

# DONGBO MIN

Associate Professor, Dept. of Computer Science & Engineering, Ewha Womans University (EWU), Seoul, Korea  
E-mail: dbmin@ewha.ac.kr, dbmin99@gmail.com, Web: <http://cvl.ewha.ac.kr>, Office: +82-2-3277-6892

*Last Update: Sep. 26, 2024*

## RESEARCH INTEREST

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Computer Vision: Visual Scene Understanding (Depth, Segmentation, and 2D/3D Object Detection)  
Deep Learning: Self-supervised Learning, Domain Adaptation/Generalization, Lightweight Model, Multi-Task Learning

## EDUCATION

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**PhD in Electrical and Electronics Engineering** 02/2005 – 02/2009  
Yonsei University, Seoul, Korea (Supervisor: Prof. Kwanghoon Sohn)  
PhD thesis: **Multiview Stereo Matching and Freeview Video Generation for 3DTV System**

**MS in Electrical and Electronics Engineering** 03/2003 – 02/2005  
Yonsei University, Seoul, Korea (Supervisor: Prof. Kwanghoon Sohn)  
MS thesis: **Edge-preserving Joint Motion/Disparity Estimation in Stereo Image Sequences**

**BS in Electrical and Electronics Engineering** 03/1999 – 02/2003  
Yonsei University, Seoul, Korea

## WORK EXPERIENCES

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**Ewha Womans University (EWU)** Seoul, Korea  
*Associate Professor*, Dept. of Computer Science and Engineering (CSE) 03/2021 – Present  
*Assistant Professor*, Dept. of Computer Science and Engineering (CSE) 03/2018 – 02/2021  
Director of the Computer Vision Lab (CVLab), EWU, Korea

**The University of British Columbia (UBC)** Vancouver, Canada  
*Visiting Associate Professor*, Dept. of Computer Science (CS) 02/2024 – Present

**Chungnam National University (CNU)** Daejeon, Korea  
*Assistant Professor*, Dept. of Computer Science and Engineering (CSE) 03/2015 – 2018/02  
Director of the Computer Vision Lab (CVLab), CNU, Korea

**Advanced Digital Sciences Center (ADSC)<sup>1</sup>** Singapore  
*Research Scientist* 07/2012 – 02/2015  
*Researcher* 07/2010 – 06/2012

**Mitsubishi Electric Research Laboratories (MERL)** Cambridge, MA, US  
*Post-Doctoral Researcher* 06/2009 – 06/2010

**Yonsei University** Seoul, Korea  
*Research Assistant* 03/2003 – 05/2009

**Coordinated Science Laboratory (CSL), UIUC** Urbana-Champaign, IL, US  
*Principal Research Affiliate* (Joint appointment at CSL) 10/2012 – 02/2015

## PROFESSIONAL SERVICES

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**Ewha Womans University (EWU)** Seoul, Korea  
*Department Head*, Dept. of Artificial Intelligence (AI) 03/2022 – 01/2024  
*Vice Dean*, School of Artificial Intelligence (AI)<sup>2</sup> 02/2023 – 01/2024

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<sup>1</sup>The national research institute co-founded by Univ. of Illinois at Urbana-Champaign (UIUC) and A\*STAR (Singapore Government Agency)

<sup>2</sup>The School of AI at EWU was newly established in 2023, consisting of four departments; CSE, Cyber-security, AI, and Data Science. As a founding member of the School of AI, I took the lead in designing the curriculum for the Department of AI and initiating the School of AI.

\* For more information on the latest publications, see [dblp](#) or [Google Scholar](#).

