

Worapan Kusakunniran

Address

Faculty of ICT
Mahidol University
999 Puttamonthon Rd. Salaya
Nakhon Pathom 73170
Thailand

Tel: +66 2 441 0909
Fax: +66 2 849 6099
Email: worapan.kun@mahidol.edu

Research Interests

Image and Video Processing, Gait Recognition, Biometrics, Pattern Recognition, Medical Image Processing, Computer Vision, Machine Learning, Data Analysis, Artificial Intelligence, Action and Behavioral Analysis, Object Tracking, Object Classification and Retrieval, Health Information System/Standard, Special Education

Professional Experience

- Assistance Professor, Faculty of ICT, Mahidol University, 2013-now
- Technical Advisory on Information and Communication Technology, Central Institute of Forensic Science, Ministry of Justice, 2018
- Technical Advisory on Information and Communication Technology, Central Institute of Forensic Science, Ministry of Justice, 2019

Education

- B.Eng. (1st class honor with the University Medal), School of Computer Science and Engineering, University of New South Wales, Australia, July 2008
- Ph.D., School of Computer Science and Engineering, University of New South Wales, Australia, May 2013

Selected Honors

- 1st class honor with University Medal in Computer Engineering, Bachelor Degree, School of Computer Science and Engineering, University of New South Wales, Australia, 2008
- Best Biometric Student Paper Award in IEEE International Conference on Pattern Recognition (ICPR), 2010
- Research Reward, Mahidol University, 2014
- Distinguished Dissertation Award, National Research Council of Thailand (NRCT), 2015
- Received the highest number of citations in years 2016-2017, Faculty of ICT, Mahidol University
- Best Paper Award in International Conference on Computer Games Multimedia and Allied Technologies (CGAT), 2018
- Outstanding Research Award, National Research Council of Thailand (NRCT), 2019

Selected Professional Service

Professional Committee

- Committee of Demonstration and Benchmark Test, Department of Consular Affairs, Ministry of Foreign Affairs, 2018
- Thailand Research Fund (TRF), 2018

Associate Editor

- Journal of Communication and Information Technology (CommIT)

Reviewer

- Pattern Recognition (PR)
- IEEE Transactions on Image Processing (TIP)
- IEEE Journal of Biomedical and Health Informatics (JBHI)
- IEEE Transactions on Multimedia (TMM)
- IEEE Transactions on Industrial Informatics (TII)
- IEEE Transactions on Systems, Man, and Cybernetics, Part B: Cybernetics (TSMCB)
- IEEE Transactions on Information Forensics and Security (TIFS)
- IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)
- IEEE Transactions on Industrial Electronics (TIE)
- Computer Vision and Image Understanding (CVIU)
- Pattern Recognition Letter (PRL)
- Journal of Digital Imaging (JDI)
- Journal of Digital Information Management (JDIM)
- Computers in Biology and Medicine (CBM)
- Digital Signal Processing (DSP)
- EURASIP Journal on Image and Video Processing
- The Computer Journal
- Machine Vision and Applications
- Signal Processing: Image Communication
- Journal of Visual Communication and Image Representation (JVCI)
- Journal of Experimental & Theoretical Artificial Intelligence (JETAI)
- International Journal of Automation and Computing
- IEEE Signal Processing Letters (SPL)

Session Chair

- ICT International Student Project Conference (ISPC), 2014
- International Conference on Machine Vision Applications (MVA), 2015
- ICT International Student Project Conference (ISPC), 2016
- International Technical Conference of IEEE Region 10 (TENCON), 2016
- International Technical Conference of IEEE Region 10 (TENCON), 2017
- International Technical Conference of IEEE Region 10 (TENCON), 2018

