

BII – Computer Vision and Pattern Discovery for Bioimages

**** (Publications sorted: Newest to Oldest)**

Journal Publications

1.	Shiina K, Mori H, Tomita Y, Lee HK, Okabe Y. Inverse Renormalization Group based on Image Super-Resolution using Deep Convolutional Networks. Accepted (2021)
2.	Park SJ, Saw SN, Li XT, Pahnezhad M, Coppola D, Dinish U, Attia A, Yew YW, Thng STG, Lee HK, Olivo M. Model Learning Analysis of 3D Optoacoustic Mesoscopic Images for the Classification of Atopic Dermatitis. Biomed. Opt. Express (2021), https://doi.org/10.1364/BOE.415105
3.	Saw SN, Biswas A, Mattar CNZ, Lee HK, Yap CH. Machine learning improves early prediction of small-for-gestational-age births and reveals nuchal fold thickness as unexpected predictor. Prenatal Diagnosis (2021), 41: 505-516 https://doi.org/10.1002/pd.5903
4.	Paknezhad M, Loh SYM, Choudhury Y, Koh VKC, Tay KYT, Tan HS, Kanesvaran R, Tan PH, Peng JYS, Yu WM, Tan YCB, Loy YZ, Tan MH, Lee HK. Regional registration of whole slide image stacks containing major histological artifacts. BMC bioinformatics 21, no. 1 (2020): 1-20
5.	Akram F, Koh PE, Wang F, Zhou S, Tan SH, Paknezhad M, Park S, Henedige T, Thng CH, Lee HK, Sommat K. Exploring MRI based radiomics analysis of intratumoral spatial heterogeneity in locally advanced nasopharyngeal carcinoma treated with intensity modulated radiotherapy. PLOS ONE, 2020; 15(10), doi: 10.1371/journal.pone.0240043, PMID: 33017440
6.	Tomita Y, Shiina K, Okabe Y, Lee HK. Machine-learning study using improved correlation configuration and application to quantum Monte Carlo simulation. Physical Reivew E, Vol. 102, Issue 2, Aug 2020, doi: 10.1103/PhysRevE.102.021302
7.	Park SJ, Kwak WS, Lee HK. Accelerated spin dynamics using deep learning corrections. Sci Rep 10, 13772 (2020). https://doi.org/10.1038/s41598-020-70558-1
8.	Shiina K, Mori H, Okabe Y, Lee HK (2020). Machine-Learning Studies on Spin Models. Scientific Reports 10, Article no. 2177, 2020, doi: 10.1038/s41598-020-58263-5
9.	Al-Shab M, Lee HK, Tan M. Gated-Dilated Networks for Lung Nodule Classification in CT Scans. IEEE access 7 (2019): 178827 - 178838
10.	Singh M, Kalaw EM, Wang J, Alshabi M, Wing CF, Giron DM, Chong KT, Tan M, Zeng Z, Lee HK. Cribriform pattern detection in prostate histopathological images using deep learning models.. arXiv:1910.04030 [eess.IV]
11.	Kou CKL, Lee HK, Ng TK, Sanz J. (2018). An Efficient Network for Predicting Time-varying Distributions. arXiv:1811.01506
12.	Kou KLC, Lee HK, Sanz J, Ng TK. Theoretical and Experimental Analysis on the Generalizability of Distribution Regression Network. Neurocomputing, 2020, ISSN 0925-2312
13.	Lim ZV, Akram F, Ngo CP, Winarto AA, Lee WQ, Liang K, Oon HH, Thng STG, Lee HK (2020). Automated grading of acne vulgaris by deep learning with convolutional neural networks. Skin Research & Technology, Vol 26, Issue 2, March 2020, Pg 187-192, doi: 10.1111/srt.12794
14.	Kou CKL, Lee HK, Ng TK. (2018). A Compact Network Learning Model for Distribution Regression.

	Neural Networks, 111, 199-212 (2019).
