

Medical Imaging 2016

Digital Pathology

Metin N. Gurcan
Anant Madabhushi
Editors

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Anant Madabhushi, Case Western Reserve University (United States)

Poster Session

Elizabeth A. Krupinski, The University of Arizona (United States)

Introduction

This is the fourth year of the *Digital Pathology* conference, which was introduced at the SPIE Medical Imaging Symposium in Orlando, Florida in 2013. Every year since then we have seen increased interest, making *Digital Pathology* one of the more prominent conferences at the *SPIE Medical Imaging* symposium. The quality of the presented talks, posters, and resulting papers were outstanding. This is mainly due to our community submitting some of its best work to this conference as well as the hard work of our program committee, who carefully conducts a rigorous peer-review process to ensure that only the top papers are selected for presentation at the meeting.

The fourth *Digital Pathology* conference took place on March 2-3, 2016 at the Town & Country Resort and Convention Center in San Diego, California. The meeting formally began on March 2 with a plenary talk given by Dr. Kenneth J. Bloom entitled *Current challenges in digital pathology*. Dr. Bloom is a pathologist and an early adopter of information technology in pathology. Dr. Bloom discussed the current challenges in digital pathology from technical, regulatory and clinical acceptance terms. The keynote talk drew in over 200 attendees from all the various conferences as part of the *SPIE Medical Imaging* symposium. The attendance to the conference was relatively high.

A total of 49 presentations were made 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; and Emerging Technologies. At the end of the conference, there was also a special session on Emerging Global Opportunities where Dr. John Tomaszewski talked about *Cancer diagnostics in Africa: leapfrog technology and volunteers transform care*, which was well attended and followed by several questions.

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 (9791)

Cell nuclei attributed relational graphs for efficient representation and classification of gastric cancer in digital histopathology

Paper: 9791-31

Lead Author: Harshita Sharma, Technische Univ. Berlin (Germany)

Evaluating stability of histomorphometric features across scanner and staining variations: predicting biochemical recurrence from prostate cancer whole slide images

Paper: 9791-25

Lead Author: Patrick Leo, Case Western Reserve Univ. (USA)

Cum Laude Poster Award

Cell nuclei attributed relational graphs for efficient representation and classification of gastric cancer in digital histopathology

Paper: 9791-31

Lead Author: Harshita Sharma, Technische Univ. Berlin (Germany)

Honorable Mention Poster Award

Deep learning-based gland quantification in digitized tissue samples from patients with colorectal cancer: associations with clinical data and outcome

Paper: 9791-39

Lead Author: Dmitrii Bychkov, Univ. of Helsinki (Finland)

The continued success of the new *Digital Pathology* conference was in no small part to the outstanding efforts of the program committee, who carefully constructed the program, SPIE Conference Chairs Drs. Steven Horii and Berkman Sahiner, and SPIE staff, who kindly guided us through all the steps of the program organization.

Next year, the *Digital Pathology* conference at *SPIE Medical Imaging* will take place in Orlando, Florida. We look forward to seeing you there for another successful conference.

**Metin Gurcan
Anant Madabhushi**

2016 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:



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2016 Recipients:

First Place: **MIND Demons for MR-to-CT deformable image registration in image-guided spine surgery** (9786-16)

S. Reaungamornrat, T. De Silva, A. Uneri, Johns Hopkins Univ. (United States), J.-P. Wolinsky, Johns Hopkins Hospital (United States), A. J. Khanna, Johns Hopkins Health Care & Surgery Ctr. (United States), G. Kleinszig, S. Vogt, Siemens Healthcare (Germany), J. L. Prince, J. H. Siewerdsen, Johns Hopkins Univ. (United States)

Second Place: **Design, fabrication, and implementation of voxel-based 3D printed textured phantoms for task-based image quality assessment in CT** (9783-76)

Justin Solomon, Duke Univ. School of Medicine (United States), Alexandre Ba, Institut Univ. de Radiophysique Appliquée (Switzerland), Andrew Diao, Duke Univ. (United States), Joseph Lo, Elianna Bier, Duke Univ. School of Medicine (United States), François Bochud, Institut Univ. de Radiophysique Appliquée (Switzerland), Michael Gehm, Duke Univ. (United States), Ehsan Samei, Duke Univ. School of Medicine (United States)

Conference 9791 Awards

Cum Laude Poster Award

First Place: **Cell nuclei attributed relational graphs for efficient representation and classification of gastric cancer in digital histopathology** (9791-31)

Harshita Sharma, Olaf Hellwich Technische Univ. Berlin (Germany); Norman Zerbe, Daniel Heim, Stephan Wienert, Sebastian Lohmann, Peter Hufnagl Charité Univ. Hospital Berlin (Germany)

