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Publication List

Journal Papers

1. Lu C., Xu J., Zhang Z., Wang X., **Janowczyk A.**, Bera K., Lewis J., Madabhushi A., Cell Run-Length Features (CRF): Measuring Local Cell Cluster Graph Complexity for Predicting Disease Progression in p16+ Oropharyngeal Cancers, Cancer Research (Under Review)

2. Whitney J., Corredor G., **Janowczyk A.**, Ganesan S., Doyle S., Tomaszewski J., Feldman M., Gilmore, H., Madabhushi A., "Quantitative Nuclear Histomorphometry predicts Oncotype DX risk categories for early stage ER+", Breast Cancer 2018 (Accepted)

3. Lu C., Romo D., **Janowczyk A.**, Ganesan S., Gilmore H., Rimm D., Madabhushi A., "Nuclear Shape and Orientation Features from H&E Images Predict Survival in Early Stage Estrogen Receptor Positive (ER+) Breast Cancers", Nature Laboratory Investigation 2018 (Accepted)

4. **Janowczyk A.***, Nirschl J.*, Peyster E., Frank R., Margulies K., Feldman M., Madabhushi A., "A Deep-learning classifier identifies patients with clinical heart failure using whole-slide images of H&E tissue", PLoS ONE 2018

5. Wang X., **Janowczyk A.**, Zhou Y., Thawani R., Fu P., Schalper K., Velcheti V., Madabhushi A., "Prediction of recurrence in early stage non-small cell lung cancer using computer extracted nuclear features from digital H&E images", Nature Scientific Reports 2017

6. Lu C., Lewis J, Dupont W, Plummer W, **Janowczyk A,** Madabhushi A, "An oral cavity squamous cell carcinoma quantitative histomorphometric-based image classifier of nuclear morphology can risk stratify patients for disease-specific survival" Modern Pathology 2017 (30):1655-1665

7. Romo-Bucheli D., **Janowczyk A.**, Gilmore H. , Romero E., Madabhushi A. , "A deep learning based strategy for identifying and associating mitotic activity with gene expression derived risk categories in Estrogen Receptor Positive Breast Cancers , Cytometry A. 2017 91(6):566-573

8. Romo-Bucheli D., **Janowczyk A.**, Gilmore H. , Romero E., Madabhushi A. "Prediction of Breast Cancer Recurrence Risk Categories Using Automatic Mitotic Detection Algorithms Based on Deep Learning Automated Tubule Nuclei Quantification and Correlation with Oncotype DX risk categories in ER+ Breast Cancer Whole Slide Images", Nature Scientific Reports (Under review)

9. **Janowczyk A.,** Madabhushi A., "Deep learning for digital pathology image analysis: A comprehensive tutorial with selected use cases", Journal Pathology Informatics, 2016

10. **Janowczyk A.,** Basavanhally A., Madabhushi A., "Stain Normalization In Histopathology Using Sparse Auto-Encoders", Computerized Medical Imaging and Graphics, 2017

11. **Janowczyk A.,** Doyle S., Gilmore H., Madabhushi, "A resolution adaptive deep hierarchical (RADHicaL) learning scheme applied to nuclear segmentation of digital pathology images", Computer Methods in Biomechanics and Biomedical Engineering, 2016

12. Romo-Bucheli D., **Janowczyk A.**, Romeroa R., Gilmore H., Madabhushi A., "Automated Tubule Nuclei Quantification and Correlation with Oncotype DX risk categories in ER+ Breast Cancer Whole Slide Images", SPIE, Medical Imaging Digital Pathology, 2016

13. Penzias G., **Janowczyk A.**, Singanamalli A., Rusu M., Shih N., Feldman M.D., Böhm M., Haynes A., Delprado W., Stricker P., Tiwari S. ,Ponsky L., Viswanath S., Madabhushi A., "AutoStitcher: An Automated Program for Efficient and Robust Reconstruction of Digitized Whole Histological Sections from Tissue Fragments", Nature Scientific Reports 2016

