

Medical Imaging 2016

Digital Pathology

Metin N. Gurcan
Anant Madabhushi
Editors

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Contents

- vii *Authors*
- ix *Conference Committee*
- xi *Introduction*
- xiii *2016 Medical Imaging Award Recipients*

KEYNOTE AND TRENDS

- 9791 03 **Automated robust registration of grossly misregistered whole-slide images with varying stains** [9791-2]
- 9791 04 **Model coupling for predicting a developmental patterning process** [9791-3]

PRECISION MEDICINE AND GRADING

- 9791 05 **Classification of breast cancer stroma as a tool for prognosis** [9791-4]
- 9791 06 **Automated tubule nuclei quantification and correlation with oncoTYPE DX risk categories in ER+ breast cancer whole slide images** [9791-5]
- 9791 07 **Computer-assisted bladder cancer grading: α -shapes for color space decomposition** [9791-6]
- 9791 08 **Multi-instance multi-label learning for whole slide breast histopathology** [9791-7]
- 9791 09 **Intraoperative neuropathology of glioma recurrence: cell detection and classification** [9791-8]
- 9791 0A **Preliminary evaluation of a fully automated quantitative framework for characterizing general breast tissue histology via color histogram and color texture analysis** [9791-9]

DETECTION AND SEGMENTATION

- 9791 0B **Hotspot detection in pancreatic neuroendocrine tumors: density approximation by α -shape maps** [9791-10]
- 9791 0C **Adaptive local thresholding for robust nucleus segmentation utilizing shape priors** [9791-11]
- 9791 0D **Non-uniform object counting method in large-format pyramid images applied to CD31 vessel counting in whole-mount digital pathology sections** [9791-12]

9791 OE **Segmentation of vessel structures in serial whole slide sections using region-based context features** [9791-13]

9791 OF **Automated renal histopathology: digital extraction and quantification of renal pathology** [9791-14]

MACHINE LEARNING

9791 OG **Differentiation of arterioles from venules in mouse histology images using machine learning** [9791-15]

9791 OH **Lymphoma diagnosis in histopathology using a multi-stage visual learning approach** [9791-16]

9791 OI **Evaluating stability of histomorphometric features across scanner and staining variations: predicting biochemical recurrence from prostate cancer whole slide images** [9791-25]

9791 OJ **A structure-based approach for colon gland segmentation in digital pathology** [9791-18]

9791 OK **Miniature objective lens for array digital pathology: design improvement based on clinical evaluation** [9791-19]

9791 OL **Quantitative diagnosis of tongue cancer from histological images in an animal model** [9791-20]

EMERGING TECHNOLOGIES

9791 OM **Multi-scale learning based segmentation of glands in digital colonrectal pathology images** [9791-21]

9791 ON **3D morphological measurement of whole slide histological vasculature reconstructions** [9791-22]

9791 OO **Single-pixel hyperspectral imaging for real-time cancer detection: detecting damage in ex vivo porcine tissue samples** [9791-23]

9791 OP **Offset-sparsity decomposition for enhancement of color microscopic image of stained specimen in histopathology: further results** [9791-24]

POSTER SESSION

9791 OR **Automatic labeling of molecular biomarkers on a cell-by-cell basis in immunohistochemistry images using convolutional neural networks** [9791-17]

9791 OT **Deciphering protein signatures using color, morphological, and topological analysis of immunohistochemically stained human tissues** [9791-27]

