# Jaesik Park

jaesik.park@postech.ac.kr | jaesik.info Chungam-Ro 77, POSTECH, Pohang-Si, Republic of Korea (37673)

#### Working Experiences

## **Assistant Professor**

Pohang, Republic of Korea

Pohang University of Science and Technology (POSTECH)

April. 2019 - Present

- Co-principal investigator of Computer Vision Lab.
- Advising about 20 masters and Ph.D. students
- Selected as one of the **POSTECH**'s Representative Research Achievements (2021)
- Received Outstanding Online Class award (2020) and the Best EduTech award (2021)
- 3D scene reconstruction, understanding, and assembly projects
- Proposed novel image generation pipelines: StudioGAN projects receives 1.9k GitHub stars
- 3.8k Google Scholar citations (as of Oct. 2021)

#### Staff Research Scientist

Santa Clara, CA, USA

Intelligent Systems Lab, Intel (Manager: Dr. Vladlen Koltun)

Dec. 2015 - March 2019

- Co-founder of Open3D: open-sourced 3D vision library, built from scratch, and receives 5.6k GitHub stars
- Tanks and Temples: web-based photogrametry evaluation system
- High quality 3D reconstruction algorithms
- Geometry understanding: tangent convolutions and geometric features
- Advised intern students from Stanford University, U.C. Berkeley, and Carnegie Melon University

#### Post-Doc. Researcher

Daejeon, Republic of Korea

KAIST. Developed color correction algorithms (Mentor: Prof. In So Kweon)

Aug. 2015 - Nov. 2015

Research Intern

Redmond, WA, USA

Microsoft Research. Developed a light calibration technique (Mentor: Dr. Sudipta N. Sinha)

June 2013 - Sep. 2013

Research Intern

Beijing, China

Microsoft Research Asia. Multiview photometric stereo system (Mentor: Prof. Y. Matsushita)

April 2012 - Oct. 2012

#### EDUCATION

# Ph.D. and M.S. in Electrical Eng.

Daejeon, Republic of Korea

Korea Advanced Institute of Science and Technology (KAIST)

Feb. 2009 - Aug. 2015

- Ph.D. thesis: Image-based 3D Modeling via Constrained Optimization (Advisor: Prof. In So Kweon, Co-advisor: Dr. Yu-Wing Tai)
- Master's thesis: Upsampling Low-resolution Image using Heterogeneous High-resolution Image (Advisor: Prof. In So Kweon)

## B.E. in Media Communication Eng.

Hanyang University (Summa cum laude)

Seoul, Republic of Korea March. 2005 – Feb. 2009

# **Publications**

# International

- [1] Jinsoo Choi, **Jaesik Park**, and In So Kweon Self-Supervised Real-time Video Stabilization The British Machine Vision Conference (**BMVC**), 2021
- [2] Jungeon Kim, Hyomin Kim, Hyeonseo Nam, Jaesik Park, and Seungyong Lee TextureMe: High-quality Textured Scene Reconstruction in Real-time ACM Transactions on Graphics (ToG), 2021
- [3] Minguk Kang, Woohyeon Joseph Shim, Minsu Cho, and Jaesik Park Rebooting ACGAN: Auxiliary Classifier GANs with Stable Training Conference on Neural Information Processing Systems (NeurIPS), 2021

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- [4] Hyunsoo Chung, Jungtaek Kim, Boris Knyazev, Jinhwi Lee, Graham W. Taylor, **Jaesik Park**, and Minsu Cho Brick-by-Brick: Combinatorial Construction with Deep Reinforcement Learning Conference on Neural Information Processing Systems (**NeurIPS**), 2021
- [5] Yoonwoo Jeong, Seokjun Ahn, Christopher Choy, Animashree Anandkumar, Minsu Cho, and Jaesik Park Self-Calibrating Neural Radiance Fields International Conference on Computer Vision (ICCV), 2021
- [6] Junha Lee, Seungwook Kim, Minsu Cho, and Jaesik Park Deep Hough Voting for Robust Global Registration International Conference on Computer Vision (ICCV), 2021
- [7] Hyomin Kim, Jungeon Kim, Jaewon Kam, Jaesik Park\*, and Seungyong Lee\*
   *Deep Virtual Markers for Articulated 3D Shapes* International Conference on Computer Vision (ICCV), 2021
   (\*Joint corrresponding authors, Oral Presentation, 3.4% acceptance rate)
- [8] Hyunmin Lee and Jaesik Park
   STAD: Stable Video Depth Estimation
   IEEE International Conference on Image Processing (ICIP), 2021
- [9] Taewon Jin, Taesoo Park, Ina Park, Jaesik Park\*, and Ji Hoon Shim\* Accelerated Crystal Structure Prediction of Multi-elements Random Alloy using Expandable Features Scientific Reports published by Nature Research, 2021 (\*Joint corrresponding authors)
- [10] Hyomin Kim, Jungeon Kim, Hyeonseo Nam, **Jaesik Park**, and Seungyong Lee