Selected Research Grants

- Principal Investigator, funded by Thailand Research Fund (TRF), "Automatic Detection of Diabetes Retinopathy based on Digital Retinal Images"
- Principal Investigator, funded by Waller Security Service Co.,Ltd., "Security Guard Re-identification by using Face Image"
- Principal Investigator, Young Researcher Grant, funded by Mahidol University, "Activity and Behavior Recognitions: Automatic Interpretation of Human Motion Concepts in Images and Videos"
- Co-researcher, funded by Agricultural Research Development Agency (Public Organization), "Development of Swamp Buffalo (Bubalus Bubalis) Identification using Biometric Feature"
- Co-researcher, funded by National Research Council of Thailand, "The Development Model to Promote Psychological Well-Being and Prevent Mental Health Problems in Secondary School Students"

Selected Invited Talks and Keynote Addresses

- International Conference on Sustainable Information Engineering and Technology (SIET), November 2018

- Workshop on Potential of ICT in Tropical Health Care and Veterinary Medicine Services, Centre for Biomolecular Interactions Bremen (CBIB), Faculty of Biology and Chemistry, University Bremen, Germany, June 2018
- Symposium on ICT in Medicine and Public Health, Mahidol – Bremen Medical Informatics Research Unit (MIRU), Faculty of Information and Communication Technology, Mahidol University, Thailand, February 2018
- Seminar on Person Identity with Justice Process and Stability in Thailand, Central Institute of Forensic Science, Ministry of Justice, Thailand, 27 August 2018

Doctoral Student Supervision

- Miss Punyanuch Borwarnginn (Ph.D. in Computer Science), Face Image Recognition for Dog Identification using Deep Learning Techniques, Received the Royal Golden Jubilee (RGJ) Ph.D. Scholarship funded by Thailand Research Fund (TRF), 2018-now
- Mr. Sarattha Kanchanapreechakorn (Ph.D. in Computer Science), Diabetic Retinopathy Detection in Retinal Images, Macquarie University - Cotutelle PhD Program, 2018-now
- Miss Chontira Riangkam (Ph.D. in Nursing), The Effectiveness of Mobile Health Diabetes Self-Management Program on HbA1C, Diabetes Self-Management Behaviors, and Patient Satisfaction in Adults with Uncontrolled Type 2 Diabetes: A Randomized Controlled Trial, 2018-now (Co-advisor)
- (Graduated) Prof. Thanongchai Siriapisith (Ph.D. in Computer Science), 2D and 3D Segmentation of Grayscale Medical Images using Variable Neighborhood Search, 2015-2019

Publication Statistics

Journal Articles: 13

Conference Papers: 47

Citations: Google Scholar: 690 with h-index of 14

Scopus: 623 (excluding self-citations) with h-index of 13

Selected Publications (Full publication list:

<https://sites.google.com/a/mahidol.edu/worapan-kusakunniran/publication>)

Journals

- T. Siriapisith, W. Kusakunniran, P. Haddawy, 3D Segmentation of Exterior Wall Surface of Abdominal Aortic Aneurysm from CT images using Variable Neighborhood Search, *Computers in Biology and Medicine (CBM)*
- W. Kusakunniran, Q. Wu, P. Ritthipravat, J. Zhang, Hard Exudates Segmentation based on Learned Initial Seeds and Iterative Graph Cut, *Computer Methods and Programs in Biomedicine (CMPB)*, 158: 173-183, May 2018, DOI: 10.1016/j.cmpb.2018.02.011
- T. Siriapisith, W. Kusakunniran, P. Haddawy, Outer Wall Segmentation of Abdominal Aortic Aneurysm by Variable Neighborhood Search through Intensity and Gradient Spaces, *Journal of Digital Imaging (JDIM)*, 31(4): 490-504, August 2018, DOI: 10.1007/s10278-018-0049-z
- W. Kusakunniran, A. S. Dahal, W. Viriyasitavat, Journal Co-Citation Analysis for Identifying Trends of Inter-Disciplinary Research: An Exploratory Case Study in a University, *Journal of Information and Knowledge Management*, 17(3): 1850040-1-1850040-22, September 2018, DOI: 10.1142/S0219649218500405
- W. Kusakunniran, R. Krungkaew, Dynamic Codebook for Foreground Segmentation in a Video, *ECTI Transactions on Computer and Information Technology (ECTI-CIT)*, 10(2): 144-155, November 2016

