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RESEARCH INTERESTS	Computer Vision (3D reconstruction/localization, Scene understanding) Deep Learning (Data-hungry, Generalization, Robustness) Autonomous driving	
ACADEMIC APPOINTMENTS	<b>DGIST</b> , Daegu, Korea <i>Associate Professor</i> , Electrical Engineering and Comptuer Science	Mar 2023 – Present
	<b>DGIST</b> , Daegu, Korea <i>Assistant Professor</i> , Electrical Engineering and Comptuer Science	Sep 2019 – Feb 2023
	<b>Carnegie Mellon University (CMU)</b> , Pittsburgh, US <i>Visiting Scholar</i> , Robotics Institute, working with Prof. Martial Hebert and Prof. Jean Oh.	Jun 2019 – Aug 2019
	<b>Microsoft Research Asia (MSRA)</b> , Beijing, China <i>Research Intern</i> , Internet Graphics Group, working with Dr. Stephen Lin.	Feb 2018 – Aug 2018
	<b>KAIST</b> , Daejeon, Korea <i>Research Assistant</i> , Robotics and Computer Vision Lab., working with Prof. In So Kweon	Mar 2014 – Aug 2019
EDUCATION	<b>KAIST</b> , Daejeon, Korea  Ph.D., Electrical Engineering • Dissertation: "Robust 3D Imaging using a Single Hand-held Cameras" • Advisor: Prof. In So Kweon  M.S., Electrical Engineering • Advisor: Prof. In So Kweon  <b>Sogang University</b> , Seoul, Korea  B.S., Electronic Engineering • Summa cum laude	Aug 2019     Feb 2016     Feb 2014
PUBLICATIONS	<b>International Journal</b>  1. Jeonghoon Kim, <b>Sunghoon Im</b> , and Sunghyun Cho, "ProFeat: Unsupervised Image Clustering via Progressive Feature Refinement", <i>Pattern Recognition Letters (PRL)</i> , Nov 2022.  2. Jaeyeul Kim*, Jungwan Woo*, and <b>Sunghoon Im</b> , "RVMOS: Range-View Moving Object Segmentation leveraged by Semantic and Motion Features", <i>IEEE Robotics and Automation Letters (RAL)</i> , Jun 2022.	

3. 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)*, 2022.
4. Hae-Gon Jeon, **Sunghoon Im**, Jaesung Choe, Minjun Kang, Joon-Young Lee, and Martial Hebert, “CMSNet: Deep Color and Monochrome Stereo”, *International Journal of Computer Vision (IJCV)*, Jan 2022.
5. Hae-Gon Jeon, **Sunghoon Im**, Byeong-Uk Lee, Francois 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)*, 2022.
6. **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.
7. 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.
8. **Sunghoon Im**, Hae-Gon Jeon, and In So Kweon, “Robust Depth Estimation using Auto-Exposure Bracketing”, *IEEE Transactions on Image Processing (TIP)*, May 2019.
9. **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.
10. 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.
11. 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.

#### International Conference/Workshop

1. 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.
2. Wonhyeok Choi\*, Mingyu Shin\* and **Sunghoon Im**, “Depth-discriminative Metric Learning for Monocular 3D Object Detection”, *Neural Information Processing Systems (NeurIPS)*, Dec 2023.
3. Changjae Kim, Seunghun Lee and **Sunghoon Im**, “Multi-Target Domain Adaptation with Class-Wise Attribute Transfer in Semantic Segmentation”, *British Machine Vision Conference (BMVC)*, Nov 2023.
4. Sungho Moon, Jinwoo Bae and **Sunghoon Im**, “Rotation Matters: Generalized Monocular 3D Object Detection for Various Camera System”, *IEEE Conference on Computer Vision and Pattern Recognition Workshop (CVPRw)*, Jun 2023.
5. Wonhyeok Choi and **Sunghoon Im**, “Dynamic Neural Network for Multi-Task Learning Searching across Diverse Network Topologies”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun 2023.