### International Journal

1. Xu Yin, Woobin Im, **Dongbo Min**, Yuchi Huo, Fei Pan, Sung-Eui Yoon  
Fine-grained Background Representation for Weakly Supervised Semantic Segmentation  
*IEEE Trans. on Circuits and Systems for Video Technology* (accepted)
2. Wonil Song, Sangryul Jeon, Hyesong Choi, Kwanghoon Sohn, and **Dongbo Min**  
Learning disentangled skills for hierarchical reinforcement learning through trajectory autoencoder with weak labels  
*Expert Systems With Applications* (ESWA), vol. 230, no. 15, Nov. 2023.
3. Xu Yin, **Dongbo Min**, Yuchi Huo, and Sung-Eui Yoon  
Contour-Aware Equipotential Learning for Semantic Segmentation  
*IEEE Trans. on Multimedia* (TMM), vol. 25, pp. 6146-6156, 2023.
4. Sunok Kim, Seungryong Kim, **Dongbo Min**, Pascal Frossard and Kwanghoon Sohn  
Stereo Confidence Estimation via Locally Adaptive Fusion and Knowledge Distillation  
*IEEE Trans. on Pattern Analysis and Machine Intelligence* (TPAMI), vol. 45, no. 5, pp. 6372-6385, May 2023.
5. Hunsang Lee, Hyesong Choi, Kwanghoon Sohn, **Dongbo Min**  
Cross-Scale KNN Image Transformer for Image Restoration  
*IEEE Access* vol. 11, pp. 13013-13027, 2023.
6. Sangryul Jeon, Seungryong Kim, **Dongbo Min**, and Kwanghoon Sohn  
Pyramidal Semantic Correspondence Networks  
*IEEE Trans. on Pattern Analysis and Machine Intelligence* (TPAMI), vol. 44, no. 12, pp. 9102-9118, Dec. 2022.
7. Matteo Poggi, Seungryong Kim, Fabio Tosi, Sunok Kim, Filippo Aleotti, **Dongbo Min**, Kwanghoon Sohn, and Stefano Mattoccia  
On the confidence of stereo matching in a deep-learning era: a quantitative evaluation  
*IEEE Trans. on Pattern Analysis and Machine Intelligence* (TPAMI), vol. 44, no. 9, pp. 5293-5313, Sep. 2022.
8. Jintae Kim, Sera Park, **Dongbo Min**, and Wankyu Kim  
Comprehensive Survey of Recent Drug Discovery Using Deep Learning  
*International Journal of Molecular Sciences*, vol. 22 no.18, 2021.
9. Sunok Kim, **Dongbo Min**, Seungryong Kim, and Kwanghoon Sohn  
Adversarial Confidence Estimation Networks for Robust Stereo Matching  
*IEEE Trans. on Intelligent Transportation Systems* (TITS) vol. 22, no. 11, pp. 6875-6889, Nov 2021.
10. Jaehoon Cho, **Dongbo Min**, Youngjung Kim, and Kwanghoon Sohn  
Deep monocular depth estimation leveraging a large-scale outdoor stereo dataset  
*Expert Systems with Applications* (ESWA), vol. 178, Sep 2021.
11. Seungryong Kim, **Dongbo Min**, Stephen Lin, and Kwanghoon Sohn  
Dense Cross-Modal Correspondence Estimation with the Deep Self-Correlation Descriptor  
*IEEE Trans. on Pattern Analysis and Machine Intelligence* (TPAMI), vol. 43, no. 7, pp. 2345-2359, July 2021.
12. Hyungjoo Jung, Youngjung Kim, **Dongbo Min**, Hyunsung Jang, Namkoo Ha, and Kwanghoon Sohn  
Learning Deeply Aggregated Alternating Minimization for General Inverse Problems  
*IEEE Trans. on Image Processing* (TIP), vol. 29, pp. 8012-8027, July 2020.
13. Jaehoon Cho, Seungryong Kim, **Dongbo Min**, and Kwanghoon Sohn  
Single Image Deraining Using Time-lapse Data  
*IEEE Trans. on Image Processing* (TIP), vol. 29, pp. 7274-7289, June 2020.
14. Hunsang Lee, Kwanghoon Sohn, and **Dongbo Min**  
Unsupervised Low-light Image Enhancement Using Bright Channel Prior  
*IEEE Signal Processing Letters* (SPL), vol. 27, pp. 251-255, Jan. 2020.
15. Seungryong Kim, **Dongbo Min**, Stephen Lin, and Kwanghoon Sohn  
Discrete-Continuous Transformation Matching for Dense Semantic Correspondence  
*IEEE Trans. on Pattern Analysis and Machine Intelligence* (TPAMI) vol. 42, no. 1, pp. 59-73, Jan. 2020.
16. Seungryong Kim, **Dongbo Min**, Bumsub Ham, Stephen Lin, and Kwanghoon Sohn  
FCSS: Fully Convolutional Self-Similarity for Dense Semantic Correspondence  
*IEEE Trans. on Pattern Analysis and Machine Intelligence* (TPAMI) vol. 41, no. 3, pp. 581-595, Mar. 2019.