- W. Kusakunniran, Q. Wu, J. Zhang, H. Li, and L. Wang, Recognizing gaits across views through correlated motion co-clustering, *IEEE Transactions on Image Processing (TIP)*, 23(2): 696-709, February 2014, DOI: 10.1109/TIP.2013.2294552
- W. Kusakunniran, Recognizing gaits on spatio-temporal feature domain, *IEEE Transactions on Information Forensics and Security (TIFS)*, 9(9): 1416-1423, September 2014, DOI: 10.1109/TIFS.2014.2336379
- W. Kusakunniran, Attribute-based learning for gait recognition using spatio-temporal interest points, *Image and Vision Computing (IVC)*, 32(12), 1117-1126, December 2014, DOI: 10.1016/j.imavis.2014.10.004
- W. Kusakunniran, Q. Wu, J. Zhang, Y. Ma, and H. Li, A new view-invariant feature for cross-view gait recognition, *IEEE Transactions on Information Forensics and Security (TIFS)*, 8(10):1642-1653, October 2013, DOI: 10.1109/TIFS.2013.2252342
- W. Kusakunniran, Q. Wu, J. Zhang, and H. Li. Gait recognition across various walking speeds using higher-order shape configuration based on a differential composition model. *IEEE Transactions on Systems, Man, and Cybernetics, Part B: Cybernetics (TSMCB)*, 42(6):1654-1668, December 2012, DOI: 10.1109/TSMCB.2012.2197823
- W. Kusakunniran, Q. Wu, J. Zhang, and H. Li, Gait recognition under various viewing angles based on correlated motion regression, *IEEE Transactions on Circuits and Systems for Video Technology (TCSVT)*, 22(6):966-980, June 2012, DOI: 10.1109/TCSVT.2012.2186744
- W. Kusakunniran, Q. Wu, J. Zhang, and H. Li, Cross-view and multi-view gait recognitions based on view transformation model using multi-layer Perceptron, *Pattern Recognition Letters (PRL)*, 33(7):882-889, May 2012, DOI: 10.1016/j.patrec.2011.04.014

Conference papers

- C. Limuwankesorn, W. Kusakunniran, J. H. Haga, T. Thipajaruratch, K. Thongkanchorn, P. Borwarnginn, N. Pornprasatpol, Digital Game-based Learning for Delivering Technical Content: A case study of delivering data center migration research knowledge, pages 45 - 52, Singapore, June 2018, International Conference on Computer Games Multimedia and Allied Technologies (CGAT) – Best Paper Award
- R. Kasantikul, W. Kusakunniran, Improving Supervised Microaneurysm Segmentation using Autoencoder-Regularized Neural Network, pages 553 - 559, Australia, December 2018, Digital Image Computing: Techniques and Applications (DICTA)
- T. Siriapisitha, W. Kusakunniran, P. Haddawy, A General Approach to Segmentation in Grayscale Medical Images using Variable Neighborhood Search, pages 447 - 453, Australia, December 2018, Digital Image Computing: Techniques and Applications (DICTA)
- L. Yao, W. Kusakunniran, Q. Wu, J. Zhang, Z. Tang, Robust CNN-based Gait Verification and Identification using Skeleton Gait Energy Image, pages 297 - 303, Australia, December 2018, Digital Image Computing: Techniques and Applications (DICTA)
- T. Sattrupai, W. Kusakunniran, A Deep Trajectory based Gait Recognition for Human Re-identification, 1729 - 1732, Korea, October 2018, IEEE Region 10 Conference (TENCON)
- W. Kusakunniran, A. Wiratsudakul, U. Chuachan, S. Kanchanapreechakorn, T. Imaromkul, Automatic Cattle Identification based on Fusion of Texture Features Extracted from Muzzle Images, pages 1484 - 1489, France, February 2018, IEEE International Conference on Industrial Technology (ICIT)