6. Jinwoo Bae, Sungho Moon, and **Sunghoon Im**, “Deep Digging into the Generalization of Self-supervised Monocular Depth Estimation”, *The Thirty-Seventh AAAI Conference on Artificial Intelligence (AAAI)*, Feb 2023.
7. Jungwan Woo\*, Jaeyeul Kim\*, and **Sunghoon Im**, “LiDAR 3D Object Detection via Self-Training and Knowledge Distillation”, *ECCV workshop on 3D Perception for Autonomous Driving (ECCVw)*, Oct 2022.
8. 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.
9. Seunghun Lee, Wonhyeok Choi, Changjae Kim, Minwoo Choi, and **Sunghoon Im**, “ADAS: A Direct Adaptation Strategy for Multi-Target Domain Adaptive Semantic Segmentation”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun 2022.
10. Jaesung Choe, **Sunghoon Im**, Francois 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.
11. 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.
12. Seunghun Lee, Sunghyun Cho, and **Sunghoon Im**, “DRANet: Disentangling Representation and Adaptation Networks for Unsupervised Cross-Domain Adaptation”, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Jun 2021.
13. 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.
14. 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.
15. 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.
16. Hae-Gon Jeon, **Sunghoon Im**, 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.
17. 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.
18. 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.
19. **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.

20. 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.
21. **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.
22. 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]*, Jul 2017.
23. **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.
24. 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]*, Jun 2016.
25. 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.
26. **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.
27. **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.

#### Other Publications

1. Jaeheung Surh, Hae-Gon Jeon, Hyowon Ha, **Sunghoon Im** and In So Kweon, "Fast Depth from Defocus with Your Mobile Phone for Synthetic Defocus", *In Proc. of the 28th Workshop on Image Processing and Image Understanding (IPIU)*, Feb 2016.
2. **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.
3. 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.

#### TEACHING

- Advanced Deep Learning, Spring 2022.
- Artificial Intelligence Basics, Fall 2021, Fall 2022, Fall 2023.
- Introduction to Deep Learning, Fall 2020, Fall 2021, Fall 2022, Fall 2023.
- Deep Learning, Spring 2020.
- Computer Vision, Fall 2019, Spring 2021, Spring 2023.

