

*Medical Imaging 2018*

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# **Biomedical Applications in Molecular, Structural, and Functional Imaging**

**Barjor Gimi  
Andrzej Krol**  
*Editors*

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# Contents

xi	<i>Authors</i>
xv	<i>Conference Committee</i>
xvii	<i>Introduction</i>
xix	<i>2018 Medical Imaging Award Recipients</i>

---

**SESSION 1 MRI AND FMRI**

---

10578 02	<b>Classifying Alzheimer's disease using probability distribution distance of fractional anisotropy and trace from diffusion tensor imaging in combination with whole-brain segmentations [10578-1]</b>
10578 03	<b>Brain functional mapping and network connectivity of reconstructed magnetic susceptibility data [10578-2]</b>
10578 04	<b>Alternating segmentation and simulation for contrast adaptive tissue classification [10578-3]</b>
10578 05	<b>Tests of clustering thalamic nuclei based on various dMRI models in the squirrel monkey brain [10578-4]</b>
10578 06	<b>Quantitative dynamic MRI (QdMRI) volumetric analysis of pediatric patients with thoracic insufficiency syndrome [10578-5]</b>

---

**SESSION 2 KEYNOTE AND EMERGING TRENDS**

---

10578 08	<b>Development of ultrafast detector for advanced time-of-flight brain PET [10578-7]</b>
10578 09	<b>Comparing diffusion tensor and spherical harmonic tractography for in utero studies of fetal brain connectivity [10578-8]</b>
10578 0A	<b>Investigating directed functional connectivity between the resting state networks of the human brain using mutual connectivity analysis [10578-9]</b>

---

**SESSION 3 NEUROLOGICAL IMAGING I**

---

10578 0B	<b>Resilient modular small-world directed brain networks in healthy subjects with large-scale Granger causality analysis of resting-state functional MRI [10578-10]</b>
----------	---

- 10578 OC **Investigating large-scale Granger causality analysis in presence of noise and varying sampling rate** [10578-11]
- 10578 OD **Automatic outlier detection using hidden Markov model for cerebellar lobule segmentation** [10578-12]
- 10578 OE **Segmentation and assessment of structural plasticity of hippocampal dendritic spines from 3D confocal light microscopy** [10578-13]
- 10578 OF **Multi-atlas segmentation of the hydrocephalus brain using an adaptive ventricle atlas** [10578-14]

---

**SESSION 4      CARDIOVASCULAR IMAGING**

---

- 10578 OI **Toward modeling the effects of regional material properties on the wall stress distribution of abdominal aortic aneurysms** [10578-17]
- 10578 OJ **3D printed cardiovascular patient specific phantoms used for clinical validation of a CT-derived FFR diagnostic software** [10578-18]
- 10578 OK **Comparison of myocardial scar geometries from 2D and 3D LGE-MRI** [10578-19]

---

**SESSION 5      NOVEL IMAGING TECHNIQUES AND APPLICATIONS**

---

- 10578 OL **Use of material decomposition in the context of neurovascular intervention using standard flat panel and a high-resolution CMOS detector** [10578-20]
- 10578 OM **Super-resolution ultrasound imaging with Gaussian fitting method and plane wave transmission** [10578-21]
- 10578 ON **A simulation platform using 3D printed neurovascular phantoms for clinical utility evaluation of new imaging technologies** [10578-22]
- 10578 OO **A balanced super-resolution optical fluctuation imaging method for super-resolution ultrasound** [10578-23]
- 10578 OP **Sparse-view CT reconstruction with improved GoogLeNet** [10578-24]

---

**SESSION 6      INNOVATIONS IN IMAGE PROCESSING**

---

- 10578 OQ **Detection of bone loss via subchondral bone analysis** [10578-25]
- 10578 OT **A structural connectivity approach to validate a model-based technique for the segmentation of the pulvinar complex** [10578-28]

10578 OU **3D scar segmentation from LGE-MRI using a continuous max-flow method** [10578-29]

10578 OV **Automatic segmentation of eyeball structures from micro-CT images based on sparse annotation** [10578-30]

---

**SESSION 7 OPTICAL**

---

10578 OX **Optical detection of oral carcinoma via structured illumination fluorescence lifetime imaging** [10578-32]

10578 OY **Evaluation of chemotherapeutic response of temozolomide in orthotopic glioma using bioluminescence tomography** [10578-33]

10578 OZ **Dynamic cone beam x-ray luminescence computed tomography with principal component analysis** [10578-34]

10578 10 **A fast reconstruction algorithm for fluorescence molecular tomography via multipath subspace pursuit method** [10578-35]

