021.

- [C19] Dahoon Park, Kon-Woo Kwon, **Sunghoon Im**, and Jaeha Kung, “ZeBRA: Precisely Destroying Neural Networks with Zero-Data Based Repeated Bit Flip Attack”, *British Machine Vision Conference (BMVC)*, Nov 2021.
- [J6] **Sunghoon Im**, Hyowon Ha, Hae-Gon Jeon, Stephen Lin, and In So Kweon, “Deep Depth from Uncalibrated Small Motion Clip”, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Apr 2021. ([Selected as Outstanding Research Achievement of GIST](#))
- [C18] Seunghun Lee, Sunghyun Cho, and **Sunghoon Im**<sup>†</sup>, “DRANet: Disentangling Representation and Adaptation Networks for Unsupervised Cross-Domain Adaptation”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun 2021. ([Excellence Award](#), [13th ICT Paper Award](#), [Electronic Newspaper](#))
- [C17] Jeonghoon Kim, **Sunghoon Im**, and Sunghyun Cho, “ProFeat: Unsupervised Image Clustering via Progressive Feature Refinement”, *Workshop on Learning From Limited or Imperfect Data (CVPRw)*, Jun 2021.
- [C16] Seokju Lee, **Sunghoon Im**, Stephen Lin, and In So Kweon, “Learning Monocular Depth in Dynamic Scenes via Instance-Aware Projection Consistency”, *The Thirty-Fifth AAAI Conference on Artificial Intelligence (AAAI)*, Feb 2021. ([Best paper](#), [Qualcomm Innovation Fellowship Korea](#), [Silver Prize](#), [Samsung Electro-Mechanics Best Paper Awards](#))
- [J5] Hae-Gon Jeon, Jaeheung Surh, **Sunghoon Im**, and In So Kweon, “Ring Difference Filter for Fast and Noise Robust Depth from Focus”, *IEEE Transactions on Image Processing (TIP)*, Dec 2020.
- [C15] Seokju Lee, **Sunghoon Im**, Stephen Lin, and In So Kweon, “Instance-wise Depth and Motion Learning from Monocular Videos”, *Workshop on Machine Learning for Autonomous Driving & Workshop on Differentiable computer vision, graphics, and physics in machine learning (NeurIPSw)*, Dec 2020. ([Honorable Mention](#), [12th ICT Paper Award](#), [Electronic Newspaper](#))
- [C14] Hae-Gon Jeon, **Sunghoon Im**<sup>†</sup>, Jean Oh, and Martial Hebert, “Learning Shape-based Representation for Visual Localization in Extremely Changing Conditions”, *IEEE International Conference on Robotics and Automations (ICRA)*, May 2020.
- [C13] Hae-Gon Jeon, **Sunghoon Im**, Byeong-Uk Lee, Dong-Geol Choi, Martial Hebert, and In So Kweon, “DISC: A Large-scale Virtual Dataset for Simulating Disaster Scenarios”, *IEEE/RSJ International Conference on Intelligence Robots and System (IROS)*, Nov 2019.
- [C12] Seokju Lee, **Sunghoon Im**, Stephen Lin, and In So Kweon, “Learning Residual Flow as Dynamic Motion from Stereo Video”, *IEEE/RSJ International Conference on Intelligence Robots and System (IROS)*, Nov 2019.
- [C11] **Sunghoon Im**, Hae-Gon Jeon, Stephen Lin, and In So Kweon, “DPSNet: End-to-end Deep Plane Sweep Stereo”, *International Conference on Learning Representations (ICLR)*, May 2019.
- [C10] Byeong-Uk Lee, Hae-Gon Jeon, **Sunghoon Im**, and In So Kweon, “Depth Completion with Deep Geometry and Context Guidance”, *IEEE International Conference on Robotics and Automations (ICRA)*, May 2019.
- [J4] **Sunghoon Im**, Hae-Gon Jeon, and In So Kweon, “Robust Depth Estimation using Auto-Exposure Bracketing”, *IEEE Transactions on Image Processing (TIP)*, May 2019.
- [J3] **Sunghoon Im**, Hyowon Ha, Gyeongmin Choe, Hae-Gon Jeon, Kyungdon Joo, and In So Kweon, “Accurate 3D Reconstruction from Small Motion Clip for Rolling Shutter Cameras”, *IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)*, Apr 2019.
- [C9] **Sunghoon Im**, Hae-Gon Jeon, and In So Kweon, “Robust Depth Estimation from Auto Bracketed Images”, *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun 2018. ([Best Poster Award](#), [Samsung AI Forum 2018](#))
- [J2] Gyeongmin Choe, Seong-heum Kim, **Sunghoon Im**, Joon-Young Lee, Srinivasa Narasimhan, and In So Kweon, “RANUS: RGB and NIR Urban Scene Dataset for Deep Scene Parsing”, *IEEE Robotics and Automation Letters (RAL)*, Feb 2018.
- [J1] Seunghak Shin, **Sunghoon Im**, Inwook Shim, Hae-Gon Jeon, and In So Kweon, “Geometry Guided 3D propagation for Depth from Small Motion”, *IEEE Signal Processing Letters (SPL)*, Dec 2017.
- [C8] Jaeheung Surh, Hae-Gon Jeon, Yunwon Park, **Sunghoon Im**, Hyowon Ha, and In So Kweon, “Noise Robust Depth from Focus using a Ring Difference Filter”, *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)* [[Spotlight](#), [Accept Rate 5.37%](#)], Jul 2017.