17. Sunok Kim, **Dongbo Min**, Seungryong Kim, and Kwanghoon Sohn  
Unified Confidence Estimation Networks for Robust Stereo Matching  
*IEEE Trans. on Image Processing (TIP)*, vol. 28, no. 3, pp. 1299-1313, Mar. 2019
18. Youngjung Kim, Hyungjoo Jung, **Dongbo Min**, and Kwanghoon Sohn  
Deep Monocular Depth Estimation via Integration of Global and Local Predictions  
*IEEE Trans. on Image Processing (TIP)*, vol. 27, no. 8, pp. 4131-4144, Aug. 2018
19. Jaeyoon Kim, Suhyuk Um, **Dongbo Min**  
Fast 2-D Complex Gabor Filter with Kernel Decomposition  
*IEEE Trans. on Image Processing (TIP)*, vol. 27, no. 4, pp. 1713-1722, Apr. 2018
20. Sunok Kim, **Dongbo Min**, Seungryong Kim, and Kwanghoon Sohn  
Feature Augmentation for Learning Confidence Measure in Stereo Matching  
*IEEE Trans. on Image Processing (TIP)*, vol. 26, no. 12, pp. 6019-6033, Dec. 2017
21. Jiangbo Lu, Yu Li, Hongsheng Yang, **Dongbo Min**, Wei Yong Eng, and Minh N. Do  
PatchMatch Filter: Edge-Aware Filtering Meets Randomized Search for Visual Correspondence  
*IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, vol. 39, no. 9, pp. 1866-1879, Sep. 2017
22. Seungryong Kim, **Dongbo Min**, Bumsub Ham, Minh N. Do, and Kwanghoon Sohn  
DASC: Robust Dense Descriptor for Multi-modal and Multi-spectral Correspondence Estimation  
*IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, vol. 39, no. 9, pp. 1712-1729, Sep. 2017
23. Youngjung Kim, **Dongbo Min**, Bumsub Ham, and Kwanghoon Sohn  
Fast Domain Decomposition for Global Image Smoothing  
*IEEE Trans. on Image Processing (TIP)*, vol. 26, no. 8, pp. 4079-4091, Aug. 2017
24. Kang Zhang, Yuqiang Fang, **Dongbo Min**, Lifeng Sun, Shiqiang Yang, and Shuicheng Yan  
Cross-Scale Cost Aggregation for Stereo Matching  
*IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, vol. 27, no. 5, pp. 965-976, May 2017
25. Jongin Son, Minsung Kang, **Dongbo Min**, and Kwanghoon Sohn  
EMCCD Color Correction Based on Spectral Sensitivity Analysis  
*Multimedia Tools and Applications*, vol. 75, no. 13, pp. 7589-7604, Jul. 2016
26. Sunghwan Choi, **Dongbo Min**, Bumsub Ham, Yongjung Kim, Changjae Oh, and Kwanghoon Sohn  
Depth Analogy: Data-driven Approach for Single Image Depth Estimation using Gradient Samples  
*IEEE Trans. on Image Processing (TIP)*, vol. 24, no. 12, pp. 5953-5966, Dec. 2015
27. Sunghwan Choi, **Dongbo Min**, Bumsub Ham, and Kwanghoon Sohn  
Unsupervised Texture Flow Estimation Using Appearance-space Clustering and Correspondence  
*IEEE Trans. on Image Processing (TIP)*, vol. 24, no. 11, pp. 3652-3665, Nov. 2015
28. Bumsub Ham, **Dongbo Min**, and Kwanghoon Sohn  
Depth Super-Resolution by Transduction  
*IEEE Trans. on Image Processing (TIP)*, vol. 24, no. 5, pp. 1524-1535, May 2015
29. **Dongbo Min**, Sunghwan Choi, Jiangbo Lu, Bumsub Ham, Kwanghoon Sohn, and Minh N. Do  
Fast Global Image Smoothing Based on Weighted Least Squares  
*IEEE Trans. on Image Processing (TIP)*, vol. 23, no. 12, pp. 5638-5653, Dec. 2014  
◇ This work was included in the **official release of OpenCV 3.1** as of Dec. 2015.
30. Jinwook Choi, **Dongbo Min**, and Kwanghoon Sohn  
Reliability-based Multiview Depth Enhancement Considering Inter-view Coherence  
*IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, vol. 24, no. 4, pp. 603-616, Apr. 2014
31. Bumsub Ham, **Dongbo Min**, Changjae Oh, Minh N. Do, and Kwanghoon Sohn  
Probability-Based Rendering for View Synthesis  
*IEEE Trans. on Image Processing (TIP)*, vol. 23, no. 2, pp. 870-884, Feb. 2014
32. Stefan Winkler and **Dongbo Min**  
Stereo/Multiview Picture Quality: Overview and Recent Advances  
*Signal Proc.: Image Comm. (SPIC)*, vol. 28, no. 10, pp. 1358-1373, Nov. 2013
33. **Dongbo Min**, Jiangbo Lu, and Minh N. Do  
Joint Histogram Based Cost Aggregation for Stereo Matching  
*IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, vol. 35, no. 10, pp. 2539-2545, Oct. 2013

34. Bumsub Ham<sup>†</sup>, **Dongbo Min**<sup>†</sup>, and Kwanghoon Sohn  
A Generalized Random Walk with Restart and Its Application in Depth Up-sampling and Interactive Segmentation  
*IEEE Trans. on Image Processing (TIP)*, vol. 22, no. 7, pp. 2574-2588, Jul. 2013  
(<sup>†</sup>: contributed equally to this work.)
35. Bumsub Ham, **Dongbo Min**, and Kwanghoon Sohn  
Revisiting the Relationship Between Adaptive Smoothing and Anisotropic Diffusion with Modified Filters  
*IEEE Trans. on Image Processing (TIP)*, vol. 22, no. 3, pp. 1096-1107, Mar. 2013
36. Viet-Anh Nguyen, **Dongbo Min**, and Minh N. Do  
Efficient Techniques for Depth Video Compression Using Weighted Mode Filtering  
*IEEE Trans. on Circuits and Systems for Video Technology (TCSVT)*, vol. 23, no. 2, pp. 189-202, Feb. 2013
37. Bumsub Ham, **Dongbo Min**, and Kwanghoon Sohn  
Robust Scale Space Filter with Second Order Partial Differential Equations  
*IEEE Trans. on Image Processing (TIP)*, vol. 21, no. 9, pp. 3937-3951, Sep. 2012
38. **Dongbo Min**, Jiangbo Lu, and Minh N. Do  
Depth Video Enhancement Based on Weighted Mode Filtering  
*IEEE Trans. on Image Processing (TIP)*, vol. 21, no. 3, pp. 1176-1190, Mar. 2012
39. Jinwook Choi, **Dongbo Min**, and Kwanghoon Sohn  
2D-Plus-Depth Based Resolution and Frame-rate Up-conversion Technique for Depth Video  
*IEEE Trans. on Consumer Electronics*, vol. 56, no. 4, pp. 2489-2497, Nov. 2010
40. **Dongbo Min** and Kwanghoon Sohn  
An Asymmetric Post-Processing for Correspondence Problem  
*Signal Processing: Image Communication (SPIC)*, vol. 25, no. 2, pp. 130-142, Feb. 2010
41. **Dongbo Min**, Donghyun Kim, SangUn Yun, and Kwanghoon Sohn  
2D/3D Freeview Video Generation for 3DTV System  
*Signal Processing: Image Communication (SPIC)*, vol. 24, no. 1-2, pp. 31-48, Jan. 2009  
(Invited paper, special issue on 3DTV)
42. **Dongbo Min** and Kwanghoon Sohn  
Cost Aggregation and Occlusion Handling With WLS in Stereo Matching  
*IEEE Trans. on Image Processing (TIP)*, vol. 17, no. 8, pp. 1431-1442, Aug. 2008
43. Donghyun Kim, **Dongbo Min**, and Kwanghoon Sohn  
A Stereoscopic Video Generation Method Using Stereoscopic Display Characterization and Motion Analysis  
*IEEE Trans. on Broadcasting (TB)*, vol. 54, no. 2, pp 188-197, Jun. 2008
44. Hansung Kim, Donghyun Kim, **Dongbo Min**, and Kwanghoon Sohn  
A 3D Modeling and Free-View Generation System Using Environmental Stereo Cameras  
*Int. Journal of Imaging Systems and Technology (IJIST)*, vol. 17, no. 6, pp. 367-378, Apr. 2008
45. **Dongbo Min**, Hansung Kim, and Kwanghoon Sohn  
Edge-Preserving Joint Motion Disparity Estimation in Stereo Image Sequences  
*Signal Processing: Image Communication (SPIC)*, vol. 21, no. 3, pp. 252-271, Mar. 2006
46. Hansung Kim, **Dongbo Min**, Shinwoo Choi, and Kwanghoon Sohn  
Real-Time Disparity Estimation Using Foreground Segmentation for Stereo Sequences  
*Optical Engineering*, vol. 45, no. 3, pp. 037402 1-10, Mar. 2006