14. Penzias G., **Janowczyk A.**, Singanamalli A., Rusu M., Shih N., Feldman M.D. , Viswanath S., Madabhushi A. "AutoStitcher: An Automated Program for Accurate Reconstruction of Digitized Whole Histological Sections From Tissue Fragments", Modern Pathology, 2015

15. **Janowczyk A.**, Chandran S., Madabhushi A., "Quantifying local heterogeneity via morphologic scale: Distinguishing tumoral from stromal regions" Journal of Pathology Informatics, 2013

16. **Janowczyk A.**, Chandran S. Singh R., Sasaroli D., Coukos G., Feldman M.D., Madabhushi A. "High-Throughput Biomarker Segmentation on Ovarian Cancer Tissue Microarrays via Hierarchical Normalized Cuts." Transactions on Biomedical Engineering, 2012
17. Xu J., **Janowczyk A.**, Chandran S., Madabhushi A.,, "A high-throughput active contour scheme for segmentation of histopathological imagery." Medical Image Analysis, 2011

Conference Papers

1. Ravichandran K., Braman N., **Janowczyk A.**, Madabhushi A. , "A deep learning classifier for prediction of pathological complete response to neoadjuvant chemotherapy from baseline breast DCE-MRI", SPIE, 2018
2. Leo P., Shankar E., Elliott R., **Janowczyk A.**, Madabhushi A. , Gupta S., "Combination of nuclear NF-kB/p65 localization and gland morphological features from surgical specimens appears to be predictive of early biochemical recurrence in prostate cancer patients", SPIE, 2018
3. **Janowczyk A.**, Doyle S., Gilmore H., Madabhushi A.,"A resolution adaptive hierarchical deep learning scheme applied to nuclear segmentation in histology images", Workshop on Deep Learning, Medical Image Computing and Computer-Assisted Intervention (MICCAI), 2015
4. **Janowczyk, A.**, Chandran, S. ,Madabhushi, A. "Quantifying local heterogeneity via morphologic scale: Distinguishing tumor from stroma". HIMA Workshop MICCAI, 2012
5. **Janowczyk A.**, Chandran S., Feldman M.D., Madabhushi A., "Local morphologic scale: application to segmenting tumor infiltrating lymphocytes in ovarian cancer TMAs". SPIE, 2011
6. Xu J., **Janowczyk A.**, Chandran S., Madabhushi A., "A weighted mean shift, normalized cuts initialized color gradient based geodesic active contour model: applications to histopathology image segmentation." SPIE, 210
7. Xu J., Sparks R., **Janowczyk A.**, Tomaszewski J.E., Feldman M.D., Madabhushi A. "High-Throughput Prostate Cancer Gland Detection, Segmentation, and Classification from Digitized Needle Core Biopsies". Workshop on Prostate Cancer Imaging: Computer-Aided Diagnosis, Prognosis, and Intervention (in conjunction with MICCAI), 2010
8. **Janowczyk A.**, Chandran S. Singh R., Sasaroli D., Coukos G., Feldman M.D., Madabhushi A., "Hierarchical Normalized Cuts: Unsupervised Segmentation of Vascular Biomarkers from Ovarian Cancer Tissue Microarrays". MICCAI, 2009
9. **Janowczyk A.**, Aluru S., Chandran S." Fast, Processor-Cardinality Agnostic PRNG with a Tracking Application." The Indian Conference on Computer Vision, Graphics and Image Processing (ICVIP), 2008