15.	Holdbrook DA*, Singh M, Choudhury Y, Kalaw EM, Koh V, Tan HS, Kanavarar R, Tan PH, Peng JYS, Tan MH, Lee HK. (2018). Automated renal cancer grading using nuclear pleomorphic patterns . JCO Clinical Cancer Informatics, 2, 1-12 (2018).
16.	Grinchuk OV, Yenamandra SP, Iyer R, Singh M, Lee HK, Kurochkin IV, Lim KH, Chow PKH, Kuznetsov VA. (2018). Tumor-adjacent tissue co-expression profile analysis reveals pro-oncogenic gene signature for prognosis of resectable hepatocellular carcinoma . Molecular oncology, 12(1), 89-113 (2018).
17.	NongPiur ME, Atalay E, Gong TX, Loh M, Lee HK, He MH, Perera S, Aung T. (2017). Anterior segment imaging-based subdivision of subjects with primary angle closure glaucoma . Eye 31, 572-577 (2017)
18.	Loh M, Ogawa Y, Kawana S, Tamura K, Lee HK. (2017). Semi-automated quantitative Drosophila wings measurements . BMC Bioinformatics 18.1 (2017): 319.
19.	Singh M, Kalaw EM, Giron DM, Chong KT, Tan CL, Lee HK. (2017). Gland segmentation in prostate histopathological images . Journal of Medical Imaging 4.2 (2017): 027501-027501.
20.	Bougen-Zhukova N, Loh S, Lee HK, Loo LH. (2017). Large-scale image-based screening and profiling of cellular phenotype . Cytometry A 91.2 (2017): 115-125.
21.	Ferraro F, Lopes-da-Silva M, Grimes W, Lee HK, Ketteler R, Kriston-Vizi J, Cutler DF. (2016). Weibel-Palade body size modulates the adhesive activity of its von Willebrand Factor cargo in cultured endothelial cells . Scientific Reports 6 (2016): 32473
22.	Westmoreland D, Shaw M, Grimes WN, Metcalf DJ, Burden JJ, Gomez K, Knight AE, Cutler DF. (2016). Super-resolution microscopy as a potential approach to diagnosis of platelet granule disorders . Journal of Thrombosis and Haemostasis, 14.4 (2016) 839-849.
23.	Sasahida S, Okabe Y, Lee HK. (2016). Application of Monte Carlo simulation with block-spin transformation based on the Mumford-Shah segmentation model to three-dimensional biomedical images . Computer Vision and Image Understanding 152 (2016): 176-189.
24.	Nguyen PV, Ghezali A, Hseh YC, Boudier T, Gan SKE, Lee HK. (2016). Optimal processing for gel electrophoresis images: applying Monte Carlo Tree Search in GelApp . Electrophoresis 37 (2016): 2208-2216.
25.	Fiori S, Gong TX, Lee HK. (2015). Bivariate Nonisotonic Statistical Regression by a Lookup Table Neural System . Cognitive Computation 7.6 (2015): 715-730.
26.	Koh YW, Sim AYL, Lee HK. (2015). Dynamical traps in Wang-Landau sampling of continuous systems: Mechanism and solution . Physical Review E 92.2 (2015): 023306.
27.	Yap CK, Kalaw EM, Singh M, Chong KT, Giron DM, Huang CH, Cheng L, Law YN, Lee HK. (2015). Automated image based prominent nucleoli detection . Journal of Pathology Informatics 6.1 (2015): 39.
28.	Lee HK, Law YN, Huang CH, Yap CK. (2015). Analyzing Cell And Tissue Morphologies Using Pattern Recognition Algorithms . Biomedical Image Understanding, Methods and Applications (eds J.-H. Lim, S.-H. Ong and W. Xiong), John Wiley & Sons, Inc, Hoboken, NJ, USA. doi: 10.1002/9781118715321.ch4.
29.	Sim JZ, Nguyen PV, Lee HK, Gan SKE. (2015). GelApp: Mobile gel electrophoresis analyser . Nature Methods Application Notes doi:10.1038964.