- T. Imaromkul, W. Dendee, S. Chokewiwattana, W. Kusakunniran, 3D Reconstruction of Long Bone using Kinect, pages 129 - 133, Thailand, January 2018, International Conference on Knowledge and Smart Technology (KST)
- S. Kanchanapreechakorn, W. Kusakunniran, Robust Human Re-identification using Mean Shape Analysis of Face Images, pages 901 - 905, Malaysia, November 2017, IEEE Region 10 Conference (TENCON)
- W. Kusakunniran, Q. Wu, J. Zhang, Action Recognition based on Correlated Codewords of Body Movements, pages 1 - 8, Australia, December 2017, International Conference on Digital Image Computing: Techniques and Applications (DICTA)
- L. Yao, W. Kusakunniran, Q. Wu, J. Zhang, Z. Tang, Robust Gait Recognition under Unconstrained Environments using Hybrid Descriptions, pages 1 - 7, Australia, December 2017, International Conference on Digital Image Computing: Techniques and Applications (DICTA)
- W. Kusakunniran, Q. Wu, P. Ritthipravat, J. Zhang, Three-Stages Hard Exudates Segmentation in Retinal Images, pages 1 - 6, Thailand, October 2017, International Conference on Information Technology and Electrical Engineering (ICITEE)
- W. Kusakunniran, J. Rattanachosin, K. Sutassananon, P. Anekkitphanich, Automatic Quality Assessment and Segmentation of Diabetic Retinopathy Images, pages 997 - 1000, Singapore, November 2016, International Technical Conference of IEEE Region 10 (TENCON)
- R. Krungkaew, W. Kusakunniran, Foreground Segmentation in a Video by using a Novel Dynamic Codebook, pages 1 - 6, Thailand, June 2016, International Conference on Electrical Engineering/Electronics, Computer, Telecommunications and Information Technology (ECTI-CON)
- W. Kusakunniran, S. Satoh, J. Zhang, and Q. Wu, Attribute-based learning for large scale object classification, pages 1-6, United States, July 2013, IEEE International Conference on Multimedia and Expo (ICME)
- W. Kusakunniran, Q. Wu, J. Zhang, and H. Li, Pairwise shape configuration-based PSA for gait recognition under small viewing angle change, pages 17-22, Austria, August 2011, IEEE International Conference on Advanced Video and Signal Based Surveillance (AVSS)
- W. Kusakunniran, Q. Wu, J. Zhang, and H. Li, Speed-invariant gait recognition based on Procrustes shape analysis using higher-order shape configuration, pages 545-548, Belgium, September 2011, IEEE International Conference on Image Processing (ICIP)
- W. Kusakunniran, Q. Wu, J. Zhang, and H. Li, Multi-view gait recognition based on motion regression using multilayer Perceptron, pages 2186-2189, Turkey, August 2010, International Conference on Pattern Recognition (ICPR) – Best Biometrics Student Paper Award
- W. Kusakunniran, Q. Wu, J. Zhang, and H. Li, Support vector regression for multi-view gait recognition based on local motion feature selection, pages 974-981, United States, June 2010, IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)
- W. Kusakunniran, H. Li, and J. Zhang, A direct method to self-calibrate a surveillance camera by observing a walking pedestrian, pages 250-255, Australia, December 2009, IEEE International Conference on Digital Image Computing: Techniques and Applications (DICTA)
- W. Kusakunniran, Q. Wu, H. Li, and J. Zhang, Multiple views gait recognition using view transformation model based on optimized gait energy image, pages 1058-1064, Japan, September-October 2009, IEEE International Conference on Computer Vision (THEMIS workshop in conjunction with ICCV)