Abstracts

1. **Janowczyk A.**, Zuo R., Feldman M, Madabhushi A., HistoQC: A quality control pipeline for digital pathology slides, European Congress of Digital Pathology 2018
2. Braman N., Ravichandran K., **Janowczyk A.**, Abraham J., Madabhushi A., Predicting neo-adjuvant chemotherapy response from pre-treatment breast MRI using machine learning and HER2 status, American Society for Clinical Oncology (ASCO) 2018
3. Bhargava H., Leo P., Elliott R., **Janowczyk A.**, Whitney J., Gupta S., Rebbeck TR, Feldman M., Lal. P, Madabhushi. A,, "Computer-extracted Stromal Features from H&E Slides are distinct between African Americans and Caucasians and Prognostic of Biochemical Recurrence", American Society for Clinical Oncology (ASCO) 2018
4. Whitney J., Romo-Bucheli D., **Janowczyk A.**, Ganesan S., Feldman M., Gilmore H., Madabhush A., Computer extracted features of tumor grade from H&E images predict Oncotype DX risk categories for early stage ER+ Breast Cancer, San Antonio Breast Cancer Symposium 2018
5. Li H., Nezami B., Akgul M., Leo P., Elliott R., Harper H., **Janowczyk A.**, Madabhushi A., MacLennan G., Combination of nuclear orientation and shape features in H&E stained images distinguish consensus low and high grade bladder cancer, American Urological Association 2018
6. Nezami B, , Akgul M. , Leo P. , Elliott R. , Harper H. , **Janowczyk A.** , Madabhushi A. , MacLennan G., Computer Extracted Nuclear Shape Features Distinguish Consensus High- and Low-Grade Non-Invasive Papillary Urothelial Carcinomas, United States and Canadian Academy of Pathology's (USCAP) 107th Annual Meeting, 2018
7. Ravichandran K., Braman N., **Janowczyk A.**, Madabhushi A., A deep learning classifier for prediction of pathological complete response to neoadjuvant chemotherapy from baseline breast DCE-MRI", Women in Machine Learning 2018

8. Nirschl J., **Janowczyk A.**, Feldman M., Margulies K., Peyster E., Madabhushi A., Deep Learning Classifier to Predict Cardiac Failure from Whole-Slide H&E Images, United States and Canadian Academy of Pathology's (USCAP) 106th Annual Meeting, 2017

9. Whitney J., Corredor G., **Janowczyk A.**, Gilmore H., Madabhushi A., Computer extracted features of Nuclear Shape and Architecture predicts Oncotype DX risk categories for early stage ER+ Breast Cancer, United States and Canadian Academy of Pathology's (USCAP) 106th Annual Meeting, 2017

10. Wang X., Corredor G., Romero E. , **Janowczyk A.**, Zhou Y., Yang M. Velcheti V., Madabhushi A. "Computerized Density Estimation of Tumor-Infiltrating Lymphocyte in H&E TMAs Predicts Recurrence in Early Stage Non-Small Cell Lung Cancer", United States and Canadian Academy of Pathology's (USCAP) 106th Annual Meeting, 2017

11. Wang, X, **Janowczyk, A.**, Sagar, R, Velcheti, V, Madabhushi, A, "Computer Extracted Features of Nuclear Morphology from Digital H&E Images Are Predictive of Recurrence in Stage I and II Non-Small Cell Lung Cancer", United States and Canadian Academy of Pathology's (USCAP) 105th Annual Meeting, 2016

12. Romo-Bucheli, D, **Janowczyk, A.**, Gilmore, H, Romero, E, Madabhushi, A, "Prediction of Breast Cancer Recurrence Risk Categories Using Automatic Mitotic Detection Algorithms Based on Deep Learning", United States and Canadian Academy of Pathology's (USCAP) 105th Annual Meeting, 2016

13. **Janowczyk, A.**, Basavanhally, A, Madabhushi, A, "Stain Normalization in Digital Pathology Images Using Deep Learning", United States and Canadian Academy of Pathology's (USCAP) 105th Annual Meeting, 2016.

14. **Janowczyk, A.**, Doyle, S, Gilmore, H, Madabhushi, A, "Fully Automated, Accurate, and Efficient Segmentation of Cancer Nuclei in Breast Pathology Images", United States and Canadian Academy of Pathology's (USCAP) 105th Annual Meeting, 2016.

