

SANG-WOONG LEE

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SHORT BIOGRAPHY

Sang-Woong Lee received his BS degree in Electronics and Computer Engineering from Korea University, Seoul, Korea, in 1996 and his MS and Ph.D. degrees in Computer Science and Engineering from Korea University, Seoul, Korea, in 2001 and 2006, respectively. From June 2006 to May 2007, he was a visiting scholar in Robotics Institute, Carnegie Mellon University. From September 2007 to February 2017, he worked as a professor in Department of Computer Engineering at Chosun University, Gwangju, Korea. Currently he is an associate professor in Department of Software at Gachon University. He published 25 peer-reviewed papers in international journals and published many other papers and patents. His present research interests include face recognition, computational aesthetics, machine learning, bioinformatics, and medical imaging analysis.

PERSONAL INFORMATION

Nationality: Korean
Date of Birth: June 27, 1971
Place of Birth: Seoul, Korea

EDUCATION/ QUALIFICATION

2006,	Ph.D. in Computer Science and Engineering at Korea University
2001,	M.S. in Computer Science and Engineering at Korea University
1996,	B.S. in Electronic Engineering at Korea University

PROFESSIONAL ACTIVITIES

2017 -	Associate Professor, Dept. of Software in Gachon University, Korea
2013 - 2017	Associate Professor, Dept. of Computer Engineering in Chosun University, Korea
2009 - 2013	Assistant Professor, Dept. of Computer Engineering in Chosun University, Korea
2007 - 2009	Full-time Instructor, Dept. of Computer Engineering in Chosun University, Korea
2007	Research Professor, Korea University, Korea
2006 - 2007	Visiting Researcher, Robotics Institute, Carnegie Mellon University, USA
2006 - 2006	Research Assistant Professor, Korea University, Korea
1996 - 1999	Researcher, Samsung Electronics, Inc., Korea

PROFESSIONAL SERVICES

2019	Program Committee, 11th Asian Conference on Intelligent Information and Database Systems- Special Session on Computational Imaging and Vision
2017	Organizing Committee, Workshop on the next generation computing technology for the 4th industrial revolution
2017-	Director, Korean Brain Education Society
2017	Organizing Committee, Summer Conference of the Korea Institute of Next Generation Computing
2017	Reviewer, Journal of Medical Imaging and Health Informatics

2017 Reviewer, The 8th International Workshop on Machine Learning in Medical Imaging
 2017- Reviewer, IEEE Access
 2017- Reviewer, Information Sciences
 2017- Reviewer, Sensors
 2017- Reviewer, Journal of Healthcare Engineering
 2017- Reviewer, Journal of Experimental & Theoretical Artificial Intelligence
 2017 Steering Co-Chair, The 2nd International Conference on Next Generation Computing
 2016- Chief Editor, Journal of the Korea Institute of Next Generation Computing
 2016- Editor, KIISE Transactions on Computing Practices
 2016 Organizing Co-Chair, 1st International Conference on Next Generation Computing
 2016 Advisory Board, International Conference on Advances in Computing, Control and Communication Technology
 2015 Registration Chair, The 2nd International Workshop on Wearable Robotics
 2015 Program Committee, Joint Workshop on Convergent and Smart Computing Systems
 2014 Organizing Committee, Workshop on Personal Computing Technology
 2013- Editing Director, Korean Computer-Intelligence Society
 2013- Informatization Committee, The Institute of Electronics Engineers of Korea
 2013- Reviewer, International Conference on Electrical Information and Communication Technology
 2013- Reviewer, Electronics and Electrical Engineering
 2013 - Industry Policy Committee, Gwangju TechnoPark
 2013 - Editing Director, KIISE Computer Intelligence Society
 2013 Organizing Committee, 2013 KMMS Spring Conference
 2013 PC member, International Conference on Neural Information Processing
 2012 - Information Committee, The Institute of Electronics Engineers of Korea
 2012 Reviewer, ETRI Journal
 2012 Reviewer, International Conference on Pattern Recognition
 2012 Organizing Committee, 2012 KMMS Spring Conference
 2012 Publicity Chair, International Workshop on Security and Cognitive Informatics for Homeland Defense
 2012 - Reviewer, Journal of Internet Technology
 2011 - Reviewer, The 54th IEEE International Midwest Symposium on Circuits and Systems
 2010 - Reviewer, Computational Intelligence
 2010 PC member, China-Japan-Korea Joint Workshop on Pattern Recognition
 2010 PC member, International Conference on Neural Information Processing
 2010 Organizing Committee, Winter School on Pattern Recognition
 2010 - Program Committee, International Conference on Machine Learning and Cybernetics
 2010 Ph'D Forum Co-Chair, International Symposium on Wearable Computing
 2008 - Director, Korea Institute of Next Generation Computing Society
 2009 Director, Korea Multimedia Society
 2008 - Associate Editor, Korea Information Processing Society
 2007 Organizing Committee, 2nd International Conference on Biometrics
 2007 Organizing Committee, KISS Workshop on SIG-CVPR
 2007 - 2009 Committee of Judges, International Competition for Intelligent Robot Softwares
 2007 Committee of Judges, Conference on Electronics and Information Engineering
 2006 - Web Chair, IEEE Systems, Man, & Cybernetics Society Korea Chapter
 2005 - Reviewer, Pattern Recognition Journal
 2005 - Reviewer, International Journal of Pattern Recognition and Artificial Intelligence
 2007 - Reviewer, International Journal of Image and Graphics

2005 - Reviewer, Journal of Visual Image Communication and Representation
2002 Web Organizer, International Workshop on PRSVM