30.	Lim J, Lee HK, Yu WM, Ahmed S. (2014). Light Sheet Fluorescence Microscopy (LSFM): Past, Present and Future . Analyst, 2014;139:4758-4768.
31.	Yong KL, Gong TX, Nongpiur ME, How AC, Lee HK, Cheng L, Perera SA, Aung T. (2014). Myopia in Asian Subjects with Primary Angle Closure: Implications for Glaucoma Trends in East Asia . Ophthalmology, 2014;121(8):1566-71.

32.	Sashida S, Okabe Y, Lee HK. (2014). Comparison of Multi-Label Graph Cuts Method and Monte Carlo Simulation with Block-Spin Transformation for the Piecewise Constant Mumford-Shah Segmentation Model. Computer Vision and Image Understanding,2014;119:15-26.
33.	Nongpiur ME, Gong TX, Lee HK, Perera SA, Cheng L, Foo LL, He MG, Friedman DS, Aung T. (2013). Subgrouping of Primary Angle-Closure Suspects Based on Anterior Segment Optical Coherence Tomography Parameters. Ophthalmology,2013;120(12):2525-2531.
34.	Law YN, Lee HK, Yip AM. (2013). Learning Dynamical Shape Prior for Level Set Based Cell Tracking. Annals of the BMVA,2013;6:1-14.
35.	Law YN. (2013). Cell Tracking Using Phase-Adaptive Shape Prior. Journal of Microscopy,2013;252(2):149-158.
36.	Koh YW, Lee HK, Okabe Y. (2013). Dynamically Optimized Wang-Landau Sampling with Adaptive Trial Moves and Modification Factors. Physical Review E,2013;88(5):053302-053310.
37.	Celik T, Lee HK, Petznick A, Tong L. (2013). Bioimage Informatics Approach to Automated Meibomian Gland Analysis in Infrared Images of Meibography. Journal of Optometry,2013;6(4):194-204.
38.	Guzman CP, Gong T, Nongpiur ME, Perera SA, How AC, Lee HK, Cheng L, He M, Baskaran M, Aung T. (2013). Anterior Segment Optical Coherence Tomography Parameters in Subtypes of Primary Angle Closure. Invest. Ophthalmol. Vis. Sci.,2013;54:5281-5286.
39.	Celik T, Lee HK. (2013). Comments on "A Robust Fuzzy Local Information C-Means Clustering Algorithm". IEEE Transactions on Image Processing,2013;22(3):1258-1261.
40.	Huang CH, Sankaran S, Racoceanu D, Hariharan S, Ahmed S. (2012). Online 3-D Tracking of Suspension Living Cells Imaged with Phase-Contrast Microscopy. IEEE Transactions on Biomedical Engineering,2012;59(7):1924-1933.
41.	Law YN, Racine V, Ang PL, Mohamed H, Soo PC, Veltmaat JM, Lee HK. (2012). Development of MammoQuant: An Automated Quantitative Tool for Standardized Image Analysis of Murine Mammary Gland Morphogenesis. Journal of Medical Imaging and Health Informatics,2012;2(4):352-365.
42.	Koh YW, Celik T, Lee HK, Petznick A, Tong L. (2012). Detection of Meibomian Glands and Classification of Meibography Images. J.Biomed. Optics,2012;17(8):086008-086014.
43.	Celik T. (2012). Two-dimensional Histogram Equalization and Contrast Enhancement. Pattern Recognition,2012;45(10):3810-3824.
44.	Law YN, Lee HK, Ng MK, Yip AM. (2012). A Semi-Supervised Segmentation Model for Collections of Images. IEEE Transactions on Image Processing,2012;21(6):2955-2968.
45.	Law YN, Yip AM, Lee HK. (2011). Automatic Measurement of Volume Percentage Stroma in Endometrial Images Using Texture Segmentation. Journal of Microscopy,2011;241(2):171-178.