---

**SESSION 8 NEUROLOGICAL IMAGING II**

---

10578 13 **An improved approach of high graded glioma segmentation using sparse autoencoder and fuzzy c-means clustering from multi-modal MR images** [10578-38]

10578 14 **Improving self super resolution in magnetic resonance images** [10578-39]

10578 15 **Automatic callosal fiber convergence plane computation through DTI-based divergence map** [10578-40]

10578 16 **Fluorescence imaging of lymphatic outflow of cerebrospinal fluid in mice** [10578-41]

10578 17 **Corpus callosum parcellation methods: a quantitative comparative study** [10578-42]

---

**SESSION 9 CANCER**

---

10578 18 **Determining the importance of parameters extracted from multi-parametric MRI in the early prediction of the response to neo-adjuvant chemotherapy in breast cancer** [10578-43]

10578 19 **End-to-end breast ultrasound lesions recognition with a deep learning approach** [10578-44]

10578 1A **A real-time 4-bit imaging electrical impedance sensing biopsy needle for prostate cancer detection** [10578-45]

10578 1B **A semi-automatic validation tool for whole mouse metastatic tumor molecular imaging using the cryo-imaging cancer imaging and therapy platform (CITP)** [10578-46]

- 10578 1C **Interrogation of evolving tumor vasculature using high-resolution CT imaging and a nanoparticle contrast agent** [10578-47]
- 10578 1D **Automatic segmentation of corneal ulcer area based on ocular staining images** [10578-48]

---

**SESSION 10 IMAGING AGENTS**

---

- 10578 1E **Optimization of an iodine-based nanoparticle contrast agent for molecular CT imaging** [10578-49]
- 10578 1G **Enlarging the field of view in magnetic particle imaging using a moving table approach** [10578-51]
- 10578 1I **Direct prior regularization from anatomical images for cone beam x-ray luminescence computed tomography reconstruction** [10578-53]

---

**SESSION 11 BONE AND MUSCULOSKELETAL**

---

- 10578 1J **Robust quantitative assessment of trabecular microarchitecture in extremity cone-beam CT using optimized segmentation algorithms** [10578-54]
- 10578 1K **Automatic quantification framework to detect cracks in teeth** [10578-55]
- 10578 1L **MRI-based active shape model of the human proximal femur using fiducial and secondary landmarks and its validation** [10578-56]
- 10578 1M **Micro-CT analysis of trabecular parameters gradients in femurs of mice affected by chronic kidney disease** [10578-57]

---

**POSTERS: CARDIOVASCULAR AND PULMONARY IMAGING**

---

- 10578 1N **Nonrigid 2D registration of coronary artery angiograms with periodic displacement field** [10578-58]
- 10578 1O **Lesion detection for cardiac ablation from auto-fluorescence hyperspectral images** [10578-59]
- 10578 1P **MRI-based three-dimensional modeling and assessment of epicardial adipose tissue** [10578-60]
- 10578 1Q **Automated segmentation and feature extraction in cardiac electrical impedance tomography images** [10578-61]
- 10578 1R **3D segmentation of the ascending and descending aorta from CT data via graph-cuts** [10578-62]

- 10578 1S **Multi-pathways CNN for robust vascular segmentation** [10578-63]
- 10578 1T **Sensitivity of FFR-CT to manual segmentation** [10578-64]
- 10578 1U **SLIC robust (SLICR) processing for fast, robust CT myocardial blood flow quantification (Cum Laude Poster Award)** [10578-65]
- 10578 1V **Pulmonary function diagnosis based on diaphragm movement using dynamic flat-panel detector imaging: an animal-based study** [10578-66]
- 10578 1W **Bronchial based pulmonary acinus analysis in human lungs using a synchrotron radiation micro-CT** [10578-67]

---

**POSTERS: INNOVATIONS IN IMAGE PROCESSING**

---

- 10578 1X **Capillary detection in transverse muscle sections** [10578-68]
- 10578 1Y **Coronary calcification identification in optical coherence tomography using convolutional neural networks** [10578-69]
- 10578 1Z **Exploit <sup>18</sup>F-FDG enhanced urinary bladder in PET data for deep learning ground truth generation in CT scans** [10578-70]
- 10578 20 **Unsupervised segmentation of 3D medical images based on clustering and deep representation learning** [10578-71]
- 10578 21 **Low dose CT reconstruction with nonlocal means-based prior predicted from normal-dose CT database** [10578-72]
- 10578 22 **Hierarchical model-based object localization for auto-contouring in head and neck radiation therapy planning** [10578-73]
- 10578 24 **Automated delineation of organs-at-risk in head and neck CT images using multi-output support vector regression** [10578-75]
- 10578 25 **Automatic generation of the dental scheme based on 2D radiographs** [10578-76]
- 10578 26 **Ventricular segmentation and quantitative assessment in cardiac MR using convolutional neural networks** [10578-77]