INVOLVED PROJECTS

2018 - 2019 Development of Intelligent Software Technologies for Medical Data Analysis, NIPA
2018 - 2019 Automatic Multi-Object Matting based on Combined Deep-Learning Model, NRF
2018 - 2019 Weather Information Processing System based on Bigdata and AI, MILINT Co.
2018 Development of Image Processing Technologies for Maintenance of Defective Solar Panels, KOFAC
2017 - 2019 Application of Artificial Intelligence on Inflammatory Bowel Disease, GIL Hospital
2017 - 2023 Analysis of behavior based on senior life log - Artificial Intelligence Health Care Research Center, GRRC
2016 - 2017 Well-Living IT Research Team, Brain Korea 21 Plus
2015 - 2018 Object Tracking Based on Color Information and Locally Segmented Area for Digital Contents Work, NRF
2015 - 2017 Development of Slim Wrist Wearable Device Using Personal Biometric Information Applied to Emergency and Health Information, Ministry of Education
2015 A study on Indoor Security System with Camera, Korean Foundation for Advancement of Science and Creativity
2014 - 2017 2nd Global IT Students' Cultivation Program, National IT Industry Promotion Agency
2013 - 2019 Development of Fusion Technologies of Bigdata Analysis and Medical Service Platform for Early Prediction of AD, MSIP
2013 - 2015 Asian Culture Exchange, Brain Korea 21 Plus
2013 - 2016 MRI Brain Image Structure Analysis Based on SVDD and 3D Normal Vectors, NRF
2013 - 2014 Sign Recognition and Self-Positioning Technologies for Next-Generation Vehicles, MEST
2013 Efficient Parts Management System For NCIA, Msystems Co.
2012 Vision-based Driving Environment Analysis for Intelligent Vehicles, MEST
2012 Automatic Tire Tread Recognition System, Asiana IDT.
2012 Efficient Parts Management System For NCIA, Msystems Co.
2011 Slit Analysis in fluid images, Junseong E&R
2011 Displaying Soundness Estimation Program of Nuclear Power Plant's Concrete, Korea Institute of Construction Technology
2010 - 2013 Global IT Students' Cultivation Program, National IT Industry Promotion Agency
2010 - 2012 Composition Scoring in a Photography, Chosun University
2009 - RIS
2009 - 2012 Automatic Recognition of Korean Sign Languages, National Research Foundation
2009 Research of Analysing Non-facial Components, ETRI
2009 - 2012 Stereopsis-based Self-location Perception Technologies for the Visually Impaired, KRF
2009 - 2013 Researcher Education Team of Culture Contents on Mobile Networks, Brain Korea 21
2008 - 2010 Removing Lighting Reflection Effects from Night Images, Korea Research Foundation
2008 - 2009 Gesture Recognition based on Camera Imaging, Chosun University
2007 - 2008 Robust Face Analysis and Recognition Across Varying Conditions, Chosun University
2004 - 2006 Vision-based Gesture Recognition Technologies, The Ministry of Commerce, Industry and Energy of Korea
1999 - 2004 Artificial Vision Research, The Ministry of Science & Technology of Korea

RESEARCH INTERESTS

Bioinformatics / Brain Science / Medical Image Analysis

Face tracking / reconstruction / recognition
Image / Video Analysis
Automotive Navigation / Intelligent Traffic System
Intelligent Robots / Humanoid / Robot Vision

INVITED LECTURES

2018. 10. 12 "Recent Medical Image Analysis based on Deep Learning", Workshop on the next generation computing technology for the 4th industrial revolution
2018. 3. 30 "Image Data Augmentation Methods for Deep Learning", DGIST
2017. 7. 25 "Diagnosis and Treat Platform Using Medical Images and Deep Learning", Gil Hospital
2017. 7. 4 "Brain Science based on IT Technologies", Korean Institute of IT fusion
2017. 6. 28 "Object Recognition based on Deep Learning", Invited lecture at Prompt Technology
2015. 11. 20 "IT Fusion Technologies Focused on IT-Agriculture", Invited lecture at Sunchon Univ.
2015. 4. 27. "Prediction of Alzheimer's Dementia Based on 3D Brain Imaging", Invited lecture at Chonnam Univ.
2015. 4. 20. "Computational Approaches for Early Diagnosis of Alzheimer Dementia", Invited lecture at Korea Univ.
2013. 12. 12. "Aesthetic Measures based on generic features for Digital Photography", Invited lecture at Chonnam Univ. 2013. 1. 30, "Automatic Analysis of Human Intelligence & Semantic Dementia," Invited lecture at Chonnam Univ.
2012. 9. 20, "Crane Control Methods based on Artificial Intelligence," Invited lecture at Chodang Univ.
2012. 7. 9, "Advanced Image Processing Technologies for Factory Automation," Invited lecture at Junseong E&R Co.
2012. 6. 18, "Limitations & Solutions of Face Recognition in Real Life," Invited lecture at ETRI.
2012. 1. 11, "Image Processing Techniques in IT Fusion Research Fields," Invited lecture at Chonnam Univ.
- 2011.10.19, "Automatic Analysis Technologies based on Aesthetic scores for Optimizing Photo Composition," Invited lecture at SunChon Univ.
- 2010.10.27, "Face Analysis Technologies in Real Life," Invited lecture at Chonnam Univ.
2009. 3. 6. "Face Reconstruction for Real Applications," Invited lecture at ETRI.
2008. 1. 8, "Low Resolution Face Recognition," Invited lecture at ETRI.
- 2007.11.30, "Eye, Camera, & Vision," Invited lecture at Chonnam Univ.

PUBLICATIONS

International Journal

H. A. Hajj, M. Lamard, P.-H. Conze, S. Roychowdhury, X. Hu, G. Marsalkaite, O. Zisimopoulos, M. A. Dedmari, F. Zhao, J. Prellberg, M. Sahu, A. Galdran, T. Araujo, D. M. Vo, C. Panda, N. Dahiya, S. Kondo, Z. Bian, A. Vahdat, J. Bialopetravicius, E. Flouty, C. Qiu, S. Dill, A. Mukhopadhyay, P. Costa, G. Aresta, S. Ramamurthy, S.-W. Lee, A. Campilho, S. Zachow, S. Xia, S. Conjeti, D. Stoyanov, J. Armatitis, P.-A. Heng, W. G. Mcready, B. Cochener, G. Quellec, "CATARACTS: Challenge on Automatic Tool Annotation for catarACT Surgery," Medical Image Analysis (accepted in November, 2018)

Z. Ali, U. Park, S.-W. Lee, N.-J. Jung, M. Choi, C. Lim, and J.-H. Seo, "Robust Powerline Equipment Inspection System Based on a Convolutional Neural Network," Sensors, Vol. 18, No. 11:3837, November 2018, pp. 1-25.