  Spatiotemporal Texture Reconstruction for Dynamic Objects Using a Single RGB-D Camera

  42nd Annual Conference of the European Association for Computer Graphics (**EuroGraphics**), 2021
- [11] Jinsoo Choi, Jaesik Park, and In So Kweon High-quality Frame Interpolation via Tridirectional Inference Winter Conference on Applications of Computer Vision (WACV), 2021
- [12] Minguk Kang and Jaesik Park

  ContraGAN: Contrastive Learning for Conditional Image Generation

  Conference on Neural Information Processing Systems (NeurIPS), 2020
- [13] Jungtaek Kim, Hyunsoo Chung, Minsu Cho, and **Jaesik Park**Combinatorial 3D Shape Generation via Sequential Assembly

  Machine Learning for Engineering Modeling, Simulation, and Design (ML4Eng, **NeurIPS workshop**), 2020
- [14] Jinhwi Lee\*, Jungtaek Kim\*, Hyunsoo Chung, Jaesik Park, and Minsu Cho Fragment Relation Networks for Geometric Shape Assembly Learning Meets Combinatorial Algorithms (LMCA, NeurIPS workshop), 2020 (\*Equal contribution)
- [15] Zhixuan Yu, Jaeshin Yoon, Inkyu Lee, Prashanth Venkatesh, Jaesik Park, Jihun Yu, and Hyunsoo Park HUMBI: A Large Multiview Dataset of Human Body Expressions Conference on Computer Vision and Pattern Recognition (CVPR), 2020
- [16] Christopher Choy, Junha Lee, Rene Ranftl, Jaesik Park, and Vladlen Koltun High-Dimensional Convolutional Networks for Geometric Pattern Recognition Conference on Computer Vision and Pattern Recognition (CVPR), 2020 (Oral Presentation, 5.7% acceptance rate)
- [17] Yue Wu, Rongrong Gao, **Jaesik Park**, and Qifeng Chen Future Video Synthesis with Object Motion Predictions

  Conference on Computer Vision and Pattern Recognition (CVPR), 2020
- [18] Christopher Choy\*, Jaesik Park\*, and Vladlen Koltun Fully Convolutional Geometric Features International Conference on Computer Vision (ICCV), 2019 (\*Equal contribution)