#### **International Journal (Submitted)**

1. Seongwon Jeong\*, Jiyeong Kim\*, Sungheui Kim, and **Dongbo Min**  
Revisiting Domain-Adaptive Semantic Segmentation via Knowledge Distillation  
*IEEE Trans. on Image Processing (TIP)* (Under Review)
2. Sumin Park\*, Hyejin Park\*, Suree Kim, Sinae Jang, Eunsoo Lee, Dongmin Kang, and **Dongbo Min**  
FocusCLIP: Edge-Guided Feature Fusion and Adaptive Text Prompting for Advanced Focus Assessment in Fluorescence Microscopy  
*Bioinformatics* (Under Review)

## International Conference

1. Wonil Song, Hyesong Choi, Kwanghoon Sohn, and **Dongbo Min**  
A Simple Framework for Generalization in Visual RL under Dynamic Scene Perturbations  
*Neural Information Processing Systems (NeurIPS)*, Dec. 2024
2. Hyejin Park and **Dongbo Min**  
Dynamic Guidance Adversarial Distillation with Enhanced Teacher Knowledge  
*European Conf. on Computer Vision (ECCV)*, Sep. 2024
3. Hyesong Choi, Hunsang Lee, Seyoung Joung, Hyejin Park, Jiyeong Kim, and **Dongbo Min**  
Emerging Property of Masked Token for Effective Pre-training  
*European Conf. on Computer Vision (ECCV)*, Sep. 2024
4. Hyesong Choi, Hyejin Park, Kwang Moo Yi, Sungmin Cha, and **Dongbo Min**  
Saliency-Based Adaptive Masking: Revisiting Token Dynamics for Enhanced Pre-training  
*European Conf. on Computer Vision (ECCV)*, Sep. 2024
5. Hyesong Choi, Hunsang Lee, Seongwon Jeong, and **Dongbo Min**  
Environment Agnostic Representation for Visual Reinforcement Learning  
*IEEE Int. Conf. on Computer Vision (ICCV)*, Oct. 2023
6. Hyesong Choi, Hunsang Lee, Wonil Song, Sangryul Jeon, Kwanghoon Sohn, and **Dongbo Min**  
Local-guided Global: Paired Similarity Representation for Visual Reinforcement Learning  
*IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2023.
7. Sunghwan Hong, Ji Su Nam, Seokju Cho, Susung Hong, Sangryul Jeon, **Dongbo Min**, and Seungryong Kim  
Neural Matching Fields: Implicit Representation of Matching Fields for Visual Correspondence  
*Neural Information Processing Systems (NeurIPS)*, Nov. 2022.
8. Kwonyoung Kim, JungIn Park, Jiyoung Lee, **Dongbo Min**, and Kwanghoon Sohn  
PointFix: Learning to Fix Domain Bias for Robust Online Stereo Adaptation  
*European Conference on Computer Vision (ECCV)*, Oct. 2022.
9. Sunkyung Kim, Hyesong Choi, and **Dongbo Min**  
Sequential Cross Attention based Multi-Task Learning  
*IEEE Int. Conf. on Image Processing (ICIP)*, Oct. 2022.
10. Hunsang Lee, Hyesong Choi, Kwanghoon Sohn, and **Dongbo Min**  
KNN Local Attention for Image Restoration  
*IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2022.
11. Jin Kim, Jiyoung Lee, JungIn Park, **Dongbo Min**, and Kwanghoon Sohn  
Pin the Memory: Learning to Generalize Semantic Segmentation  
*IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2022.
12. Hyesong Choi, Hunsang Lee, Sunkyung Kim, Sunok Kim, Seungryong Kim, Kwanghoon Sohn, and **Dongbo Min**  
Adaptive Confidence Thresholding for Monocular Depth Estimation  
*IEEE Int. Conf. on Computer Vision (ICCV)*, Oct. 2021.
13. Sangryul Jeon, **Dongbo Min**, Seungryong Kim, and Kwanghoon Sohn  
Mining Better Samples for Contrastive Learning of Temporal Correspondence  
*IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2021.
14. Sangryul Jeon, **Dongbo Min**, Seungryong Kim, Jihwan Choe, and Kwanghoon Sohn  
Guided Semantic Flow  
*European Conference on Computer Vision (ECCV)*, Aug. 2020.
15. Sangryul Jeon, **Dongbo Min**, Seungryong Kim, and Kwanghoon Sohn  
Joint Learning of Semantic Alignment and Object Landmark Detection  
*IEEE Int. Conf. on Computer Vision (ICCV)*, Oct. 2019.
16. Seungryong Kim, **Dongbo Min**, Somi Jeong, Sunok Kim, Sangryul Jeon, and Kwanghoon Sohn  
Semantic Attribute Matching Networks  
*IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2019
17. Sunok Kim, Seungryong Kim, **Dongbo Min**, and Kwanghoon Sohn  
LAF-Net: Locally Adaptive Fusion Networks for Stereo Confidence Estimation  
*IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2019 (**Oral presentation**)