- D. M. Vo and S.-W. Lee, "Semantic Image Segmentation Using Fully Convolutional Neural Networks with Multi-scale Images and Multi-scale Dilated Convolutions," *Multimedia Tools and Applications*, Vol. 77, Issue 14, July 2018, pp. 18689-18707.
- D. M. Vo and S.-W. Lee, "Robust Face Recognition Using Hierarchical Collaborative Representation," *Information Sciences*, Vol. 432, March 2018, pp. 332-346
- S.-W. Lee, H. Jeong, and J.-S. Park, "Recursive Reconstructed Non-facial Components Using Support Vector Data Description," *Pattern Analysis and Application*, Vol. 2, No. 2, May 2018, pp. 337-350.
- R. K. Lama, J. Gwak, J.-S. Park, and S.-W. Lee, "Diagnosis of Alzheimer's Disease based on Sparse Feature Selection using Import Vector Machines and Regularized Extreme Learning Machine," *Journal of Healthcare Engineering*, Vol. 2017, 5485080, pp. 1-11.
- U. Park, S.-W. Lee, and J.-S. Park, "R-Peak Detection Method using Wavelet Transform and Modified Shannon Energy Envelope," *Journal of Healthcare Engineering*, Vol. 2017, 4901017, pp. 1-14.
- R. Sidra, U. Park, and S.-W. Lee, "A Photograph Reconstruction by Object Retargeting for Better Composition," *Multimedia Tools and Applications*, Vol. 75, Issue 23, December 2016, pp. 16439-16460
- G.-R. Kwon, D. Basukala, S.-W. Lee, K. H. Lee, and M. Kang, "Brain Image Segmentation Using a Combination of Expectation-Maximization Algorithm and Watershed Transform," *International Journal of Imaging Systems and Technology*, Vol. 26, Issue 3, September 2016, pp. 225-232.
- R. Sidra, D.-Y. Choi, J.-Y. Pyun, and S.-W. Lee, "Automatic Segmentation Improvement Based on Parameter-Free Spectral Matting," *Journal of the Chinese Institute of Engineers*, Vol. 38, Issue 4, 2015, pp. 437-446.
- R. Sidra and S.-W. Lee, "A Robust Multimedia Authentication and Restoration Scheme in Digital Photography," *Multimedia Tools and Applications*, Vol. 73, No. 3, December 2014, pp. 1291-1321.
- K. Thapaliya, S.-W. Lee, J.-Y. Pyun, H. Jeong, and G.-R. Kwon, "An Advanced Segmentation Using Area and Boundary Tracing Technique in Extraction of Lungs Region," *Journal of Central South University*, Vol. 21, Issue 10, October 2014, pp. 3811-3820.
- B.-W. Hwang, S.-J. Kwon, and S.-W. Lee, "Facial Image Reconstruction from a Corrupted Image by Support Vector Data Description," *Computing and Informatics*, Vol. 32, No. 6, December 2013, pp. 1212-1228.
- W.-I. Lee, J.-Y. Pyun, Y.-S. Lee, and S.-W. Lee, "Relative Velocity Based Vehicle-to-Vehicle Routing Protocol over Ad-Hoc Networks," *International Journal of Ad Hoc and Ubiquitous Computing*, Vol. 12, No. 1, January 2013, pp. 14-22.
- S.-S. Park, S.-J. Kwon, S. H. Jung, and S.-W. Lee, "Modeling of Water Permeability in Early Aged Concrete with Cracks based on Micro Pore Structure," *Construction and Building Materials*, Vol. 27, Issue 1, February 2012, pp. 597-604.
- D. Y. Choi, J.-Y. Pyun, S. K. Noh, and S.-W. Lee, "Comparison of Measured Rain Attenuation in the 12.25GHz Band with Predictions by the ITU-R Model," *International Journal of Antennas and Propagation*, Vol. 2012, 415398, pp. 1-5, 2012.
- S.-W. Lee and J.-S. Park, "Microscopic Image Recognition-based Fish Disease Diagnosis System," *Journal of Convergence Information Technology*, Vol. 6, No. 10, October 2011, pp. 355-364.
- W. Zhao, D.-Y. Choi, J.-S. Park, and S.-W. Lee, "Novel Dynamic Bayesian Networks for Facial Action Element Recognition and Understanding," *Optical Engineering*, Vol. 50, 127209, 2011.
- G.-R. Kwon, R. K. Lama, J.-Y. Pyun, and S.-W. Lee, "Reduction of blocking artifact based on edge information in discrete cosine transform-coded images," *Optical Engineering*, Vol. 50, 097403, 2011.

S.-W. Lee, S. Kang, and S.-W. Lee, "A Walking Guidance System for the Visually Impaired," *International Journal of Pattern Recognition and Artificial Intelligence*, Vol. 22, No. 6, 2008, pp. 1171-1186.

S.-W. Lee, P. S. P. Wang, S. N. Yanushkevich, and S.-W. Lee, "Non-Iterative 3D Face Reconstruction Based on Photometric Stereo," *International Journal of Pattern Recognition and Artificial Intelligence*, Vol. 22, No. 3, 2008, pp. 389-410.

S.-W. Lee, S.-H. Moon, and S.-W. Lee, "Face Recognition under Arbitrary Illumination Using Illuminated Exemplars," *Pattern Recognition*, Vol. 40, No. 5, May 2007, pp. 1605-1620.

S.-W. Lee, J. Park, S.-W. Lee, "Low Resolution Face Recognition Based on Support Vector Data Description," *Pattern Recognition*, Vol. 39, No. 9, 2006, pp. 1809-1812.