- [C7] **Sunghoon Im**, Hyowon Ha, Francois Rameau, Hae-Gon Jeon, Gyeongmin Choe, and In So Kweon, “All-around Depth from Small Motion with A Spherical Panoramic Camera”, *In Proc. of European Conference on Computer Vision (ECCV)*, Oct 2016. ([Best Poster Presentation Award, IPIU](#))
- [C6] Hyowon Ha, **Sunghoon Im**, Jaesik Park, Hae-Gon Jeon, and In So Kweon, “High-quality Depth from Uncalibrated Small Motion Clip”, *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)* [[Oral, Accept Rate 3.9%](#)], Jun 2016. ([Qualcomm Innovation Award, Qualcomm-KAIST Innovation Award](#))
- [C5] Hae-Gon Jeon, Joon-Young Lee, **Sunghoon Im**, Hyowon Ha, and In So Kweon, “Stereo Matching with Color and Monochrome Cameras in Low-light Conditions”, *In Proc. of IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun 2016. ([Silver Prize by Samsung HumanTech paper award, Best Poster Presentation Award, IPIU](#))
- [C4] **Sunghoon Im**, Hyowon Ha, Gyeongmin Choe, Hae-Gon Jeon, Kyungdon Joo, and In So Kweon, “High Quality Structure from Small Motion for Rolling Shutter Cameras”, *In Proc. of IEEE International Conference on Computer Vision (ICCV)*, Dec 2015. ([Best Poster Award, IWRCV 2015](#))
- [C3] **Sunghoon Im**, Hae-Gon Jeon, Hyowon Ha and In So Kweon, “Depth Estimation from Light Field Cameras”, *In Proc. of the 12th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, Oct 2015.
- [C2] Dong-jin Kim, Donggeun Yoo, **Sunghoon Im**, Namil Kim, T. Sirinukulwattana and In So Kweon, “Relative Attributes with Deep Convolutional Neural Network”, *In Proc. of the 12th International Conference on Ubiquitous Robots and Ambient Intelligence (URAI)*, Oct 2015.
- [C1] **Sunghoon Im**, Gyeongmin Choe, Hae-Gon Jeon, and In So Kweon, “Depth from Accidental Motion using Geometry Prior”, *In Proc. of IEEE International Conference on Image Processing (ICIP)* [[Top 10% paper](#)], Sep 2015.

## Honor & Award

CVPR 2025 Outstanding reviewer	Jun 2025
IPIU 2025 Bronze prize	Feb 2025
The Top Award (as advisor), 16th ICT Paper Award, Electronic Newspaper	Nov 2024
DGIST Visionary Award - Research Innovation Award	Sep 2024
2024 Young Distinguished Researcher Award from the AI Signal Processing Society, IEIE	Sep 2024
1st place in the LiDAR Scene Flow of Argoverse Challenge, CVPR 2024 WAD	Jun 2024
2nd place in the 4D Occupancy Forecasting of Argoverse Challenge, CVPR 2024 WAD	Jun 2024
CVPR 2024 Outstanding reviewer	Jun 2024
Winner, Argoverse LiDAR Scene Flow Challenge (CVPRw)	Jun 2024
Honorable Mention, Argoverse 4D Occupancy Forecasting Challenge (CVPRw)	Jun 2024
Exellence Award (as advisor), 15th ICT Paper Award, Electronic Newspaper	Nov 2024
Broze prize (as advisor), 30th HumanTech Paper Award, Samsung Electronics Co., Ltd.	Feb 2024
Encouragement prize (as advisor), 30th HumanTech Paper Award, Samsung Electronics Co., Ltd.	Feb 2024
1st rankg ADAI: Autonomous Driving A.I. challenge (as advisor)	Nov 2022
Honorable Mention, Argoverse End-to-End Forecasting Challenge (CVPRw)	Jun 2023
AFCV best robot vision paper award	Feb 2023
Exellence Award (as advisor), 13th ICT Paper Award, Electronic Newspaper	Nov 2022
2nd rankg ADAI: Autonomous Driving A.I. challenge (as advisor)	Nov 2022
ECCV workshop on 3D Perception for Autonomous Driving (ECCVw) 3rd place	Oct 2022
DGIST Best Academic Award	Sep 2021
NeurIPS 2020 Top 10% of high-scoring reviewer	Oct 2020
CVPR 2019 Doctoral Consortium	Jun 2019
ICLR 2019 Travel Award	May 2019
Excellent Student Award, 2018 Research Performance Evaluation, KAIST EE	Apr 2019
Microsoft Research Asia (MSRA) fellowship 2018 Winner	Oct 2018