9791 OU **A machine learning approach to quantifying noise in medical images** [9791-28]

- 9791 0V **Pathological Gleason prediction through gland ring morphometry in immunofluorescent prostate cancer images** [9791-29]
- 9791 0W **Color-texture based extreme learning machines for tissue tumor classification** [9791-30]
- 9791 0X **Cell nuclei attributed relational graphs for efficient representation and classification of gastric cancer in digital histopathology (Cum Laude Poster Award)** [9791-31]
- 9791 0Y **Mixture of learners for cancer stem cell detection using CD13 and H&E stained images** [9791-32]
- 9791 10 **Identification of immune cell infiltration in hematoxylin-eosin stained breast cancer samples: texture-based classification of tissue morphologies** [9791-34]
- 9791 11 **Nucleus segmentation in histology images with hierarchical multilevel thresholding** [9791-35]
- 9791 12 **Quantification of tumor morphology via 3D histology: application to oral cavity cancers** [9791-36]
- 9791 14 **Automatic cell detection and segmentation from H&E stained pathology slides using colorspace decorrelation stretching** [9791-38]
- 9791 15 **Deep learning for tissue microarray image-based outcome prediction in patients with colorectal cancer** [9791-39]
- 9791 17 **Hierarchical nucleus segmentation in digital pathology images** [9791-41]
- 9791 18 **A four class model for digital breast histopathology using high-definition Fourier transform infrared (FT-IR) spectroscopic imaging** [9791-42]
- 9791 19 **The role of imaging based prostate biopsy morphology in a data fusion paradigm for transducing prognostic predictions** [9791-43]
- 9791 1A **Automated detection of retinal cell nuclei in 3D micro-CT images of zebrafish using support vector machine classification** [9791-44]
- 9791 1B **Automatic choroid cells segmentation and counting in fluorescence microscopic image** [9791-45]
- 9791 1C **Classification of human carcinoma cells using multispectral imagery** [9791-46]
- 9791 1D **High-definition Fourier transform infrared spectroscopic imaging of prostate tissue** [9791-47]
- 9791 1E **A generic nuclei detection method for histopathological breast images** [9791-48]

Authors

Numbers in the index correspond to the last two digits of the six-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first four digits reflect the volume number. Base 36 numbering is employed for the last two digits and indicates the order of articles within the volume. Numbers start with 00, 01, 02, 03, 04, 05, 06, 07, 08, 09, 0A, 0B...0Z, followed by 10-1Z, 20-2Z, etc.

Abas, Fazly Salleh, 09
Aggour, Kareem S., 0U
Ahmady Phoulady, Hady, 11
Akbaş, Cem Emre, 0Y
Akhan Güzelcan, Ece, 0Y
Aksoy, Selim, 08
Aralica, Gorana, 0P
Arjun, Shipra, 0M
Balkenhol, Maschenka C. A., 1E
Batiste, Rebecca C., 0A
Ben Cheikh, Bassem, 0J
Bertheau, Philippe, 0J
Bhargava, Rohit, 18, 1D
Brandwein-Gensler, Margaret, 12
Bult, Peter, 1E
Bychkov, Dmitrii, 15
Carraro, Anita, 0R
Cetin, A. Enis, 0Y, 1C
Çetin-Atalay, Rengul, 0Y, 1C
Chen, Amy, 0L
Chen, S., 0W
Chen, Xinjian, 1B
Chen, Zhuo Georgia, 0L
Cheng, Keith, 1A
Choo, A., 0W
Chowdhury, Aritra, 0U
Çinar, Umut, 1C
Codella, Noel, 0H
Dahmen, Uta, 0E
Dhulekar, Nimit, 04
Ding, Yifu, 1A
Diprima, Tammy, 17
Dirsch, Olaf, 0E
Donovan, Michael, 0V
Doyle, Scott, 12
Elkerton, J. Sachi, 0G
Elmore, Joann G., 08
Farahi, Faramarz, 0O
Fei, Baowei, 0L
Fei, Jianjun, 1B
Feldman, Michael D., 0A
Fernandez, Gerardo, 0V
Gabrani, Maria, 0T
Gao, Yi, 0M, 17
Gastounioti, Aimilia, 0A
Gazinska, Patrycja, 05
Gilmore, Hannah, 06
Ginley, Brandon, 0F
Gokozan, Hamza Numan, 09
Goksel, Behiye, 09
Goldgof, Dmitry B., 11
Grabe, N., 03
Graviss, Edward A., 0K
Guillaud, Martial, 0R
Gurcan, Metin N., 07, 09, 0B
Gustafson, Steven M., 0U
Hadžija, Mirko, 0P
Haglund, Caj, 15
Hahn, Horst Karl, 0E, 1E
Hall, Lawrence O., 11
Hartman, Douglas J., 0B
Hawkes, David J., 05
Heim, Daniel, 0X
Hellwich, Olaf, 0X
Hill, Melissa L., 0D
Hipwell, John H., 05
Homeyer, André, 1E
Hong, J. M., 0W
Hufnagl, Peter, 0X
Janowczyk, Andrew, 06
Kadjacsy-Balla, Andre, 18, 1D
Keller, Brad M., 0A
Khan, Faisal M., 0V, 19
Kontos, Despina, 0A
Kopriva, Ivica, 0P
Korbelic, Jagoda, 0R
Kost, Henning, 1E
Kovanen, Panu E., 10
Kulikowski, Casimir A., 19
Kurc, Tahsin, 0M, 17
Kwak, Jin Tae, 1D
Lee, G., 0W
Lee, George, 0I
Leo, Patrick, 0I
Leslie, L. Suzanne, 18
Lin, Xiao, 1B
Linder, Nina, 10, 15
Litjens, G., 03
Liu, Kela, 0D
Liu, William, 0M
Lohmann, Sebastian, 0X
Lu, Guolan, 0L
Lundin, Johan, 10, 15
MacAulay, Calum, 0R
Madabhushi, Anant, 06, 0I
Mainprize, James G., 0D
Mallah, Maen, 0Y
Martel, Anne L., 14