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47.	Law YN, Lee HK, Yip AM. (2011). Subspace Learning for Mumford-Shah Model Based Texture Segmentation through Texture Patches. Applied Optics,2011;50(21):3947-3957.
48.	Watanabe H, Sashida S, Okabe Y, Lee HK. (2011). Monte Carlo Methods for Optimizing the Piece-Wise Constant Mumford-Shah Segmentation Model. New J.Phys,2011;13:023004.
49.	Uddin MS, Lee HK, Preibisch S, Tomancak P. (2011). Restoration of Uneven Illumination in Light Sheet Microscopy Images. Microsc. Microanal,2011;17(4):607-13.
50.	Law YN, Lee HK, Liu CQ, Yip AM. (2011). A Variational Model for Segmentation of Overlapping Objects with Additive Intensity Value. IEEE Trans. Img. Proc,2011;20(6):1495-1503.
51.	Zhang HZ, Lee HK, Mihalek I. (2010). Reduced Representation of Protein Structure: Implications

	on Efficiency and Scope of Detection of Structural Similarity . BMC Bioinformatics,2010;11:155.
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53.	Law YN, Lee HK, Yip AM. (2010). Semi-Supervised Subspace Learning for Mumford-Shah Model Based Texture Segmentation . Optics Express,2010;18(5):4934-4448.
54.	Yu WM, Lee HK, Hariharan S, Bu WY, Ahmed S. (2010). Evolving Generalized Voronoi Diagram of Active Contours for Accurate Cellular Image Segmentation . Cytometry Part A,2010;77A:379-386.
55.	Law YN, Ong S, Common J, Tan D, Lane EB, Yip AM, Lee HK. (2009). Automated Protein Distribution Detection in High-Throughput Image-Based siRNA Library Screens . Journal of Signal Processing Systems,2009;55:1-13.
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57.	Yu WM, Lee HK, Hariharan S, Bu WY, Ahmed S. (2008). Quantitative Neurite Outgrowth Measurement Based on Image Segmentation with Topological Dependence . Cytometry A,2008;75A:289-297.
58.	Law YN, Lee HK, Yip AM. (2008). A Multi-Resolution Stochastic Level Set Method for Mumford-Shah Image Segmentation . IEEE Trans. Img. Proc.,2008;17(12):2289-2300. CAM Report 07-43 (2007) http://www.math.ucla.edu/applied/cam/

Conference Publications

1.	Oner MU, Lee HK, Sung WK. A Fully Automated Pipeline for Human Epidermal Growth Factor Receptor 2 Expression Prediction in Invasive Breast Cancer . J Pathol Inform 2020;11:30 (ECDP2020 - Abstract)
2.	Bhagat S, Uppal S, Yin ZY, Lim NL. Disentangling Multiple Features in Video Sequences using Gaussian Processes in Variational Autoencoders . ECCV (2020)
3.	Coppola D, Lee HK, Guan C. Interpreting Mechanisms of Prediction for Skin Cancer Diagnosis Using Multi-Task Learning . CVPR workshop (2020)
4.	Oner MU, Song KJJM, Lee HK, Sung WK. Studying The Effect of MIL Pooling Filters on MIL Tasks . arXiv:2006.01561
5.	Kou KLC, Lee HK, Ng TK, Chang EC. Enhancing Transformation-Based Defenses Against Adversarial Attacks with a Distribution Classifier . ICLR2020
6.	Oner MU, lee HK, Sung WK. Weakly Supervised Clustering by Exploiting Unique Class Count . ICLR2020
7.	Ngo PC, Winarto AA, Kou KLC, Park SJ, Akam F, Lee HK. Fence GAN: Towards Better Anomaly Detection . International Conference on Tools with Artificial Intelligence (ICTAI) 2019.