S.-W. Lee, H.-C. Jung, B.-W. Hwang and S.-W. Lee, "Authenticating Corrupted Photo Images Based on Noise Parameter Estimation," *Pattern Recognition*, Vol. 39, No. 5, May 2006, pp. 910-920.

H.-D. Yang, S.-W. Lee and S.-W. Lee, "Multiple Human Detection and Tracking Based on Weighted Temporal Texture Features," *International Journal of Pattern Recognition and Artificial Intelligence*, Vol. 20, No. 3, May 2006, pp. 377-391.

Lecture Note in Computer Science

A. Mallak, J. Gwak, J.-I. Song, and S.-W. Lee, "Computational and Comparative Study on Multiple Kernel Learning Approaches for the Classification Problem of Alzheimer's disease," *Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*, Vol. 168, November 2016, pp. 334-341.

M. N. I. Qureshi, J.-T. Lee, and S.-W. Lee, "Facial Identity Encryption with Kinoform and Phase-key Watermarking for Homeland Security Agencies," *Lecture Notes in Computer Science: Multidisciplinary Research and Practice for Information Systems*, Vol. 7465, August 2012, pp. 525-533

S.-W. Lee, and S.-W. Lee, "SVDD-based Illumination Compensation for Face Recognition," *Lecture Notes in Computer Science: Advances in Biometrics*, Vol. 4642, 2007, pp. 154-162.

J. Park, D. Kang, J. T. Kwok, S.-W. Lee, B.-W. Hwang, and S.-W. Lee, "Facial Image Reconstruction by SVDD-Based Pattern De-noising," *Advances in Biometrics, Lecture Notes in Computer Science*, Vol. 3832, pp. 129-135, 2005.

H.-K. Shin, S.-W. Lee and S.-W. Lee, "Real-Time Gesture Recognition Using 3D Motion History Model," *Advances in Intelligent Computing, Lecture Notes in Computer Science*, Vol. 3644, August 2005, pp. 888-898.

S.-W. Lee, S.-H. Moon and S.-W. Lee, "Robust Face Recognition Across Lighting Variations Using Synthesized Exemplars," *Advances in Intelligent Computing, Lecture Notes in Computer Science*, Vol. 3644, August 2005, pp. 213-222.

S.-W. Lee, H.C. Jung, and S.-W. Lee, "Authenticating Corrupted Facial Images on Stand-alone DSP System," *Audio- and Video-based Biometric Person Authentication, Lecture Notes in Computer Science*, Vol. 3546, 2005, pp. 987-996.

S.-H. Moon, S.-W. Lee, and S.-W. Lee, "Illumination Invariant Face Recognition Using Linear Combination of Face Exemplars," *Audio- and Video-based Biometric Person Authentication, Lecture Notes in Computer Science*, Vol. 3546, 2005, pp. 112-121.

H.-C. Jung, B.-W. Hwang, S.-W. Lee and S.-W. Lee, "Corrupted Face Image Authentication Based on Noise Model," *Biometric Authentication, Lecture Notes in Computer Science*, Vol. 3072, 2004, pp.187-194.

S.-W. Lee, S.-W. Lee, and H.-C. Jung, "Real-Time Implementation of Face Recognition Algorithms on DSP Chip," *Audio- and Video-based Biometric Person Authentication, Lecture Notes in Computer Science*, Vol. 2688, 2003, pp. 294-301.

International Conference

N.-Q. Nguyen and S.-W. Lee, "Colorectal Segmentation using Multiple Encoder-Decoder Network in Colonoscopy Images," Proceedings of The International Conference on Artificial Intelligence and Knowledge Engineering, Lagunal Hills, USA, September 2018, pp. 208-211.

H.-C. Park, Y.-J. Kim, and S.-W. Lee, "Performance analysis of different Convolution layer configuration for the classification of Adenoma images," Proceedings of The International Conference on Next Generation Computing, Kaohsiung, Taiwan, December 2017, pp. 257-259.

R. K. Rama and S.-W. Lee, "A Tract-Based Spatial Statistics Study of White Matter Abnormalities in Alzheimer's Disease," Proceedings of The International Conference on Next Generation Computing, Kaohsiung, Taiwan, December 2017, pp. 279-382.

D. M. Vo and S.-W. Lee, "A Novel Real Time Face Recognition System Based on Combining Collaborative Representation based Classification with Light Local Ternary Patterns ," Proceedings of The International Conference on Next Generation Computing, Kaohsiung, Taiwan, December 2017, pp. 375-378.

C. Henry and S.-W. Lee, "Visual Saliency based Automatic Trimap Generation," Proceedings of The International Conference on Next Generation Computing, Kaohsiung, Taiwan, December 2017, pp. 113-116.

W. Kim, A. Choi, J. Choi, O.-R. Jeong, Y. J. Jung, S. Kang, J. Lee, S.-W. Lee, W.-K. Loh, J. Yoo, S. Chung, H. Lee, S. Chon, Y. Jeon, H. S. Kim, J. W. Kim, J.-H. Lee, Y. Min, G. S. Song, and S. O. Yang, "Korea's Software Education Initiative," Proceedings of The 19th International Conference on Information Integration and Web-based Applications & Services, Salzburg, Austria, December 2017.

C. Henry, H.-C. Park, and S.-W. Lee, "A Review on the Segmentation of Embossed/raised Text," Proceedings of The International Conference on Next Generation Computing, Ho Chi Minh, Vietnam, January 2017, pp. 165-167.

J. Gwak, J.-I. Song, and S.-W. Lee, "Optimal Automatic Feature Selection through Iterative Reweighting for Class-Imbalanced Data Sets to Classify AD/MCI/NC with High Diagnostic Accuracy," Proceedings of The Alzheimer's Association International Conference, Toronto, Canada, July 2016.

A. Mallak, J. Gwak, J.-I. Song, and S.-W. Lee, "Computational and Comparative Study on Multiple Kernel Learning Approaches for the Classification Problem of Alzheimer's disease," Proceedings of The International Conference on Nature of Computation and Communication, Rach Gia, Vietnam, March 2016.