Matasar, Matt, 0H
 McCall, Brian, 0K
 Mercan, Caner, 08
 Mercan, Ezgi, 08
 Mertzanidou, Thomy, 05
 Mittal, Shachi, 18
 Moradi, Mehdi, 0H
 Mouton, Peter R., 11
 Muenzenmayer, Christian, 0Y
 Muller, Susan, 0L
 Murray, Mayan, 0D
 Naidoo, Kalnisha, 05
 Niazi, M. Khalid Khan, 07, 0B
 Nong, Zengxuan, 0N
 Oğuz, Oğuzhan, 0Y
 Otero, Jose J., 09
 Oztan, Basak, 04
 Pantanowitz, Liron, 0B
 Parwani, Anil V., 07
 Peikari, Mohammad, 14
 Peller, Joseph, 0O
 Pellinen, Teijo, 10
 Pickering, J. Geoffrey, 0G, 0N
 Pierce, Mark, 0K
 Pinder, Sarah, 05
 Popović Hadžija, Marijana, 0P
 Prisacari, Bogdan, 0T
 Qin, Xulei, 0L
 Racoceanu, Daniel, 0J
 Ratner, Vadim, 0M, 17
 Reis, Sara, 05
 Richards-Kortum, Rebecca R., 0K
 Romero, Eduardo, 06
 Romo-Bucheli, David, 06
 Safferling, K., 03
 Saltz, Joel, 0M, 17
 Sarder, Pinaki, 0F
 Schwier, Michael, 0E
 Scott, Richard, 0V
 Sevinsky, Christopher J., 0U
 Shapiro, Linda G., 08
 Sharma, Harshita, 0X
 Sheikhzadeh, Fahime, 0R
 Shi, Fei, 1B
 Smith, John R., 0H
 Srinivas, Chukka, 0C
 Su, Y., 0W
 Sveda-Mahmood, Tanveer, 0H
 Tannenbaum, Allen, 0M, 17
 Taşdemir, Kasım, 0Y
 Tavolara, Thomas, 1A
 Tkaczyk, Tomasz S., 0K
 Tomaszewski, John E., 0F, 12
 Trammell, Susan R., 0O
 Turkki, Riku, 10, 15
 Üner, Ayşegül, 0Y
 van der Laak, Jeroen A. W. M., 1E
 Wang, Dongsheng, 0L
 Wang, Xiuzhong, 0C
 Ward, Aaron D., 0G, 0N
 Ward, Rabab K., 0R
 Weaver, Donald L., 08
 Wienert, Stephan, 0X
 Wild, Peter, 0T
 Wittenberg, Thomas, 0Y
 Wong, S. T., 0W
 Wrobel, Tomasz P., 18, 1D
 Xiang, Dehui, 1B
 Xu, Yiwen, 0G, 0N
 Y. Çetin, Yasemin, 1C
 Yaffe, Martin J., 0D
 Yang, Lei, 1B
 Yang, X., 0W
 Yener, Bülent, 04, 0U
 Yeo, S. Y., 0W
 Zeineh, Jack, 0V
 Zerbe, Norman, 0X
 Zerhouni, Erwan, 0T
 Zhang, Hongzheng, 0L
 Zhong, Qing, 0T
 Zhu, Liangjia, 0M, 17
 Zhu, Weifang, 1B

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Selim Aksoy, Bilkent University (Turkey)
Scott Doyle, Rutgers, The State University of New Jersey
(United States)
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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. Reangamornrat, 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)