8.	Akram F, Singh VK, Sarker MMK, Farhan Akram, García MA, Puig D. Brain MR Image Segmentation Using Multiphase Active Contours Based on Local and Global Fitted Images . 21st International Conference of the Catalan Association for Artificial Intelligence (CCIA 2018)
9.	Singh VK, Rashwan HA, Romani S, Arkam F, Pandey N, Kamal SM, Saleh A, Abdullah S, Maarroof N, Romani S, Puig D. (2018). Retinal Optic Disc Segmentation using Conditional Generative Adversarial Network . 21st International Conference of the Catalan Association for Artificial Intelligence (CCIA 2018).
10.	Singh VK, Rashwan HA, Romani S, Arkam F, Pandey N, Kamal SM, Saleh A, Arenas M, Arquez M,

	Puig D, Torrents-Barrena J. (2018). Breast Mass Segmentation and Shape Classification in Mammograms Using Deep Neural Networks . arXiv:1809.01687
11.	Kamal SM, Rashwan HA, Arkam F, Banu SF, Saleh S, Singh VK, Chowdhury FUH, Abdulwahab S, Romani S, Radeva P, Puig D. (2018). SLSDeep: Skin Lesion Segmentation Based on Dilated Residual and Pyramid Pooling Networks . International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2018).
12.	Singh VK, Romani S, Rashwan HA, Akram F, Pandey N, Kamal SM, Abdulwahab S, Torrents-Barrena J, Saleh A, Arquez M, Arenas M, Puig D. (2018). Conditional Generative Adversarial and Convolutional Networks for X-ray Breast Mass Segmentation and Shape Classification . International Conference on Medical Image Computing and Computer-Assisted Intervention (MICCAI 2018).
13.	Singh M, Zeng Z, Kalaw EM, Giron DM, Chong KT, Lee HK. (2017). A study of nuclei classification methods in histopathological images . International Conference on Innovation in Medicine and Healthcare (KES-InMed-2017)
14.	Huang CH. (2015). Semi-Supervised Color Decomposition For Histopathological Images Using Exclusive Component Analysis . IEEE International Workshop on Machine Learning for Signal Processing, September 17-20, 2015 Boston, USA.
15.	Kou CKL, Huang CH. (2014). Massively parallelized support vector machines based on GPU-accelerated multiplicative updates . Proc. of IEEE SSCI2014, Dec 2014.
16.	Huang CH. (2014). Fast Overcomplete Topographical Independent Component Analysis (FOTICA) and Its Implementation Using GPUs . Proc. of IEEE SSCI2014, Dec 2014.
17.	Law YN, Lieng MK, Li JM, Khoo AA. (2014). Automated Breast Tissue Density Assessment Using High Order Regional Texture Descriptors in Mammography . Proc. of SPIE Medical Imaging, Feb 2014.
18.	Gong TX, Lim NL, Lee HK, Su BL, Tan CL, Li SM, Lim CCT, Pang BC, Lee CK. (2013). Finding Distinctive Shape Features for Automatic Hematoma Classification in Head CT Images from Traumatic Brain Injuries . Intl. Conf. on Tools with Artificial Intelligence 2013 (ICTAI), Nov 2013.
19.	Dinh TA, Silander T, Su B, Gong T, Pang BC, Lim CC, Lee CK, Tan CL, Leong TY. (2013). Unsupervised Medical Image Classification by Combining Case-Based Classifiers . The 14th World Congress on Medical and Health Informatics (Medinfo 2013), Aug 2013.
20.	Huang CH. (2013). Pose Estimation for Vertebral Mobility Analysis Using eXclusive-ICA Based Boosting . Intl. Joint Conf. on Neural Networks (IJCNN '13), Aug 2013.
21.	Huang CH. (2013). A Fast Method For Spine Localization in X-ray Images . 35th Annual Intl. IEEE EMBS Conf., Jul 2013.
22.	Rigaud SU*, Huang CH, Ahmed S, Lim JH, Racoceanu D. (2013). An Analysis-Synthesis Approach for Neurosphere Modelisation Under Phase-Contrast Microscopy . 35th Annual Intl. IEEE EMBS Conf., Jul 2013.
