# Jaesik Park

<u>jaesik.park@postech.ac.kr</u> | <u>jaesik.info</u> 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 project (1.9k GitHub stars)
- 3.9k Google Scholar citations (as of Nov. 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 (5.6k GitHub stars)
- Tanks and Temples: a online evaluation system for photogrametry methods
- High quality 3D reconstruction approaches
- Geometry understanding: tangent convolutions and fully convolutional 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 Shim, Minsu Cho, and **Jaesik Park**Rebooting ACGAN: Auxiliary Classifier GANs with Stable Training
  Conference on Neural Information Processing Systems (**NeurIPS**), 2021

Last modified: November 9, 2021 1 of 8

- [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)

Last modified: November 9, 2021 2 of 8

- [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+

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

Last modified: November 9, 2021 3 of 8

- [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

Last modified: November 9, 2021 4 of 8

- [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

Last modified: November 9, 2021

- 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, Awarded to the one online class among 480 classes, Nov. 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

Last modified: November 9, 2021 7 of 8

- 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.