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- [19] Jungeon Kim, Hyomin Kim, Jaesik Park, and Seungyong Lee Global Texture Mapping for Dynamic Objects Pacific Graphics (PG), 2019
- [20] Wei Dong, Jaesik Park, Yi Yang, and Michael Kaess GPU Accelerated Robust Scene Reconstruction IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2019
- [21] Hae-Gon Jeon, Jaesik Park, Gyeongmin Choe, Jinsun Park, Yunsu Bok, Yu-Wing Tai, and In So Kweon Depth from a Light Field Image with Learning-based Matching Costs IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2019
- [22] Maxim Tatarchenko\*, Jaesik Park\*, Vladlen Koltun, and Qian-Yi Zhou Tangent Convolutions for Dense Prediction in 3D Conference on Computer Vision and Pattern Recognition (CVPR), 2018 (\*Equal contribution. Spotlight Oral Presentation)
- [23] Qian-Yi Zhou, Jaesik Park, and Vladlen Koltun Open3D: A Modern Library For 3D Data Processing Technical Report, arXiv:1801.09847, 2018
- [24] Byungtae Ahn, Dong-Geol Choi, **Jaesik Park**, and In So Kweon Real-time Head Pose Estimation using Multi-task Deep Neural Network Robotics and Autonomous Systems (**RAS**), 2018
- [25] Jaesik Park, Qian-Yi Zhou, and Vladlen Koltun Colored Point Cloud Registration Revisited International Conference on Computer Vision (ICCV), 2017
- [26] Arno Knapitsch, Jaesik Park, Qian-Yi Zhou, and Vladlen Koltun Tanks and Temples: Benchmarking Large-Scale Scene Reconstruction ACM Transactions on Graphics (Proc. SIGGRAPH), 2017
- [27] Seong heum Kim, Yu Wing Tai, Joon Young Lee, Jaesik Park, and In So Kweon Category Specific Salient View Selection via Deep Convolutional Neural Networks Computer Graphics Forum (CGF), 2017
- [28] Jaesik Park, Sudipta N. Sinha, Yasuyuki Matsushita, Yu-Wing Tai, and In So Kweon Robust Multiview Photometric Stereo using Planar Mesh Parameterization IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), 2016
- [29] Qian-Yi Zhou, Jaesik Park, and Vladlen Koltun Fast Global Registration European Conference on Computer Vision (ECCV), 2016 (Oral Presentation, 1.8% acceptance rate)
- [30] Gyeongmin Choe, Jaesik Park, Yu-Wing Tai, and In So Kweon Refining Geometry from Depth Sensors using IR Shading Images International Journal of Computer Vision (IJCV), 2016
- [31] Jaesik Park, Yu-Wing Tai, Sudipta N. Sinha, and In So Kweon Efficient and Robust Color Consistency for Community Photo Collections Conference on Computer Vision and Pattern Recognition (CVPR), 2016
- [32] Hyowon Ha, Sunghoon Im, Jaesik Park, Hae-Gon Jeon, and In So Kweon High-quality Depth from Uncalibrated Small Motion Clip Conference on Computer Vision and Pattern Recognition (CVPR), 2016 (Oral Presentation, 3.9% acceptance rate)
- [33] Inwook Shim, Seunghak Shin, Yunsu Bok, Kyungdon Joo, Dong-Geol Choi, Joon-Young Lee, **Jaesik Park**, Jun Ho Oh, and In So Kweon

  Vision System and Depth Processing for DRC-HUBO+

  HEFE Interpretained Conference on Polystics and Automation (ICPA) 2016

IEEE International Conference on Robotics and Automation (ICRA), 2016 (Depth processing algorithm of Team KAIST (winner of DARPA robotics challenge finals 2015))

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- [34] Seong-Heum Kim, Yu-Wing Tai, Jaesik Park, and In So Kweon Multi-view Object Extraction with Fractional Boundaries IEEE Transaction on Image Processing (TIP), 2016
- [35] Hyowon Ha, Jaesik Park, and In So Kweon Dense Depth and Albedo from a Single-shot Structured Light International Conference on 3D Vision (3DV), 2015
- [36] Hae-Gon Jeon, **Jaesik Park**, Gyeongmin Choe, Jinsun Park, Yunsu Bok, Yu-Wing Tai, and In So Kweon Accurate Depth Map Estimation from a Lenslet Light Field Camera Conference on Computer Vision and Pattern Recognition (CVPR), 2015
- [37] SoonMin Hwang, Jaesik Park, Namil Kim, Yukyung Choi, and In So Kweon Multi-modal Pedestrian Detection: Benchmark Dataset and Baselines Conference on Computer Vision and Pattern Recognition (CVPR), 2015
- [38] Jaesik Park, Hyeongwoo Kim, Yu-Wing Tai, Michael S. Brown, and In-So Kweon High Quality Depth Map Upsampling and Completion for RGB-D Cameras IEEE Transaction on Image Processing (TIP), 2014
- [39] Byungtae Ahn, **Jaesik Park**, and In So Kweon