J.-M. Ko and S.-W. Lee, "An Accurate Comparison between ANN and CNN in Character Recognition," Proceedings of The International Conference on Next Generation Computing, Bangkok, Thailand, February 2016, pp. 57-58.

D. Basukala, S. Alam, D. Jha, S.-W. Lee, N. V. Han, J.-Y. Pyun, and G.-R. Kwon, "An Advanced Face Detection and Recognition using Combination of KPCA, LDA, and Multiclass L-SVM," Proceedings of The International Conference on Next Generation Computing, Bangkok, Thailand, February 2016, pp. 109-112.

I. K. Virdaus, A. Mallak, S.-W. Lee, G. Ha, and M. Kang, "Fingerprint Verification with Crossing Number Extraction and Orientation-Based Matching," Proceedings of The International Conference on Next Generation Computing, Bangkok, Thailand, February 2016, pp. 113-115.

L. A. Akter, J. W. Lee, H. C. Park, I. Moon, and S.-W. Lee, "EER Quest with Iris Image Codes," Proceedings of The International Conference on Next Generation Computing, Bangkok, Thailand, February 2016, pp. 77-80.

A. Tedjokusumo, J.-S. Park, and S.-W. Lee, "Feature Detector and Descriptor on Color Images," Proceedings of The International Joint Conference on Convergence, Ho Chi Minh, Vietnam, February 2015, pp. 255-257.

- J.-S. Park and S.-W. Lee, "A Survey on Learning-based Face Hallucination Methods for Single-frame Facial Image," Proceedings of The International Conference on Smart Media and Applications, Chiang Mai, Thailand, December 2014.
- M. N. I. Qureshi and S.-W. Lee, "RGB-D Fusion of Kinect Sensor Data for Face Recognition," Proceedings of The International Conference on Smart Media and Applications, Kota Kinabalu, Malaysia, Vol. 2, No. 1, October 2013, pp. 461-466.
- A. Tedjokusumo, H. Jeong, and S.-W. Lee, "Robust Character Extraction across Varying Conditions Based on Local Distribution," Proceedings of The International Conference On ICT For Smart Society, Jakarta, Indonesia, June 2013, pp. 16-19. S. Riaz and S.-W. Lee, "Image Authentication and Restoration by Multiple Watermarking Techniques with Advance Encryption Standard in Digital Photography," 15th International Conference on Advanced Technology, PyeongChang, Korea, January 2013, pp. 24-28.
- O. Adeluyi, S. Riaz, S. Moh, S.-W. Lee, and J.-A. Lee, "SAFE-points: a lightweight algorithm for analyzing remote mobile ECG signals," Proceedings of the 2nd ACM Workshop on Mobile Systems, Applications, and Services for HealthCare, Toronto, Canada, November 2012.
- S. Riaz, K. H. Lee, and S.-W. Lee, "Aesthetic Score Assessment based on Generic Features in Digital Photography," 5th AUN/SEED-Net Regional Conference on Information and Communications Technology, Manila, Philippines, October 2012, pp. 76-79.
- S. Riaz and S.-W. Lee, "Main Object Segmentation in Marco Photography," International Conference on Smart Media and Applications, Kunming, China, August 2012.
- M. N. I. Qureshi, J.-T. Lee, and S.-W. Lee, "Facial Identity Encryption with Kinoform and Phase-key Watermarking for Homeland Security Agencies," International Workshop on Security and Cognitive Informatics for Homeland Defense, Prague, Czech, August 2012.
- M. N. I. Qureshi, J.-E. Lee, and S.-W. Lee, "Robust Classification Techniques for Connection Pattern Analysis with Adaptive Decision Boundaries Using CUDA," International Conference on Cloud Computing and Social Networking, Bandung, Indonesia, April 2012, pp. 24-28.
- W. Zhao, G.-R. Kwon, and S.-W. Lee, "Pose and Expression Recognition Using Limited Feature Points Based on a Dynamic Bayesian Network," International Workshop on Security and Cognitive Informatics for Homeland Defense, Vienna, Austria, August 2011.
- W. Zhao, J.-S. Park, and S.-W. Lee, "FULLY AUTOMATIC FACE DETECTION AND FACIAL FEATURE POINTS EXTRACTION USING LOCAL GABOR FILTER BANK AND PCA", The International Conference on Machine Learning and Cybernetics, Guilin, China, July 2011,
- C.-M. Han, S.-W. Lee, S. Han, and J.-S. Park, "Two-stage Fish Disease Diagnosis System Based on Clinical Signs and Microscopic Images", The 11th International Conference on Computational Science and Its Applications Santander, Spain, June 2011
- Y. Hong, M. Kim, and S.-W. Lee, "Requirements Management Tool with Evolving Traceability for Heterogeneous Artifacts in the Entire Life Cycle," Proc. ACIS International Conference on Software Engineering Research, Management & Applications, Montreal, Canada, May 2010, pp. 248-255.
- S.-W. Lee, and S.-W. Lee, "An Embedded Face Verification System Against Image Degradation," Proc. IEEE International Conference on System, Man and Cybernetics, Montreal, Canada, 2007
- S.-W. Lee, J. Park and S.-W. Lee, "Face Reconstruction with Low Resolution Facial Images by Feature Vector Projection in Kernel Space," Proc. 18th IAPR/IEEE International Conference on Pattern Recognition, Hong Kong, China, Vol. 3, August 2006, pp. 1179-1182.
- S.-C. Park, S.-W. Lee, and S.-W. Lee, "Superimposing 3D Virtual Objects using Markerless Tracking," Proc. 18th IAPR/IEEE International Conference on Pattern Recognition, Hong Kong, China, Vol. 3, August 2006, pp. 897-900.

M.-C. Roh, H.-K. Shin, S.-W. Lee and S.-W. Lee, "Volume Motion Template for View-invariant Gesture Recognition," Proc. 18th IAPR/IEEE International Conference on Pattern Recognition, Hong Kong, China, Vol. 2, August 2006, pp. 1229-1232.