15. Penzias G, **Janowczyk A**., Singanamalli A, Rusu M, Shih N, Feldman M, Viswanath S and Madabhushi, A "AutoStitcher: An Automated Program for Accurate Reconstruction of Digitized Whole Histological Sections From Tissue Fragments" United States and Canadian Academy of Pathology's 104th Annual Meeting, 2015.

16. Romo-Bucheli, D., **Janowczyk, A.**, Romero, E., Gilmore, H., Madabhushi, A. "Correlating Computer Extracted Features from Tubules on ER+ Breast Cancer Images with Oncotype DX Risk Categories", Data and Life Science Symposium, Case Western Reserve University, 2015

17. Wang X, **Janowczyk A.**, Velcheti V., Madabhushi, "A. Computer Extracted Nuclear Features Predict Recurrence in Stage I, Stage II non-small Cell Lung Cancer", Data and Life Science Symposium, Case Western Reserve University, 2015

18. **Janowczyk, A**, Chandran, S, Feldman, M, Madabhushi, A, "Quantifying Tumor Infiltrating Lymphocytes in Ovarian Cancer TMAs", United States and Canadian Academy of Pathology's (USCAP) 100th Annual Meeting, 2011

19. Xu, J, Sparks, R, **Janowczyk, A**, Tomaszewski, J, Feldman, M, Madabhushi, A, "High-Throughput Prostate Cancer Gland Segmentation and Classification from Digitized Needle Core Biopsies", United States and Canadian Academy of Pathology's (USCAP) 100th Annual Meeting, 2011

Book Chapters

1. Nirschl, J., **Janowczyk, A.,** Peyster E., Frank R., Margulies K., Feldman M., Madabhushi A., "Deep Learning Tissue Segmentation in Cardiac Histopathology Images" , Deep Learning for Medical Image Analysis, 2017

Patents

1. "Histomorphometric classifier to predict cardiac failure from whole-slide hematoxylin and eosin stained images", **A. Janowczyk** , J. Nirschl, A. Madabhushi, US20180129911

2. "High-throughput biomarker segmentation utilizing hierarchical normalized cuts", **A. Janowczyk**, S. Chandran, A. Madabhushi, WO2011034596A1

3. "Color standardization for digitized histological images", **A. Janowczyk**, A. Basavanhally, A. Madabhushi, O2015061631A1

4. "Systems & methods for multi-protocol registration and tissue classification using local morphologic scale", **A. Janowczyk**, S. Chandran, A. Madabhushi WO2012097189A1

Service

1. International Conference on Image Analysis and Recognition (ICIAR) Breast Cancer Grand Challenge 2018 - Program Committee
2. Medical Imaging with Deep Learning 2018 - Program Committee
3. Nordic Symposium on Digital Pathology 2018 - Scientific Committee

Invited Talks

1. Swiss Consortium on Digital Pathology 2018
2. Swiss Association of Veterinary Medicine 2018

Awards

1. "Prediction of recurrence in early stage non-small cell lung cancer using computer extracted nuclear features from digital H&E images" selected as one of the top 100 read oncology papers for Scientific Reports in 2017
2. Most Popular Article Award in Journal Pathology of Informatics, 2016
3. Excellence in Ph.D. Thesis, IIT Bombay, 2014
4. Young Scientist Award (Runner-up), MICCAI London, 2010
5. Best Poster Award, ICVGIP, Bhubaneswar, 2008
6. Nobel Peace Prize, The United Nations International Atomic Energy Agency (IAEA) received the Nobel Peace Prize for non-proliferation efforts. Received a certificate acknowledging significance of contributed work. IAEA, Vienna, 2005

Theses

1. **Janowczyk A.**, Advisors: Chandran S., Madabhushi A., "Automatic Detection and Classification of Tumor Infiltrating Lymphocytes", Ph.D. Thesis, Indian Institute of Technology Bombay (IITB), 2014
2. **Janowczyk A**., Advisor: Ji Q., "Adaptive background modeling for human tracking", Master's Thesis, Rensselaer Polytechnic Institute (RPI), 200