18. Seungryung Kim, Stephen Lin, Sangryul Jeon, **Dongbo Min**, and Kwanghoon Sohn  
 Recurrent Transformer Networks for Semantic Correspondence  
*Neural Information Processing Systems (NeurIPS)*, Dec. 2018 (**Spotlight**, < 4.0% **acceptance ratio**)
19. Sangryul Jeon, Seungryong Kim, **Dongbo Min**, and Kwanghoon Sohn  
 PARN: Pyramidal Affine Regression Networks for Dense Semantic Correspondence Estimation  
*European Conference on Computer Vision (ECCV)*, Sep. 2018
20. Seungryong Kim, **Dongbo Min**, Stephen Lin, and Kwanghoon Sohn  
 DCTM: Discrete-Continuous Transform Matching for Semantic Flow  
*IEEE Int. Conf. on Computer Vision (ICCV)*, Oct. 2017  
**(Oral presentation, < 3.0% acceptance ratio)**
21. Hyungjoo Jung, Youngjung Kim, **Dongbo Min**, Changjae Oh, and Kwanghoon Sohn  
 Depth Prediction from a Single Image with Conditional Adversarial Networks  
*IEEE Int. Conf. on Image Processing (ICIP)*, Sep. 2017
22. Sunok Kim, **Dongbo Min**, Bumsub Ham, Seungryong Kim, and Kwanghoon Sohn  
 Deep Stereo Confidence Prediction for Depth Estimation  
*IEEE Int. Conf. on Image Processing (ICIP)*, Sep. 2017
23. Youngjung Kim<sup>†</sup>, Hyungjoo Jung<sup>†</sup>, **Dongbo Min**, and Kwanghoon Sohn  
 Deeply Aggregated Alternating Minimization for Image Restoration  
*IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jul. 2017  
**(Spotlight presentation, < 8.0% acceptance ratio, <sup>†</sup>: contributed equally to this work.)**
24. Seungryong Kim, **Dongbo Min**, Bumsub Ham, Sangryul Jeon, Stephen Lin, and Kwanghoon Sohn  
 FCSS: Fully Convolutional Self-Similarity for Dense Semantic Correspondence  
*IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jul. 2017
25. Yu Li, **Dongbo Min**, and Minh N. Do, and Jiangbo Lu  
 Fast Guided Global Interpolation for Depth and Motion  
*European Conference on Computer Vision (ECCV)*, Oct. 2016  
**(Spotlight presentation, < 8.0% acceptance ratio)**
26. Seungryong Kim, **Dongbo Min**, Stephen Lin, and Kwanghoon Sohn  
 Deep Self-Correlation Descriptor for Dense Cross-Modal Correspondence  
*European Conference on Computer Vision (ECCV)*, Oct. 2016
27. Seungryong Kim, **Dongbo Min**, and Kwanghoon Sohn  
 ANCC FLOW: Adaptive Normalized Cross-Correlation with Evolving Guidance Aggregation for Dense Correspondence Estimation  
*IEEE Int. Conf. on Image Processing (ICIP)*, Sep. 2016
28. Yu Li, **Dongbo Min**, Michael S. Brown, Minh N. Do, and Jiangbo Lu  
 SPM-BP: Sped-up PatchMatch Belief Propagation for Continuous MRFs  
*IEEE Int. Conf. on Computer Vision (ICCV)*, Dec. 2015  
**(Oral presentation, < 4.0% acceptance ratio)**
29. Seungryong Kim, **Dongbo Min**, Bumsub Ham, Seungchul Ryu, Minh N. Do, and Kwanghoon Sohn  
 DASC: Dense Adaptive Self-Correlation Descriptor for Multi-modal and Multi-spectral Correspondence  
*IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2015
30. Sunghwan Choi, **Dongbo Min**, and Kwanghoon Sohn  
 Randomized Texture Flow Estimation Using Visual Similarity  
*IEEE Int. Conf. on Image Processing (ICIP)*, Jul. 2014
31. Kang Zhang, Yuqiang Fang, **Dongbo Min**, Lifeng Sun, Shiqiang Yang, Shuicheng Yan, and Qi Tian  
 Cross-Scale Cost Aggregation for Stereo Matching  
*IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2014
32. Wei Yong Eng, **Dongbo Min**, Viet-Anh Nguyen, Jiangbo Lu, and Minh N. Do  
 Gaze Correction For 3D Tele-Immersive Communication System  
*IEEE IVMSP Workshop: 3D Image/Video Technologies and Applications (IVMSP)*, Jun. 2013
33. Jiangbo Lu, Hongsheng Yang, **Dongbo Min**, and Minh N. Do  
 PatchMatch Filter: Efficient Edge-Aware Filtering Meets Randomized Search for Fast Correspondence Field Estimation

- IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2013  
(**Oral presentation**, < 4.0% **acceptance ratio**)
34. Viet-Anh Nguyen, **Dongbo Min**, and Minh N. Do  
Efficient Edge-Preserving Interpolation and In-Loop Filters for Depth Map Compression  
*IEEE Int. Conf. on Image Processing (ICIP)*, Sep. 2012
  35. Jiangbo Lu, Keyang Shi, **Dongbo Min**, Liang Lin, and Minh N. Do  
Cross-Based Local Multipoint Filtering  
*IEEE Int. Conf. on Computer Vision and Pattern Recognition (CVPR)*, Jun. 2012
  36. **Dongbo Min**, Jiangbo Lu, Viet-Anh Nguyen, and Minh N. Do  
Weighted mode filtering and its applications to depth video enhancement and coding  
*IEEE Int. Conf. Acoustics, Speech, and Signal Processing (ICASSP)*, Mar. 2012 (Invited paper on special session)
  37. Jinwook Choi, **Dongbo Min**, and Kwanghoon Sohn  
Stereo Depth Video Enhancement Based on Temporal and Inter-view Coherences  
*IEEE Int. Conf. on Consumer Electronics (ICCE)*, Jan. 2012
  38. Stefan Winkler and **Dongbo Min**  
Stereoscopic Image Quality Compendium  
*Proc. Int. Conf. on Information and Communication Systems (ICICS)*, Dec. 2011
  39. Kyle Rupnow, Yun Liang, Yinan Li, **Dongbo Min**, Minh N. Do, and Deming Chen  
High Level Synthesis of Stereo Matching: Productivity, Performance, and Software Constraints  
*Int. Conf. on Field Programmable Technology (FPT)*, Dec. 2011. (The best paper nomination)  
[FPT is one of top FPGA-related conferences.]
  40. **Dongbo Min**, Jiangbo Lu, and Minh N. Do  
A Revisit to Cost Aggregation in Stereo Matching: How Far Can We Reduce Its Computational Redundancy?  
*IEEE Int. Conf. on Computer Vision (ICCV)*, Nov. 2011 (**Oral presentation**, < 4.0% **acceptance ratio**)
  41. Bumsub Ham, **Dongbo Min**, and Kwanghoon Sohn  
Cost Aggregation with Anisotropic Diffusion in Feature Space for Hybrid Stereo Matching  
*IEEE Int. Conf. on Image Processing (ICIP)*, Sep. 2011
  42. Jiangbo Lu, **Dongbo Min**, Raman S. Pahwa, and Minh N. Do  
A Revisit to MRF-based Depth Map Super-resolution and Enhancement  
*IEEE Int. Conf. Acoustics, Speech, and Signal Processing (ICASSP)*, May 2011 (Oral presentation)
  43. Jinwook Choi, **Dongbo Min**, Donghyun Kim, and Kwanghoon Sohn  
3D JBU based depth video filtering for temporal fluctuation reduction  
*IEEE Int. Conf. on Image Processing (ICIP)*, Sep. 2010
  44. **Dongbo Min**, Sehoon Yea, and Anthony Vetro  
Occlusion handling based on support and decision  
*IEEE Int. Conf. on Image Processing (ICIP)*, Sep. 2010 (Oral presentation)
  45. **Dongbo Min**, Sehoon Yea, and Anthony Vetro  
Temporally consistent stereo matching using coherence function  
*IEEE 3DTV Conference*, Jun. 2010 (Oral presentation)
  46. **Dongbo Min**, Sehoon Yea, Zafer Arican, and Anthony Vetro  
Disparity search range estimation: enforcing temporal consistency  
*IEEE Int. Conf. Acoustics, Speech, and Signal Processing (ICASSP)*, Mar. 2010
  47. Jinwook Choi, **Dongbo Min**, Bumsub Ham, and Kwanghoon Sohn  
Spatial and temporal up-conversion technique for depth video  
*IEEE Int. Conf. on Image Processing (ICIP)*, Nov. 2009
  48. Bumsub Ham, **Dongbo Min**, Jinwook Choi, and Kwanghoon Sohn  
Virtual view rendering using super-resolution with multiview images  
*IEEE Int. Conf. on Image Processing (ICIP)*, Nov. 2009 (Oral presentation)
  49. Donghyun Kim, **Dongbo Min**, Juhyun Oh, S. Jeon, and Kwanghoon Sohn  
Depth map quality metric for three-dimensional video  
*Proc. SPIE Electronic Imaging*, Jan. 2009