Domestic Journal

H.-C. Park, and E.-J. Lee, Y.-J. Kim, and S.-W. Lee, "Colonoscopy Image Classification Using Convolutional Neural Networks," Journal of the Korea Institute of Next Generation Computing, Vol. 14, No. 1, February 2018, pp. 89-98.

H.-C. Park, and S.-W. Lee, "Color and Character Recognition in Real Application Based on CNN," Journal of the Korea Institute of Next Generation Computing, Vol. 12, No. 6, December 2016, pp. 104-115.

S. Lim, H.-C. Park, and S.-W. Lee, "Robust Color Recognition Method from Effect of Illuminant," Journal of Information Technology and Applied Engineering, December 2016(To appear).

J.-M. Ko, S. Lim, H. Jeong, and S.-W. Lee, "Comparative Analysis on Pattern Recognition Techniques for Diagnosis of Alzheimer's Disease using MRI data," Journal of the Korea Institute of Next Generation Computing, Vol. 12, No. 4, August 2016, pp. 47-57.

A. Mallak and S.-W. Lee, "The Effect of PCA On Kernel Classifiers For the Diagnosis of Alzheimer's Disease," Journal of the Korea Institute of Next Generation Computing, Vol. 12, No. 2, April 2016, pp. 25-32 (in English).

H. Jeong and S.-W. Lee, "Development of Small Crane Control System to Improve Fishery Operations," The Journal of The Korea Institute of Electronic Communication Sciences, Vol. 9, No. 5, May 2014, pp. 625-631.

A. Tedjokusumo, H. Jeong, and S.-W. Lee, "Two-step Character Binarization Method Using Standard Deviation in Local Area," Journal of the Korea Institute of Next Generation Computing, Vol. 9, No. 4, August 2013, pp. 24-34 (in English).

S. Riaz and S.-W. Lee, "A Minutiae-Based GPU Acceleration Approach for Fingerprint Matching," Journal of the Korea Institute of Next Generation Computing, Vol. 9, No. 3, June 2013, pp. 57-67 (in English). K.-H. Kim and S.-W. Lee, "Positioning System for the Blind Navigation," Journal of the Korea Institute of Next Generation Computing, Vol. 8, No. 4, August 2012, pp. 6-16 (in Korean).

M. N. I. Qureshi, S. Naveed, and **S.-W. Lee**, "CUDA Implementation of Kernel Independent Component Analysis for Reflection Removal," Journal of the Korea Institute of Next Generation Computing, Vol. 8, No. 3, June 2012, pp. 78-87(in English).

J.-G. Lee, H. Jeong, and S.-W. Lee, "Automatic Analysis and Optimization of Aesthetic Composition for a Closed-up Photography and a Telephotography," Journal of the Korea Institute of Next Generation Computing, Vol. 8, No. 1, February 2011, pp. 76-82(in Korean).

J.-H. Ahn, K.-J. Hwang, J.-K. Kim, and S.-W. Lee, "The implementation of Vision-based Slit Count Automation System," Journal of Information Technology and Applied Engineering, Vol. 1, No. 2, December 2011, pp. 17-24(in Korean).

K.-J. Hwang, S.-W. Lee, J.-H. Yun, J.-J. Park, and D.-Y. Choi, "Sign Detection Using information convergence technologies between 2D and 3D spaces," Journal of the Korea Institute of Next Generation Computing, Vol. 7, No. 6, December 2011, pp. 61-70(in Korean).

J.-G. Lee and S.-W. Lee, "Detection of Skyline and Special Object for Automatic Photo Composition Recognition," Journal of the Korea Institute of Next Generation Computing, Vol. 7, No. 4, July 2011, pp. 59-67.

K.-J. Hwang, S. Hong, J.-S. Park, and S.-W. Lee, "Intersection Simulation System for Controlling Real-Time Traffic Flow," Journal of the Korea Institute of Next Generation Computing, Vol. 6, No. 5, October 2010, pp. 4-12(in Korean).

K.-H. Kim, Y.-S. Chung, and S.-W. Lee, "Reconstructing Occluded Facial Components Using Support Vector Data Description," *Journal of the Korea Institute of Information Science and Engineers Society: Computing Practices and Letters*, Vol. 16, No. 4, April 2010, pp. 457-461(in Korean).

S.-W. Lee, "Removing Lighting Reflection in Dark and Rainy Environments based on Stereoscopic Vision," *Journal of the Korea Institute of Information Science and Engineers Society: Software and Applications*, Vol. 37, No. 2, Feb. 2010, pp. 104-109(in Korean).

M.-H. Yoo, J.-S. Park, S.-W. Lee, H.-C. Choi, and S.-W. Lee, "The Perspective View of Biometric Technologies based on Facial Features," *Journal of the Korea Information Science Society*, Vol. 18, No. 7, July 2001(in Korean).

J.-S. Park, S.-W. Lee, Y.-A. Jung, H.-D. Yang, and M.-H. Yoo, "Real-time Face Detection and Recognition based on Support Vector Machines," *Journal of the Korea Institute of Information Security and Cryptology*, Vol. 11, No. 4, 2001(in Korean).

Domestic Conference

S.-W. Kim, H.-C. Park, S.-W. Lee, and B. M. Lee, "Korean Vehicle License Plate Recognition System based on YOLO," *Proc. of 2018 KMMS Fall Conference*, Gwangju, Korea, November 2018

N. N. Quang, N. Sherzod, P. Sahadev, and S.-W. Lee, "Robust Real-time Face Recognition in Uncontrolled Environment using Soft-max Function," *Proc. of 2018 KING Summer Conference*, Jeju, Korea, May 2018, pp. 113-116

H. Chris, H.-C. Park, S.-W. Kim, and S.-W. Lee, "Photovoltaic Module Detection using Probabilistic Hough Transform," *Proc. of 2018 KING Summer Conference*, Jeju, Korea, May 2018, pp. 286-289

H. Chris and S.-W. Lee, "A Survey on Automatic Natural Image Matting algorithms," *Proc. of KCC2017*, Jeju, Korea, June 2017, pp. 1372-1374

R. K. Lama, H.-C. Park, and S.-W. Lee, "Selected Feature based Diagnosis of Alzheimer's Disease using Regularized Extreme Learning Machine," *Proc. of 2017 KING Summer Conference*, Jeju, Korea, June 2017, pp. 33-36.