ACADEMIC SERVICES	<ul style="list-style-type: none"> <li>• Editor - IEIE Transactions on Smart Processing and Computing (SPC)</li> <li>• Web chair - Korean Conference on Computer Vision (KCCV) 2022, 2023</li> <li>• Editor - The Information and Communications Technology Express (ICT Express)</li> <li>• Local chair - International Technical Conference on Circuits/Systems, Computers and Communications (ITC-CSCC) 2021</li> </ul>	
REVIEWER (JOURNAL)	<ul style="list-style-type: none"> <li>• IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)</li> <li>• International Journal of Computer Vision (IJCV)</li> <li>• Computer Vision and Image Understanding (CVIU)</li> <li>• IEEE/ASME Transactions on Mechatronics (TMECH)</li> <li>• IEEE Transactions on Instrumentation and Measurement (TIM)</li> <li>• Pattern Recognition (PR)</li> <li>• Neurocomputing</li> <li>• IEEE Robotics and Automation Letters (RAL)</li> <li>• IEEE Access</li> <li>• International Journal of Control, Automation and Systems (IJCAS)</li> <li>• IEIE Transactions on Smart Processing and Computing (IEIE SPC)</li> <li>• Journal of Institute of Control, Robotics and Systems (ICROS)</li> </ul>	
REVIEWER (CONFERENCE)	<ul style="list-style-type: none"> <li>• SIGGRAPH Asia 2022</li> <li>• IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2019-2023</li> <li>• IEEE International Conference on Computer Vision (ICCV) 2019-2023</li> <li>• European Conference on Computer Vision (ECCV) 2020-2022</li> <li>• Conference on Neural Information Processing Systems (NeurIPS) 2020-2023</li> <li>• International Conference on Machine Learning (ICML) 2020-2023</li> <li>• International Conference on Learning Representations (ICLR) 2021-2023</li> <li>• Association for the Advancement of Artificial Intelligence (AAAI) 2020-2023</li> <li>• IEEE International Conference on Robotics and Automations (ICRA) 2021-2022</li> <li>• IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2017</li> <li>• Asian Conference on Computer Vision (ACCV) 2020</li> <li>• IEEE Winter Conference on Applications of Computer Vision (WACV) 2020</li> <li>• International Conference on 3D Vision (3DV) 2020</li> <li>• International Conference on Machine Vision Applications (ICMVA) 2021</li> <li>• International Conference on Control, Automation and Systems (ICCAS) 2020</li> </ul>	
INDUSTRY CONSULTATION	<ul style="list-style-type: none"> <li>• 10K1M, Jan-Dec 2023</li> <li>• DWorld, Feb-Mar 2021</li> <li>• Dabeoo, Feb-Jun 2020</li> </ul>	
AWARDS	<ul style="list-style-type: none"> <li>• Argoverse End-to-End Forecasting Challenge Honorable Mention (CVPRw) Jun 2023</li> <li>• AFCV best robot vision paper award Feb 2023</li> <li>• ADAI: Autonomous Driving A.I. challenge Nov 2022</li> <li>• ECCV workshop on 3D Perception for Autonomous Driving (ECCVw) 3rd place Oct 2022</li> <li>• Best Academic Award, DGIST Sep 2021</li> <li>• Excellent Student Award, 2018 Research Performance Evaluation, KAIST EE Apr 2019</li> <li>• Best Poster Award, 2018 Samsung AI Forum, Samsung Research Sep 2018</li> <li>• Excellent Intern Award, Microsoft Research Asia (MSRA) Aug 2018</li> <li>• Honor Student Award, 2017 Research Performance Evaluation, KAIST EE Apr 2018</li> <li>• Kim Choong-Ki Award, 2016 Research Performance Evaluation, KAIST EE Apr 2017</li> <li>• Best Poster Presentation Award, IPIU 2017 Feb 2017</li> <li>• Qualcomm Innovation Award 2016, Qualcomm Korea Corp. and KAIST Mar 2016</li> <li>• Silver prize, 22th HumanTech Paper Award, Samsung Electronics Co., Ltd. Feb 2016</li> <li>• Best Poster Award, IWRCV 2015 General Chair Nov 2015</li> </ul>	

	<ul style="list-style-type: none"> <li>• Official Best 10% Paper Selection, ICIP 2015 Organizing Committee</li> <li>• Design Project Competition(Silver Prize), Sogang University</li> <li>• Prize for the top first percentile GPA, Sogang University</li> </ul>	<p>Sep 2015</p> <p>Nov 2013</p> <p>Sep 2011, Feb 2012, Sep 2012</p>
HONORS	<ul style="list-style-type: none"> <li>• NeurIPS 2020 Top 10% of high-scoring reviewer</li> <li>• CVPR 2019 Doctoral Consortium</li> <li>• ICLR 2019 Travel Award</li> <li>• Microsoft Research Asia (MSRA) fellowship 2018 Winner</li> <li>• Global Ph.D. Fellowship, National Research Foundation of Korea</li> <li>• International Computer Vision Summer School (ICVSS 2016), Sicily, Italy</li> <li>• Summa Cum Laude, Sogang University</li> <li>• Academic Excellence Scholarship, Sogang University</li> <li>• Scholarship, Korea Scholarship Foundation</li> </ul>	<p>Oct 2020</p> <p>Jun 2019</p> <p>May 2019</p> <p>Oct 2018</p> <p>Aug 2016</p> <p>July 2016</p> <p>Feb 2014</p> <p>Seb 2012 – Feb 2013</p> <p>Feb 2012 – Feb 2014</p>
IT SKILLS	<ul style="list-style-type: none"> <li>• Languages: Python, MATLAB, C, C++, <math>\text{\LaTeX}</math></li> <li>• Deep Learning Framework: Pytorch, Torch, TensorFlow</li> </ul>	

*Last Update: 2023/09/24*