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Digital Pathology

Metin N. Gurcan
John E. Tomaszewski
Editors

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4 Keynote and Trends
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Introduction

This is the fifth year of the *Digital Pathology* Conference that was introduced at SPIE's Medical Imaging Symposium in Orlando, FL in 2013. Every year since that inaugural event we have seen increased interest in cell and tissue imaging which has made Digital Pathology one of the distinguished conferences at the Medical Imaging Symposium. The quality of the presented talks, posters, and the resulting papers, like in the previous years, continues to be outstanding. This is mainly thanks to our community of digital pathology image scientists and diagnosticians who submit some of their very best work to this conference. We are grateful for their good work. We are also thankful for all the hard work of our program committee, who carefully conducted a rigorous peer-review process to ensure that only top papers are selected for presentation at the meeting.

The fifth Digital Pathology Conference took place on February 12 and 13 at the Renaissance SeaWorld, in Orlando, Florida, United States. A plenary talk was given on February 13th by Dr. Anant Madabhushi entitled "*Image based risk score predictor: predicting disease aggressiveness using sub-visual cues from image data.*" Dr. Madabhushi is an image scientist and one of the leaders in the field. Dr. Madabhushi discussed the motivation and rationale for developing image and fused data biomarkers in oncology. He illustrated the opportunity to mine both radiological and high-resolution histopathological images for data which supports both prognostic and predictive modeling in cancer. The audience was left with the clear message that there is critical information about the relationships amongst tumor cells and their host environment which can only be obtained through the use of quantitative image analytics. The keynote talk drew over 200 attendees from all the various conferences as part of the SPIE Medical imaging symposium.

A total of 41 papers were presented during the course of the meeting in both oral and poster form. The sessions included Trends, Precision Medicine and Grading, Detection and Segmentation, Machine Learning, Emerging Technologies.

We would like to acknowledge the excellent work in the following papers:

Conference finalists of the Robert F. Wagner Best Student Paper Award for Digital Pathology (10140)

Optimized color decomposition of localized whole slide images and convolutional neural network for intermediate prostate cancer classification
Paper 10140-32
Student Author: Naiyun Zhou, Stony Brook Univ. (USA)

Tissue classification of liver pathological tissue specimens image using spectral features
Paper 10140-36
Student Author: Emi Hashimoto, Saitama Medical University, Saitama (Japan)

Poster Awards
Cum Laude Poster Award

Panning artifacts in digital pathology images,
Ali R. N. Avanaki, Barco, Inc. (USA) [10140-34]

Honorable Mention Poster Award

Topological descriptors for quantitative prostate cancer morphology analysis, Peter J. Lawson, Tulane Univ. (USA); Eric Berry, Montana State Univ. (USA); J. Quincy Brown, Tulane Univ. (USA); Brittany T. Fasy, Montana State Univ. (USA); Carola Wenk, Tulane Univ. (USA) [10140-33]

The continued success of the Digital Pathology conference is in no small part due to the outstanding efforts of the program committee who carefully constructed the program, the Conference Chairs Drs. Berkman Sahiner and Leonard Berliner, and SPIE management who kindly guided us through all the many steps of the program organization.

Next year the Medical Imaging meeting will take place in Houston, TX. We look forward to seeing you there for another successful conference.

Metin N. Gurcan
John E. Tomaszewski

2017 Medical Imaging Award Recipients

Robert F. Wagner Best Student Paper Award

Robert F. Wagner was an active scientist in the SPIE Medical Imaging meeting, starting with the first meeting in 1972 and continuing throughout his career. He ensured that the BRH, and subsequently the CDRH, was a sponsor for the early and subsequent Medical Imaging meetings, helping to launch and ensure the historical success of the meeting. The Robert F. Wagner All-Conference Best Student Paper Award (established 2014) is acknowledgment of his many important contributions to the Medical Imaging meeting and his many important advances to the field of medical imaging.

This award is cosponsored by:

The Medical Image Perception Society SPIE.

2017 Recipients:

First Place: **Direct measurement of Lubberts effect in CsI:Tl scintillators using single x-ray photon imaging** (10132-8)
A. Howansky, A. R. Lubinsky, Stony Brook Univ. (United States); S. K. Ghose, Brookhaven National Lab. (United States); K. Suzuki, Hamamatsu Photonics K.K. (Japan); W. Zhao, Stony Brook Univ. (United States)

Second Place: **Evaluation of a high-resolution patient-specific model of the electrically stimulated cochlea** (10135-21)
A. Cakir, Vanderbilt Univ. (United States); R. T. Dwyer, Vanderbilt Univ. Medical Ctr. (United States); J. H. Noble, Vanderbilt Univ. (United States)