Best Poster Award, 2018 Samsung AI Forum, Samsung Research	Sep 2018
Excellent Intern Award, Microsoft Research Asia (MSRA)	Aug 2018
Honor Student Award, 2017 Research Performance Evaluation, KAIST EE	Apr 2018
Kim Choong-Ki Award, 2016 Research Performance Evaluation, KAIST EE	Apr 2017
Best Poster Presentation Award, IPIU 2017	Feb 2017
Global Ph.D. Fellowship, National Research Foundation of Korea	Aug 2016
International Computer Vision Summer School (ICVSS 2016), Sicily, Italy	July 2016
Qualcomm Innovation Award 2016, Qualcomm Korea Corp. and KAIST	Mar 2016
Silver prize, 22th HumanTech Paper Award, Samsung Electronics Co., Ltd.	Feb 2016
Best Poster Award, IWRCV 2015 General Chair	Nov 2015
Official Best 10% Paper Selection, ICIP 2015 Organizing Committee	Sep 2015
Summa Cum Laude, Sogang University	Feb 2014
Design Project Competition(Silver Prize), Sogang University	Nov 2013
Spring 2012 Prize for the top first percentile GPA, Sogang University	Sep 2012
Fall 2011 Prize for the top first percentile GPA, Sogang University	Feb 2012
Spring 2011 Prize for the top first percentile GPA, Sogang University	Sep 2011

## Invited Talk

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### **Pushing the Boundaries of Robot Intelligence: World Foundation Model with Physical Laws**

- KICS, AI frontier Jun 2025
- Dongguk University Mar 2025
- KROC VLM-based navigation project Feb 2025

### **Research Trends and Applications of Large-Scale Vision-Language Models (VLMs)**

- Korea Multimedia Society Oct 2024
- Keimyung University Oct 2024
- The Korean Institute of Embedded Systems Sep 2024
- The Korean Institute of Broadcast and Media Engineers Aug 2024

### **Recent Advances in Vision Foundation Models**

- ETRI AI Academy May 2024
- Gacheon University May 2024
- POSTECH Mar 2024
- KICS Feb 2024
- Andong National University Dec 2023
- Korea Multimedia Society Nov 2023
- Dongguk University Nov 2023
- ETRI Oct 2023
- IEIE Conference on Artificial Intelligence and Signal Processing Sep 2023

### **Addressing Negative Transfer in Multi-Task Learning for Visual Perception**

- NEC Research America Jul 2024

### **Enhancing Generalization in Deep Learning-Based Visual Perception**

- Kyungpook National University Mar 2025
- Stanford University Jul 2024
- IEIE Winter School on Visual Understanding Feb 2023
- POSTECH Oct 2022
- Keimyung University Jul 2022
- KICS Big data and Automobility Workshop Oct 2022