V.-D. My and S.-W. Lee, "Robust Face Recognition using Light Local Ternary Patterns with Hierarchical Collaborative Representation based Classification," *Proc. of 2017 KMMS Spring Conference*, Daejeon, Korea, Vol. 20, No. 1, May 2017, pp. 96-100.

R. K. Lama, H.-C. Park, and S.-W. Lee, "Sparse Feature Selection using Import Vector Machines for Classification of Alzheimer's Disease," *Proc. of 2016 KING Fall Conference*, Seoul, Korea, October 2016.

H.-C. Park and S.-W. Lee, "Paint Color Recognition Using a Neural Network," *Proc. of 2016 KISM Fall Conference*, Gwangju, Korea, October 2016(in Korean).

R. K. Lama and S.-W. Lee, "Classification of Alzheimer's Disease Using Import Vector Machine," *Proc. of Intelligent Brain 2016*, Ilsan, Korea, September 2016, pp. 206.

J. Gwak, J.-I. Song, and S.-W. Lee, "Adaptive Multi-kernel Boosting Approach for Classification of Alzheimer's Disease," *Proc. of Intelligent Brain 2016*, Ilsan, Korea, September 2016, pp. 208.

A. Mallak and S.-W. Lee, "Effect of SOM as a Feature Selection Method for Alzheimer's Disease Classification," *Proc. of 2016 KING Spring Conference*, Gwangju, Korea, May 2016, pp. 23-26.

A. Mallak and S.-W. Lee, "Effect of PCA on SVM classifier and k-means Clustering for Alzheimer's Disease Diagnosis," *Proc. of 2015 KING Fall Conference*, Daejeon, Korea, November 2015, pp. 68-71.

H.J. Lee, S. A. Yoo, H.C. Park, and S.-W. Lee, "Word Search System Using the Character Recognition," *Proc. of 2015 KISM Fall Conference*, Gwangju, Korea, October 2015, pp. 158-159(in Korean).

D.-H. Lee, Y.-Y. Choi, K.-H. Lee, S.-W. Lee, and G.-R. Kwon, "A Study on the Reproducibility of the

- Hippocampal Volume Measured using 1.5T and 3T Magnetic Resonance Imaging," Proc. of 2015 KISM Fall Conference, Gwangju, Korea, October 2015, pp. 63-64(in Korean).
- J.-M. Go and S.-W. Lee, "Linear Analysis Methods for Specific Nonlinear Big-data Processing," Proc. of 2015 KISM Fall Conference, Gwangju, Korea, October 2015, pp. 215-217(in Korean).
- J. Gwak, M. Kang, G.-R. Kwon, J.-I. Song, W. K. Song, J.-M. Lee, H. S. Park, and S.-W. Lee, "Integrative Technology for Big Data Analysis and Medical Service Platform to Establish AD Diagnosis and Prediction," Brain Conference; Joint Conferenc of KSBNS and KSND, Daegu, Korea, September 2015.
- J.-M. Go and S.-W. Lee, "Early Diagnosis of Dementia based on Artificial Neural Network," Proc. of 2015 KCC Conference, Jeju, Korea, June 2015, pp. 1437-1438(in Korean).
- H.-C. Park and S.-W. Lee, "Pupil and Iris Segmentations based on Intensity Differentiation in a Polar Coordination," Proc. of 2015 KICS Spring Conference, Gwangju, Korea, June 2015, pp. 72-73(in Korean).
- H.-C. Park, J.-M. Go, and S.-W. Lee, "Analysis of Image Processing Techniques for Iris Recognition," Proc. of 2015 KMMS Spring Conference, Andong, Korea, May 2015, pp. 798-799(in Korean).
- A. Mallak and S.-W. Lee, "Computational Approaches on Alzheimer's Dementia," Proc. of KISM Spring Conference, Seoul, Korea, April 2015, pp. 167-169
- A. Tedjokusumo and S.-W. Lee, "Prediction of Alzheimer's Disease Based on Personal Genes and Cortical Thickness," Proc. of KING Workshop on Personal Computing, Jeju, Korea, February 2014, pp. 63-67.
- R. Sidra and S.-W. Lee, "A Segmentation Improvement By Parameter-Free Spectral Matting in Landscape Photograph," Proc. of KIISE Spring Conference, Yeosoo, Korea, June 2013, pp. 82-54.
- R. Sidra and S.-W. Lee, "An Efficient Opacity Parameter Estimation Scheme for Improved Spectral Matting," Proc. of KISM Spring Conference, Sunchon, Korea, May 2013, pp. 358-360. N. I. Qureshi and S.-W. Lee, "Face Recognition Using Both RGB and Depth Information from Kinect Sensor," Proc. of 2012 KOCTA Fall Conference, Seoul, Korea, November 2012.
- R. Sidra and S.-W. Lee, "ROI-RT: Implementation of Rule-of-Thirds in Macro Photography," Proc. of KMMS Fall Conference, Seoul, Korea, Vol. 15, No. 2, November 2012, pp. 186.
- M. N. I. Qureshi, J.-T. Kim, and S.-W. Lee, "A Study on Preventing from a forgery of Personal Identification Using Kinoform and Phase-key," Proc. of The Korean Physical Society Fall Conference, Phoenix Park, Kangwon-do, Korea, October 2012.
- R. Sidra and S.-W. Lee, "Faster Fingerprint Matching Algorithm Using GPU," Proc. of KMMS Spring Conference, Mokpo, Korea, April 2012.
- S. Naveed and S.-W. Lee, "Reflection Removal in Stereo Vision Under Night Illumination," Proc. of KMMS Spring Conference, Mokpo, Korea, April 2012.
- R. Sidra and S.-W. Lee, "High Performance Character Recognition and Reading System of Printed Documents for Visually Impaired," Proc. of KISM Spring Conference, Jeju, Korea, April 2012, pp. 72-75.
- M. N. I. Qureshi and S.-W. Lee, "Automatic Composition Guide for Digital Portrait Photo Capture Using Kinect," Proc. of KISM Spring Conference, Jeju, Korea, April 2012, pp. 283-285.
- J.-G. Lee and S.-W. Lee, "Major Object Detection and Composition Analysis for Closed-up Pictures," Proc. of 36th The KIPS Conference, Seoul, Korea, November 2010(in Korean).
- W. Zhao, J.-G. Lee, and S.-W. Lee, "Facial Expression and Pose Recognition Using Limited Feature Points Based on a Dynamic Bayesian Network," Proc. of KING Conference, Jeju, Korea, April 2011(in Korean).