50. **Dongbo Min**, Juhyun Oh, and Kwanghoon Sohn  
Asymmetric post-processing for stereo correspondence  
*IEEE Int. Conf. on Pattern Recognition (ICPR)*, Dec. 2008
51. **Dongbo Min**, Donghyun Kim, and Kwanghoon Sohn  
2D/3D freeview video generation for 3DTV system  
*IEEE Int. Conf. on Image Processing (ICIP)*, pp. 1760-1763, Oct. 2008 (Oral presentation)
52. **Dongbo Min**, Donghyun Kim, and Kwanghoon Sohn  
Virtual view rendering system for 3DTV  
*IEEE 3DTV Conference*, pp. 249-252, May 2008 (Oral presentation)
53. **Dongbo Min**, Donghyun Kim, S. Yun, and Kwanghoon Sohn  
Freeview rendering with trinocular camera  
*IEEE Int. Symposium on Circuits and Systems (ISCAS)*, pp. 3446-3449, May 2008
54. **Dongbo Min** and Kwanghoon Sohn  
Stereo matching with asymmetric occlusion handling in weighted least square framework  
*IEEE Int. Conf. Acoustics, Speech, and Signal Processing (ICASSP)*, pp. 1061-1064, Mar. 2008
55. SangUn Yun, **Dongbo Min**, and Kwanghoon Sohn  
3D scene reconstruction system with hand-held stereo cameras  
*IEEE 3DTV Conference*, May 2007
56. Donghyun Kim, **Dongbo Min**, and Kwanghoon Sohn  
Stereoscopic video generation method using motion analysis  
*IEEE 3DTV Conference*, May 2007
57. SangUn Yun, **Dongbo Min**, and Kwanghoon Sohn  
Fast dense stereo matching using adaptive window in hierarchical framework  
*Int. Symposium on Visual Computing (ISVC)*, LNCS, pp. 316-325, Nov. 2006
58. **Dongbo Min**, SangUn Yun, and Kwanghoon Sohn  
Segment-based stereo matching using energy-based regularization  
*Proc. IWMRCS*, LNCS, pp. 761-768, Sep. 2006
59. **Dongbo Min** and Kwanghoon Sohn  
Edge-preserving simultaneous joint motion-disparity estimation  
*IEEE Int. Conf. on Pattern Recognition (ICPR)*, pp. 252-271, Aug. 2006 (Oral presentation)
60. Hansung Kim, **Dongbo Min**, Shinwoo Choi, Donghyun Kim, and Kwanghoon Sohn  
Real-time shape recovery from silhouette and disparity  
*SIGGRAPH (sketch paper)*, Jul. 2005
61. Hansung Kim, **Dongbo Min**, and Kwanghoon Sohn  
Real-time stereo using foreground segmentation and hierarchical disparity estimation  
*Pacific-Rim Conference on Multimedia (PCM)*, LNCS, pp. 384-395, Nov. 2005 (Oral presentation)

### **International Conference (Submitted)**

### **International Conference Tutorial**

1. Jiangbo Lu, **Dongbo Min**, and Minh N. Do  
Discontinuities-Preserving Image and Motion Coherence: Computational Models and Applications  
**Half-day tutorial** in *IEEE Int. Conf. Acoustics, Speech and Signal Processing (ICASSP)*, Mar. 2016  
Web: <https://sites.google.com/site/icassp16imc/>
2. **Dongbo Min**, Wen-Yan Lin, Jiangbo Lu, and Minh N. Do  
Visual Correspondences: Taxonomy, Modern Approaches and Ubiquitous Applications  
**Half-day tutorial** in *IEEE Int. Conf. Multimedia and Expo (ICME)*, Jun. 2015  
Web: <https://sites.google.com/site/icme15tutorial/>
3. Jiangbo Lu, **Dongbo Min**, and Minh N. Do  
Image Filtering 2.0: Efficient Edge-Aware Filtering Techniques and Their Applications  
**Half-day Tutorial** in *IEEE Int. Conf. on Image Processing (ICIP)*, Sep. 2013  
Web: <https://sites.google.com/site/filteringtutorial/>



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1. **Dongbo Min** et. al., “Method for Handling Pixel Occlusions in Stereo Images Using Iterative Support and Decision Processes,” US patent no.: US8315426 B2, Nov 20, 2012.
2. **Dongbo Min** et. al., “Determining Disparity Search Range in Stereo Videos,” US patent no.: US8290248 B2, Oct 16, 2012.
3. **Dongbo Min** et. al., “Method of 2D/3D virtual view synthesis for freeview video generation,” Korea patent no.: 10-0924716, Oct. 27, 2009
4. **Dongbo Min** et. al., “Method of calculating cost function and handling occluded region in disparity estimation,” Korea patent no.: 10-0930286, Nov. 30, 2009.
5. **Dongbo Min** et. al., “Method and apparatus of image rectification in arbitrary view synthesis,” Korea patent no.: 10-0897542, May 07, 2009.
6. **Dongbo Min** et. al., “Method and apparatus of 3D image reconstruction,” Korea patent no.: 10-0890224, Mar. 17, 2009.