  Real-time Head Orientation from a Monocular Camera using Deep Neural Network

  Asian Conference on Computer Vision (**ACCV**), 2014
- [40] Jinsoo Choi, Byungtae Ahn, **Jaesik Park**, and In So Kweon GMM-based Saliency Aggregation for Calibration-free Gaze Estimation International Conference on Image Processing (**ICIP**), 2014
- [41] Gyeongmin Choe\*, Jaesik Park\*, Yu-Wing Tai, and In So Kweon Exploiting Shading Cues in Kinect IR Images for Geometry Refinement Conference on Computer Vision and Pattern Recognition (CVPR), 2014 (\*Equal contributions. Received 20th HumanTech Paper Award (Silver Prize), Samsung Electronics Corp.)
- [42] Jaesik Park, Sudipta N. Sinha, Yasuyuki Matsushita, Yu-Wing Tai, and In So Kweon Calibrating a Non-isotropic Near Point Light Source using a Plane Conference on Computer Vision and Pattern Recognition (CVPR), 2014
- [43] Jaesik Park, Sudipta N. Sinha, Yasuyuki Matsushita, Yu-Wing Tai, and In So Kweon Multiview Photometric Stereo using Planar Mesh Parameterization International Conference on Computer Vision (ICCV), 2013 (Received 19th HumanTech Paper Award (Silver Prize), Samsung Electronics Corp.)
- [44] Jaesik Park, Tae Hyun Oh, Jiyoung Jung, Yu-Wing Tai, and In So Kweon Tensor Voting Approach for Multi-View 3D Scene-flow Estimation and Refinement European Conference on Computer Vision (ECCV), 2012
- [45] Jaesik Park, Joon-Young Lee, Yu-Wing Tai, and In So Kweon Modeling Photo Composition and Its Application to Photo Re-arrangement International Conference on Image Processing (ICIP), 2012
- [46] Jaesik Park, Yu-Wing Tai, and In-So Kweon Identigram/Watermark removal using cross-channel correlation Conference on Computer Vision and Pattern Recognition (CVPR), 2012
- [47] Jiyoung Jung, Yekeun Jeong, **Jaesik Park**, Hyowon Ha, J. D. Kim, and In-So Kweon A Novel 2.5D Pattern for Extrinsic Calibration of ToF and Camera Fusion System IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**), 2011
- [48] Jaesik Park\*, Hyeongwoo Kim\*, Yu-Wing Tai, Michael S. Brown, and In-So Kweon High Quality Depth Map Upsampling for 3D-TOF Cameras International Conference on Computer Vision (ICCV), 2011 (\*Equal contributions)

## Domestic

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- [1] Junha Lee, Seungwook Kim, Minsu Cho, and **Jaesik Park** 계층적 허프 변환을 통한 포인트 클라우드 정합 제 33회 영상처리 및 이해에 관한 워크샵 (IPIU), Feb. 2021 (**Received The Gold Prize**)
- [2] Hyunmin Lee and **Jaesik Park** 일관된 비디오 뎁스 맵 추정을 위한 시간 어텐션 모듈 제 33회 영상처리 및 이해에 관한 워크샵 (IPIU), Feb. 2021 (**Received The Silver Prize**)
- [3] Hyunsoo Chung, Jungtaek Kim, Jinhwi Lee, **Jaesik Park**, and Minsu Cho 강화학습을 이용한 그래프 표현 기반의 3차원 물체 생성 제 33회 영상처리 및 이해에 관한 워크샵 (IPIU), Feb. 2021
- [4] Jungeon Kim, Hyomin Kim, **Jaesik Park**, and Seungyong Lee *동적 객체에 대한 전역 텍스쳐 맵 생성* 제 32회 영상처리 및 이해에 관한 워크샵 (IPIU), Feb. 2020
- [5] Jungeon Kim, Hyomin Kim, **Jaesik Park**, and Seungyong Lee 메시 피라미드를 활용한 3차원 비강체 모델 텍스쳐 맵 생성 한국컴퓨터그래픽스학회, July 2019
- [6] Min-Hyun Kim, **Jaesik Park**, and In So Kweon *깊이 영상 처리를 위한 학습기반 신뢰도 추정 및 재질 분류* 제 27회 영상처리 및 이해에 관한 워크샵 (IPIU), Feb. 2014
- [7] Junsik Kim, Kyungdon Joo, Tae-Hyun Oh, **Jaesik Park**, and In So Kweon 시야 공유가 없는 다중 카메라를 이용한 사람 추적 제 27회 영상처리 및 이해에 관한 워크샵 (IPIU), Feb. 2014
- [8] SoonMin Hwang, **Jaesik Park**, Namil Kim, Yukyung Choi, and In So Kweon *컬러-열영상 퓨전을 통한 강인한 보행자 검출 기법* 제 27회 영상처리 및 이해에 관한 워크샵 (IPIU), Feb. 2014
- [9] Hae-Gon Jeon, **Jaesik Park**, Gyeongmin Choe, Jinsun Park, Yunsu Bok, Yu-Wing Tai, and In So Kweon 마이크로 렌즈 기반의 휴대용 라이트필드 카메라를 이용한 정확한 깊이 정보 추정방법 한국멀티미디어학회 춘계학술발표대회, May 2014 (**Received the Best Paper Award**)
- [10] Gyeongmin Choe, **Jaesik Park**, Hyowon Ha, and In So Kweon 키넥트 깊이 정밀도 개선을 위한 적외선 패턴 영상의 스테레오 정합 2013년도 한국 멀티미디어 학회 춘계학술 발표대회 논문집 제 16권 1호, May 2013
- [11] **Jaesik Park**, Tae Hyun Oh, Jiyoung Jung, Yu-Wing Tai, and In So Kweon *다시점 영상기반 3차원 움직임 추정기법* 제 25회 영상처리 및 이해에 관한 워크샵 (IPIU), Feb. 2013
- [12] Jaesik Park, Yu-Wing Tai, and In So Kweon 컬러 영상의 홀로그램 및 워터마크 제거 기법 제 25회 영상처리 및 이해에 관한 워크샵 (IPIU), Feb. 2013 (Received the Best Paper Award)