23.	Huang CH, Lee HK. (2012). Automated Mitosis Detection Based on eXclusive Independent Component Analysis . 21st Intl. Conf. on Pattern Recognition, Nov 2012.
24.	Law YN, Lee HK. (2012). Level Set Based Tracking for Cell Cycle Analysis Using Dynamical Shape Prior . Proc. of the 16th Conf. on Medical Image Understanding and Analysis (MIUA):137-142, Jul 2012.
25.	Xiong W, Chia JC, Lim JH, Lee HK, Shvetha S, Ahmed S. (2012). Segmentation of Neural Stem Cells/Neurospheres in High Content Brightfield Microscopy Images Using Localized Level Sets . IEEE Intl. Conf. on Image Processing, 2012.
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27.	Ngo VA, Law YN, Lee HK, Hariharan S, Ahmed S. (2012). Accurate Single-Molecule Localization of Super-Resolution Microscopy Images using Multiscale Products . Proc. SPIE,2012;8228,822813.
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29.	Law YN, Lee HK, Yip AM. (2011). A Stochastic Level Set Method for Subspace Mumford-Shah Based Image Segmentation . Proc. of the Intl. Conf. on Image Processing, Computer Vision and Pattern Recognition, 2011.
30.	Law YN, Lee HK, NG MK, Yip AM. (2011). Interactive Segmentation of Multiple Images . Proc. of the Intl. Conf. on Image Processing, Computer Vision and Pattern Recognition, 2011.
31.	Law YN, Lee HK, Yip AM. (2010). Subspace Descriptor for Texture and its Applications . Proc. of the Intl. Conf. on Image Processing, Computer Vision and Pattern Recognition, 2010.
32.	Law YN, Lee HK, Yip AM. (2010). A Subspace Clustering Model for Image Texture Segmentation . Proc. of 5th European Conference on Computational Fluid Dynamics, 2010.
33.	Yu WM, Lee HK, Hariharan S, Sankaran S, Vallotton P, Ahmed S. (2009). Segmentation of Neural Stem/Progenitor Cells Nuclei within 3-D Neurospheres . Int. Sym. Visual Computing (ISVC 2009). Lecture Notes in Computer Science,2009;5875:531-543.
34.	Ho QR, Yu WM, Lee HK. (2009). Region Graph Spectra as Geometric Global Image Features . Int. Sym. Visual Computing (ISVC 2009). Lecture Notes in Computer Science,2009;5875:253-264.
35.	Yu WM, Lee HK, Hariharan S, Bu WY, Ahmed S. (2009). Detection and Quantitative Measurement of Neuronal Outgrowth in Fluorescence Microscopy Images . Proc. of the Medical Image Understanding and Analysis (MIUA), 2009.
36.	Law YN, Lee HK, Yip AM. (2009). Supervised Texture Segmentation Using the Subspace Mumford-Shah Model . Proc. of the Intl. Conf. on Image Processing, Computer Vision and Pattern Recognition (IPCV09), 2009.
37.	Law YN, Lee HK, Liu CQ, Yip AM. (2009). Segmentation of Semi-transparent Objects Using a Variant of the Mumford-Shah Model . Proc. of the Intl. Conf. on Image Processing, Computer Vision and Pattern Recognition (IPCV09), 2009.
38.	Yap CK, Lee HK. (2008). Identification of Cell Nucleus Using a Mumford-Shah Ellipse Detector . Int. Sym. Visual Computing (ISVC 2008). Lecture Notes in Computer Science,2008;5358:582-593.
39.	Yu WM, Lee HK, Hariharan S, Bu WY, Ahmed S. (2008). Level Set Segmentation of Cellular Images Based on Topological Dependence . Int. Sym. Visual Computing (ISVC 2008). Lecture Notes in Computer Science,2008;5358:540-551(Best Paper Award in ISVC2008).