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## PROJECT EXPERIENCES

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### Current Projects (@EWU)

#### **Multi-task Learning Model for Complementary Scene Understanding based on Depth Estimation and Object Detection/Segmentation** 03/2021–02/2024

- Mid-Career Researcher Program, National Research Foundation (NRF) of Korea
- Principal Investigator (PI), EWU, Korea (600M KRW)

#### **AiA (AI in Action): Autonomous Action Planning AI Lab** 06/2021–02/2024

- Basic Research Laboratory (BRL), National Research Foundation (NRF) of Korea
- Principal Investigator (PI), EWU, Korea (1,375M KRW)

#### **Research on SPV(Security/Privacy/Visual) Firewall for Connected Autonomous Vehicle** 06/2023–02/2026

- Basic Research Laboratory (BRL), National Research Foundation (NRF) of Korea
- Researcher, EWU, Korea (1,375M KRW)

#### **Bio-imaging Quality Assessment** 04/2023–12/2026

- Bio-imaging Quality Center of Excellence, National Research Foundation (NRF) of Korea
- Researcher, EWU, Korea (TBD)

#### **Self-Evolving Hardware Intelligence** 07/2021–12/2025

- AI Innovation Hub of Institute for Information & Communications Technology Promotion (IITP), Korea
- Principal Investigator (PI) at EWU, EWU, Korea (774M KRW: 2022 Budget of EWU)
- EWU is a member of AI Innovation Hub consisting of 12 universities.

#### **A Study on Self-supervised Learning for Driving Error and Obstructed Zone Prediction in Robot Cleaner** 04/2023–04/2024

- Industry Project, LG Electronics
- Principal Investigator (PI), EWU, Korea (TBD)

### Past Projects (@Ewha, CNU, ADSC, MERL, and Yonsei)

#### **Research on upgrading AI-based automatic water detection technology for efficient vehicle development** 04/2021–09/2022

- Industry Project, Hyundai NGV
- Principal Investigator (PI), EWU, Korea (102M KRW)

- A study on AI-inspired super-resolution techniques using single or heterogeneous sensors** 10/2018–12/2021
- ‘Complex Cognitive Technology Development Project’ of NRF Korea
  - Principal Investigator (PI), EWU, Korea (295M KRW)
- To create AI systems that act appropriately and effectively in novel situations that occur in open worlds** 04/2020–12/2021
- Next-Generation AI Program of Institute for Information & Communications Technology Promotion (IITP), Korea
  - Co-Principal Investigator (Co-PI), EWU, Korea (300M KRW)
- Complementary Deep Learning for Pixel-level Correspondence/Segmentation and Image-level Retrieval** 03/2018–02/2021
- ‘Young Researcher Program’ of NRF Korea
  - Principal Investigator (PI), EWU, Korea (100M KRW/year + 100M KRW for equipment purchase)
- Highly Efficient and Advanced Visual Correspondence Algorithms for Big Visual Data** 11/2015–10/2018
- ‘Individual Basic Science and Engineering Research Program’ of NRF Korea
  - Principal Investigator (PI), CNU, Korea (51M KRW/year)
  - Feature descriptor, discrete labeling algorithm, graph matching
- High Quality 2D-to-Multiview Contents Generation from Large-scale RGB+D Database** 07/2015–08/2017
- ‘Digital Content R&D Project’ of Institute for Information & Communications Technology Promotion (IITP), Korea
  - Co-Principal Investigator (Co-PI), CNU, Korea (80M KRW/year, Total amount of funding: 400M KRW/year)
  - Constructing 2M RGB+D database, single image depth estimation, and interactive depth editing
- Real-time Monitoring of Points of Impact** 10/2015–02/2016
- Funded by Institute for Information & Communications Technology Promotion (IITP), Korea
  - Principal Investigator (PI), CNU, Korea (40M KRW)
- Optimization for Visual Correspondence** 06/2015–05/2016
- Starting-up funding from CNU, Korea
  - Principal Investigator (PI), CNU, Korea (20M KRW)
  - Local labeling algorithm
- Visual Modeling and Analytics of Dynamic Environments for the Mass** 04/2014–02/2015
- Internal funding from ADSC, Singapore: joint research project with UIUC
  - Global labeling optimization, visual correspondence, and reliable sparse interpolation (presented at **ICME 2015** and **ICASSP 2016 tutorials**)
- Remote Reality for Immersive Communications and Games** 07/2010–03/2014
- Internal funding from ADSC, Singapore: joint research project with UIUC
  - Edge-preserving filters and discrete labeling optimization (presented at **ICIP 2013 tutorial**)
  - Video based rendering and depth enhancement and coding
  - Tele-conferencing system with depth sensor and real-time vision algorithms with GPUs
- 3D Display Processing Techniques** 06/2009–06/2010
- Funded by Mitsubishi Electric Research Laboratories (MERL), US
  - Depth estimation for 3DTV and video processing with temporal coherence
- Research and Development of Next Generation Intelligent Broadcasting Technology** 03/2003–05/2009
- ‘Information Technology Research Center’ (ITRC) of Ministry of Knowledge Economy, Korea
  - Depth estimation, image-based rendering, 2D-to-3D conversion
  - 3D object modeling and interaction with multiple stereo cameras
- SoC Development for 3D Media Processing** 09/2003–08/2006
- ‘System IC 2010 Project’ of Ministry of Knowledge Economy, Korea
  - Real-time depth estimation on SoC

### **Development of the Core Technology for 3DTV System**

09/2005–08/2008

- ‘Fostering Project of Lab of Excellency’ of Korea Industrial Technology Foundation
- 3D video/audio capturing system, hybrid depth sensor system, and 3D scene modeling

### **Camera Tracking and 3D Shape Reconstruction**

05/2008–04/2009

- Funded by Korean Broadcasting System (KBS)
- 3D scene modeling using Structure-from-Motion (SfM)

## **PROFESSIONAL ACTIVITIES**

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- **Senior Member of IEEE** (2016 – Present)

## **REFERENCES**

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Available upon request