## Program Committee

- Associate Editor, IEEE International Conference on Robotics and Automation (ICRA), 2021
- Associate Editor, IEEE/RSJ International Conference on Inteligent Robotics and Systems (IROS), 2021
- Area Chair, Machine Vision Applications (MVA) conference, 2021
- Area Chair, International Conference on Computer Vision and Pattern Recognition (CVPR), 2021
- Area Chair, International Conference on Computer Vision (ICCV), 2021
- Senior Program Committee, Int. Joint Conf. on Artificial Intelligence (IJCAI), 2021

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- Senior Program Committee, American Assoc. for Artificial Intelligence (AAAI), 2021
- Area Chair, International Conference on Computer Vision and Pattern Recognition (CVPR), 2020
- Area Chair, International Conference on Computer Vision (ICCV), 2019
- Session Chair, International Conference on Computer Vision (ICCV), 2019
- Have been served as a reviewer for international conferences, such as CVPR, ICCV, ECCV, ICLR, NeurIPS, AAAI, ICRA, IROS, SIGGRAPH, SIGGRAPH Asia, BMVC, 3DV, ACCV, WACV, and so on.
- Have been served as a reviewer for international journals, such as TPAMI, TIP, TVCG, TRO, IJCV, CVIU, SPL, IVC, Neurocomputing, and so on.

# AWARDS

- Best EduTech Class Award, POSTECH, Oct. 2021
- Representative Research Achievements, POSTECH, July 2021
- Qualcomm Gift Grant, Qualcomm Corporation, Dec. 2020
- Outstanding Online Class, Awarded to five classes among 170 classes, POSTECH, July 2020
- Faculty Support Program, Intel Corporation, June 2020
- Google Season of Docs, Google Corporation, Technical writer support for Open3D, Apr. 2019
- Qualcomm Gift Grant, Qualcomm Corporation, Sep. 2019
- Research Velocity Challenge Award, Intel Corporation, Dec. 2018
- Depth Estimation Challenge: Robustness Champion, CVPR workshop on Light Fields for Comp. Vis., July 2017
- Qualcomm Innovation Award, Qualcomm Korea Corp., March 2016
- CVPR 2015 Doctoral Consortium, IEEE CVPR, Apr. 2016
- Honor Prize, KAIST, Annual Ph.D. Research Progress Evaluation, May 2016
- Best Paper Award, Korea Multimedia Society, 2015 Spring Annual Conference, May 2016
- Honor Prize, KAIST, Annual Ph.D. Research Progress Evaluation, May 2015
- 20th HumanTech Paper Award (Silver Prize), Samsung Electronics Corp., Feb. 2014
- 19th HumanTech Paper Award (Silver Prize), Samsung Electronics Corp., Feb. 2013
- Best Paper Award, 25th Workshop on Image Processing and Image Understanding (IPIU2013), Feb. 2013
- Bronze Prize, Samsung Techwin research center conference, Feb. 2012
- Excellent Intern Award, Microsoft Research Asia, Dec. 2012
- Microsoft Research Asia Fellowship, Microsoft, Awarded to 11 Ph.D. students in the top Asian universities., Nov. 2011
- Summa Cum Laude, Hanyang University, GPA 4.32/4.5, Feb. 2009
- Full Scholarship, Jeong-Su Scholarship Foundation, Aug. 2006
- Scholarship for Undergraduate Students, The Korea Foundation for Advanced Studies (KFAS), June 2006
- Full scholarship, Hanyang University, Aug. 2005