### **ADAS: A Direct Adaptation Strategy for Multi-Target Domain Adaptive Semantic Segmentation**

- IEIE Conference on Artificial Intelligence and Signal Processing Sep 2022

◦ Dongguk University	Sep 2022
◦ KCCV	Aug 2022
◦ ETRI	Apr 2022
<b>Fundamentals of Multi-View Geometry</b>	
◦ Korea University	Jan 2024
◦ ETRI	Feb 2023
◦ IEIE Summer School on Visual Understanding	Jul 2022
<b>Research on Scene Understanding for Autonomous Driving</b>	
◦ Soongsil University	Dec 2023
◦ GIST	Nov 2023
<b>From Autonomous Driving AI to ChatGPT: Possibilities and Limitations of Artificial Intelligence</b>	
◦ Korea Brain Research Institute	Mar 2023
<b>Introduction and Application of Artificial Intelligence for National Statistics</b>	
◦ Statistics Korea, Statistical Human Resources Development Institute	Jun 2025
◦ Statistics Korea, Daegu	Jun 2025
<b>Understanding the ABB Industry and Its Future Directions</b>	
◦ Daegu City Hall	Jul, Jun, Apr 2025
◦ Daegu City Hall	Apr, Jun, Nov 2024
◦ Daegu City Hall	Feb, Oct 2023
<b>3D Vision</b>	
◦ Dongguk University, Seoul	Oct 2021
◦ 31st Signal Processing Joint Conference, IEIE, Online	Sep 2021
◦ 2nd Korea Artificial Intelligence Conference, Jeju	Sep 2021
◦ Kyungpook National University, Daegu	Sep 2021
◦ KCCV (Korean Conference on Computer Vision), Seoul	Sep 2021
◦ The Korean Institute of Broadcast and Media Engineers, Gyeongju	Apr 2021
◦ ETRI (Electronics and Telecommunications Research Institute), Daegu	Mar 2021
◦ ETRI (Electronics and Telecommunications Research Institute), Daejeon	Oct 2020
◦ ETRI (Electronics and Telecommunications Research Institute), Daegu	Oct 2020
◦ GIST	Jun 2020
◦ KETI (Korea Electronics Technology Institute), Sangam	Jan 2020
◦ POSTECH	Dec 2019
◦ KETI (Korea Electronics Technology Institute), Pangyo	Nov 2019
◦ DGIF (Daegu Technopolis Grand Innovation Festival)	Oct 2019
◦ ETRI (Electronics and Telecommunications Research Institute), Daejeon	Sep 2019
◦ Sogang University	Sep 2019
◦ Lunit	Aug 2019
◦ SAIT (Samsung Advanced Institute of Technology)	Apr 2019
◦ Koh Young Technology	Jan 2019

## Academic Services

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Program Committee of IEEE VR Conference 2026,

Council member of Institute of Electronics and Information Engineers (IEIE), 2024-

Board member of KCVS (Korea Computer Vision Society), 2024-

Board member of Korea Multimedia Society (KMMS), 2025-

Program committee - Korean Conference on Computer Vision (KCCV) 2022-2024

Program committee - Workshop on Image Processing and Image Understanding (IPIU) 2022-2024

Program committee - International Technical Conference on Circuits/Systems, Computers and Communications (ITC-CSCC) 2021, 2025

Editor - IEIE Transactions on Smart Processing and Computing (SPC)

Editor - The Information and Communications Technology Express (ICT Express)

## Reviewer

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IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)

International Journal of Computer Vision (IJCV)

Computer Vision and Image Understanding (CVIU)

IEEE/ASME Transactions on Mechatronics (TMECH)

IEEE Transactions on Instrumentation and Measurement (TIM)

Pattern Recognition (PR)

Neurocomputing

IEEE Robotics and Automation Letters (RAL)

IEEE Access

International Journal of Control, Automation and Systems (IJCAS)

IEIE Transactions on Smart Processing and Computing (IEIE SPC)

Journal of Institute of Control, Robotics and Systems (ICROS)

SIGGRAPH Asia

IEEE Conference on Computer Vision and Pattern Recognition (CVPR)

IEEE International Conference on Computer Vision (ICCV)

European Conference on Computer Vision (ECCV)

Conference on Neural Information Processing Systems (NeurIPS)

International Conference on Machine Learning (ICML)

International Conference on Learning Representations (ICLR)

Association for the Advancement of Artificial Intelligence (AAAI)

IEEE International Conference on Robotics and Automations (ICRA)

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)

Asian Conference on Computer Vision (ACCV)

IEEE Winter Conference on Applications of Computer Vision (WACV)

International Conference on 3D Vision (3DV)

International Conference on Machine Vision Applications (MVA)

International Conference on Control, Automation and Systems (ICCAS)

## Teaching

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Advanced Deep Learning, Spring 2022, Spring 2024.

Artificial Intelligence Basics, Fall 2021, Fall 2022, Fall 2023.

Introduction to Deep Learning, Fall 2020, Fall 2021, Fall 2022, Fall 2023, Fall 2024.

Deep Learning, Spring 2020.

Computer Vision, Fall 2019, Spring 2021, Spring 2023, Spring 2025.