DONGBO MIN

Associate Professor, Dept. of Computer Science & Engineering, Ewha Womans University (EWU), Seoul, Korea
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RESEARCH INTEREST

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

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

MS in Electrical and Electronics Engineering 03/2003 – 02/2005
Yonsei University, Seoul, Korea
MS thesis (supervisor: Prof. Kwanghoon Sohn)
– **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

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

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

Advanced Digital Sciences Center (ADSC)[1] 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

PUBLICATIONS

International Journal

1. Xu Yin, **Dongbo Min**, Yuchi Huo, and Sung-Eui Yoon
Contour-Aware Equipotential Learning for Semantic Segmentation
IEEE Trans. on Multimedia (TMM) (Accepted)

2. 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) (Accepted)

[1]The national research institute co-founded by Univ. of Illinois at Urbana-Champaign (UIUC) and A*STAR (Singapore Government Agency)

3. Hunsang Lee, Hyesong Choi, Kwanghoon Sohn, **Dongbo Min**
Cross-Scale KNN Image Transformer for Image Restoration
IEEE Access vol. 11, pp. 13013-13027, 2023.

4. 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.

5. 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.

6. 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.

7. 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.

8. 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.

9. 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.

10. 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.

11. 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.

12. 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.

13. 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.

14. 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

15. 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

16. 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

17. 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

18. 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

19. 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

20. 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

21. 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

22. 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

23. 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

24. 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

25. 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

26. **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.

27. 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

28. 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

29. 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

30. **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

31. Bumsub Ham[†], **Dongbo Min**[†], 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
([†]: contributed equally to this work.)

32. 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

33. 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

34. 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

35. **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

36. 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

37. **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

38. **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)

39. **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

40. 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

41. 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

42. **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

43. 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. Sunkyung Kim, Hyesong Choi, and **Dongbo Min**
Sequential Cross-Attention based Multi-Task Learning for Visual Scene Understanding
Pattern Recognitions Letters (PRL) (Under review)

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) (Under review)

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/*

International Conference

1. 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.

2. 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.

3. 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.

4. Sunkyung Kim, Hyesong Choi, and **Dongbo Min**
Sequential Cross Attention based Multi-Task Learning
IEEE Int. Conf. on Image Processing (ICIP), Oct. 2022.

5. 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.

6. 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.

7. 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.

8. 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.

9. Sangryul Jeon, **Dongbo Min**, Seungryong Kim, Jihwan Choe, and Kwanghoon Sohn
Guided Semantic Flow
European Conference on Computer Vision (ECCV), Aug. 2020.

10. 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.

11. 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

12. 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**)

13. 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**)

14. 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

15. 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**)

16. 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

17. 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

18. Youngjung Kim†, Hyungjoo Jung†, **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**, †: contributed equally to this work.)

19. 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

20. 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**)

21. 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

22. 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

23. 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**)

24. 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

25. Sunghwan Choi, **Dongbo Min**, and Kwanghoon Sohn
Randomized Texture Flow Estimation Using Visual Similarity
IEEE Int. Conf. on Image Processing (ICIP), Jul. 2014

26. 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

27. 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

28. 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**)

29. 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

30. 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

31. **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)

32. 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

33. Stefan Winkler and **Dongbo Min**
Stereoscopic Image Quality Compendium
Proc. Int. Conf. on Information and Communication Systems (ICICS), Dec. 2011

34. 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.`]

35. **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**)

36. 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

37. 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)

38. 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

39. **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)

40. **Dongbo Min**, Sehoon Yea, and Anthony Vetro
Temporally consistent stereo matching using coherence function
IEEE 3DTV Conference, Jun. 2010 (Oral presentation)

41. **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

42. 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

43. 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)

44. 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

45. **Dongbo Min**, Juhyun Oh, and Kwanghoon Sohn
Asymmetric post-processing for stereo correspondence
IEEE Int. Conf. on Pattern Recognition (ICPR), Dec. 2008

46. **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)

47. **Dongbo Min**, Donghyun Kim, and Kwanghoon Sohn
Virtual view rendering system for 3DTV
IEEE 3DTV Conference, pp. 249-252, May 2008 (Oral presentation)

48. **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

49. **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

50. SangUn Yun, **Dongbo Min**, and Kwanghoon Sohn
3D scene reconstruction system with hand-held stereo cameras
IEEE 3DTV Conference, May 2007

51. Donghyun Kim, **Dongbo Min**, and Kwanghoon Sohn
Stereoscopic video generation method using motion analysis
IEEE 3DTV Conference, May 2007

52. 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

53. **Dongbo Min**, SangUn Yun, and Kwanghoon Sohn
Segment-based stereo matching using energy-based regularization
Proc. IWMRCS, LNCS, pp. 761-768, Sep. 2006

54. **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)

55. Hansung Kim, **Dongbo Min**, Shinwoo Choi, Donghyun Kim, and Kwanghoon Sohn
Real-time shape recovery from silhouette and disparity
SIGGRAPH (sketch paper), Jul. 2005

56. 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)

Korean Journal /Conference

Journal: 3 papers, Conference: 8 papers (in Korean)

PATENTS

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.

PROJECT EXPERIENCES

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, National Research Foundation (NRF) of Korea
– Principal Investigator (PI), 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.

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

- **Senior Member of IEEE** (2016 – Present)
- Chair, Yonsei student branch, IEEE Seoul section (01/2008 – 12/2008)
- **Session Chair**
  – ICIP 2013 (Stereoscopic, Multiview and 3D Image Processing II)
- **Editorial Board**
  – Associate Editor, IEEE TCSVT (2022-Present)
  – Associate Editor, Journal of KIISE (2019-Present)
  – Associate Editor, ETRI Journal (2018-2021)
- **Reviewer for Journal**
  – IEEE Trans. on Pattern Analysis and Machine Intelligence
  – IEEE Trans. on Image Processing
  – IEEE Trans. on Circuits and Systems for Video Technology
  – IEEE Trans. on Multimedia
- **Reviewer for Conference**
  – CVPR, ICCV, ECCV, NeurIPS, ICLR, AAAI, ICIP

REFERENCES

Available upon request

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