# PATENTS

- 대조 학습과 적대적 생성 신경망을 활용한 이미지 생성 및 편집 방법과 장치, Republic of Korea
- Tangent Convolutions for 3D Data, US10572770B2, (Application granted)
- 깊이 정보 획득 장치 및 깊이 정보 획득 방법 (Depth Map Acquisition Device And Depth Map Acquisition Method), Patent No. 1018520850000, Republic of Korea, (Application granted)
- 삼차원 영상 정보 획득 방법 및 이를 구현한 컴퓨팅 장치 (Method For Acquiring Three Dimensional Image Information, And Computing Device Implementing The Same Method), Patent No. 1017652570000, Republic of Korea (Application granted)
- 전경 추출 방법 및 장치 (Foreground Area Extracting Method and Apparatus), Patent No. 10-2015-0084331, Republic of Korea.
- 다중 객체 추적 방법 및 이를 위한 장치 (Method Of Tracking Multiple Objects And Apparatus For The Same), Patent No. 10-2015-0070569, Republic of Korea
- 깊이 센서와 적외선 음영 영상을 이용한 고품질 3차원 정보 획득 장치 및 방법 (Device and method for obtaining accurate 3D information using depth sensor and infrared shading cues), Patent No. 1017079390000, Republic of Korea. (Application granted)
- 가려짐이 있는 환경에서 이동표적의 위치를 추정하는 방법 (Method for Estimating Location of Moving Target in Occluded Tracking Environment), Patent No. 1012883880000, Republic of Korea. (Application granted)
- 컬러 이미지의 채널간 상관관계를 이용하는 워터마크 제거 방법 (Method for removing watermark using cross-channel correlation of color image), Patent No. 1013952840000, Republic of Korea. (Application granted)

## Teaching

- AIGS101 Artifical Intelligence Basis II, Fall, 2021
- CSED703F Topics in AI: 3D Vision, Fall, 2021
- AIGS101 Artifical Intelligence Basis I, Spring, 2021
- CSED538/AIGS538 Deep learning, Awarded as the Best EduTech Class by POSTECH, Spring, 2021
- AIGS101, Artifical Intelligence Basis II, Fall, 2020
- CSED100, Introduction to Computer Science Engineering, Fall, 2020
- CSED703F, 3D Vision, Fall, 2020
- CSED800/AIGS800, CSE/GSAI Colloquium, Fall, 2020
- AIGS101, Artifical Intelligence Basis I, Spring, 2020
- AIGS537/CSED537, Artificial Intelligence and Data Science Spring, Spring, 2020
- CSED233, Data Structure, Awarded as the Outstanding Online Class by POSTECH, Spring, 2020
- CSED703F-01 3D Vision, Fall, 2019

# Talks

- Object Detection from Images or Point Clouds, LG Electronics, Seoul, Republic of Korea, Aug. 2021
- Self-Calibrating Neural Radiance Fields, Korea Institute of Science and Technology (KIST), Virtual, June 2021
- Mentor session: how to become a professor, Conference on Computer Vision and Pattern Recognition (CVPR 2021), Virtual, June 2021
- Recent work on Image Generation, Gwangju Institute of Science and Technology (GIST), Virtual, May 2021
- Point Cloud Registration using Hierachical Hough Transform, 33nd Workshop on Image Processing and Image Understanding (IPIU2021), Virtual, Feb. 2021
- 3D Representations and Detections, Chungbuk University, Virtual, Jan. 2021

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- Introduction to Computer Vision, Kyungbuk Science High School, Pohang, Republic of Korea, Aug. 2020
- High-Dimensional Convolutional Networks for Geometric Pattern Recognition, KCCV 2020, Seoul, Republic of Korea, Aug. 2020
- Object Detection from Images or Point Clouds, LG Electronics, Seoul, Republic of Korea, Aug. 2020
- Fully Convolutional Geometric Features, Koh Young Technology, Yongin, Republic of Korea, Dec. 2019
- Open3D Tutorial and Fully Convolutional Geometric Features, Korea Electronics Technology Institute, Seongnam, Republic of Korea, Nov. 2019
- Introduction to Computer Vision and Deep Learning, Daegu Science High School, Daegu, Republic of Korea, Aug. 2019
- 3D Computer Vision and Open3D, International Conference on Machine Vision Applications, Tokyo, Japan, May 2019
- 3D Computer Vision and Open3D, Qualcomm Head Quater, San Diego, USA, June 2019
- 3D reconstruction using Open3D, Minneapolis, University of Minnesota, invited lecture for Multiview 3D Geometry in Computer Vision (CSCI 5980) Class, Apr. 2018
- 3D reconstruction using Open3D, Forma Technology (a startup company at Bay Area), San Francisco, USA, March 2018

#### Reference

• Up on request.