Kyoung-Ho Kim and S.-W. Lee, "Walking Guidance System for the Blind People," Proc. of KING Conference, Jeju, Korea, April 2011(in Korean).

Kyoung-Ho Kim and S.-W. Lee, "Raised Block Detection System Based on Stereo Vision," Proc. of 34th The KIPS Conference, Seoul, Korea, Vol. 17, No. 2, pp. 766-769, November 2010(in Korean).

Jang-Goon Lee and S.-W. Lee, "SkyLine Detection Method Using a Texture Filter and Morphology Process," Proc. of 26th The KMMS Conference, Seoul, Korea, pp. 29-32, November 2010(in Korean).

S.-W. Lee, K.-H. Kim, and Y.-S. Chung, "Reconstructing Non-facial Components Using Support Vector Data Description," Proc. of 36th The KISSE Conference, Seoul, Korea, November 2009, Vol. 36, No. 2(A), pp. 224-225(in Korean).

S.-W. Lee, "Removing Lighting Reflection in Rainy Day or at Night Based on Stereoscopic Vision," Proc. of 35th The KISSE Conference, Seoul, Korea, October 2008, Vol. 35, No. 2(A), pp. 227-228(in Korean).

S.-W. Lee, J. Park, and S.-W. Lee, "Synthesis of Face Exemplars based on Support Vector Data Description," Proc. of 32th The Korea Information Science Society, Seoul, Korea, pp. -, November 2005(in Korean).

S.-H. Moon, S.-W. Lee, and S.-W. Lee, "Analysis of Lighting Variability using Linear Combination of Face Exemplars," Proc. of Domestic Workshop on Computer Vision and Pattern Recognition, Seoul, Korea, pp. 139-141, December 2004(in Korean).

S.-H. Moon, S.-W. Lee, and S.-W. Lee, "Illumination Invariant Face Recognition based on the Synthesized Facial Exemplars," Proc. of 31th The Korea Information Science Society, Seoul, Korea, pp. 685-687, October 2004(in Korean).

M.-H. Yoo, J.-S. Park, H.-D. Yang, and S.-W. Lee, "The Survey: Face Recognition Technologies and Implementations," Proc. of The Korea Statistics Society, Daejeon, May 24-25, 2002, pp. 105-112(in Korean).

M.-H. Yoo, J.-S. Park, Y.-A. Jung, and S.-W. Lee, "Real-time Face Detection and Recognition," Proc. of Workshop on Biometrics, 2002(in Korean).

S.-W. Lee, H.-C. Choi, S. Kang, M.-H. Yoo, and S.-W. Lee, "Real-time active vision system using log-polar transformation," Proc. of The Korea Society for Cognitive Science, May 2000, pp. 25~30(in Korean).

S.-W. Lee, H.-C. Choi, S. Kang, and S.-W. Lee, "KUeyes : Color-Stereo Head-eye system based on biological vision model," Proc. of The Korea Information Science Society, Vol. 27, No. 1, Daegu, Korea, April 2000, pp. 586~588(in Korean).

Patents

J.-G. Lee and S.-W. Lee, "METHOD AND APPARATUS FOR PROVIDING AUTOMATIC COMPOSITION RECOGNITION AND OPTIMAL COMPOSITION GUIDE OF A DIGITAL IMAGE CAPTURE DEVICE," Patent No. 10-1898888, September 2018.

A. Mallak and S.-W. Lee, "METHOD FOR REPRESENTING GRAPH-BASED BLOCK-MINUTIAE FOR FINGERPRINT RECOGNITION AND THE FINGERPRINT RECOGNITION SYSTEM BY USING THE SAME," Patent No. 10-1778552, September 2017.

R. Sidra and S.-W. Lee, "METHOD FOR RECONSTRUCTING A PHOTOGRAPH BY OBJECT RETARGETING AND THE APPARATUS THEREOF", Patent No. 10-1744131, May 2017.

A. Tedjokusumo and S.-W. Lee, "SYSTEM AND METHOD FOR DETECTING AND DESCRIBING COLOR INVARIANT FEATURES USING FAST EXPLICIT DIFFUSION IN NONLINEAR SCALE SPACES," Patent No. 10-1643550, July 2016.

S.-K. Wee and S.-W. Lee,, "METHOD AND APPARATUS FOR IMPROVING AUTOMATIC

SEGMENTATION BASED ON PARAMETER-FREE SPECTRAL MATTING," Patent No. 10-1617685, April, 2016.

S.-K. Wee, H. Jung, and S.-W. Lee, "AN APPARATUS FOR EXTRACTING CHARACTERS AND THE METHOD THEREOF," Patent No. 10-1549495, August 2015.

Others

J. Gwak and S.-W Lee, SPECIAL ISSUE: RECENT ADVANCES IN THEORY AND APPLICATIONS OF VISUAL INTELLIGENCE, International Journal of Computational Vision and Robotics(Eds.), 2018

S.-W Lee, *Future Technologies on Cars: Korean Multimedia Society Communications(Eds.), Vol. 14, No. 1, March 2010.*

S.-W. Lee and S.-W. Lee, "Chapter 17 : SVDD-based Face Reconstruction in Degraded Images," Advances in Biometrics, Springer, Edited by N. K. Ratha and V. Govindaraju, ISBN 978-1-84628-920-0, 2007, pp. 323-337.