---

**POSTERS: NEUROLOGICAL IMAGING**

---

- 10578 27 **Diffusion tensor imaging of the spine in pediatric patients** [10578-78]
- 10578 28 **Altered structural-functional coupling of large-scale brain networks in early Tourette syndrome children** [10578-79]

- 10578 29 **Determining disease evolution driver nodes in dementia networks** [10578-80]
- 10578 2A **Semi-supervised sparse representation classifier with random sample subset ensembles in fMRI-based brain state decoding** [10578-81]
- 10578 2B **Intensified CCD camera based fNIRS-DOT imaging system for whole functional brain mapping in children** [10578-82]

---

**POSTERS: NOVEL IMAGING TECHNIQUES AND APPLICATIONS**

---

- 10578 2E **An EIT system for mobile medical diagnostics** [10578-85]
- 10578 2F **Uptake of L-maurocalcine in DAOY cells and bio-distribution in mice by SPECT/CT imaging** [10578-86]
- 10578 2G **Bayesian inference and model selection for physiologically-based pharmacokinetic modeling of superparamagnetic iron oxide nanoparticles** [10578-87]
- 10578 2H **SVA: shape variation analyzer** [10578-89]

---

**POSTERS: OPTICAL**

---

- 10578 2K **3D modeling of chromosomes territories in normal and aneuploid nuclei** [10578-92]
- 10578 2L **Segmentation of brain lesions from CT images based on deep learning techniques** [10578-93]
- 10578 2M **A competing round-robin prediction model for histologic subtype prediction of lung adenocarcinomas based on thoracic computed tomography** [10578-94]
- 10578 2N **Comparison of Gaussian filter versus wavelet-based denoising on graph-based segmentation of retinal OCT images** [10578-95]
- 10578 2O **Lower jawbone data generation for deep learning tools under MeVisLab** [10578-96]
- 10578 2P **Detection and registration of vessels for longitudinal 3D retinal OCT images using SURF** [10578-97]
- 10578 2Q **Lung tumor segmentation based on the multi-scale template matching and region growing** [10578-98]
- 10578 2R **Automatic coronary artery lumen segmentation in computed tomography angiography using paired multi-scale 3D CNN** [10578-99]



10578 2S **Heart chamber segmentation from CT using convolutional neural networks** [10578-100]

10578 2T **Automated connectivity-based cortical mapping using registration-constrained classification**  
[10578-101]



# Authors

Numbers in the index correspond to the last two digits of the seven-digit citation identifier (CID) article numbering system used in Proceedings of SPIE. The first five 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.

Abidin, Anas Zainul, 0A, 0B, 0C  
Abyad, Sham, 1M  
Ahmad Fadzin, Ezak, 19, 1X  
Amini, Amir, 1R  
Amouriq, Yves, 25  
Anderson, Adam W., 05  
Angel, Erin, 0J  
Annapragada, Ananth, 1C, 1E  
Apinorasethkul, Chavanon, 22  
Appenzeller, Simone, 17  
Arai, Fumihito, 0V  
Arshad, Saaid H., 1Q  
Asfour, Huda, 1O  
Autrusseau, Florent, 25  
B. Oliveira, Dario A., 1Y  
Baczynska, Ewa, 0E  
Bago-Horvath, Zsuzsanna, 18  
Baharum, Ahmad Nadim, 1X  
Basu, Subhadip, 0E  
Beaumont, Jacques, 08  
Bednarek, D. R., 0L, 0N  
Beitler, J. J., 24  
Benavides, Erika, 0Q  
Bento, Mariana P., 15  
Bezerra, Hiram G., 1U  
Bhagalia, Roshni, 1T  
Bhatia, Aashim, 27  
Bhattacharya, Debanjali, 13  
Bi, Lynn, 2G  
Bléry, Pauline, 25  
Blitz, Ari M., 0F  
Boone, Sean, 1L  
Brehler, M., 1J  
Brück, Rainer, 2E  
Büchner, Steffen, 2E  
Budin, Francois, 1K  
By, Samantha, 27  
Calhoun, Vince, 03  
Camaratta, Joseph, 22  
Campbell, Robert M., Jr., 06  
Campos, Carlos, 1Y  
Cao, Feng, 2R  
Cao, Q., 1J  
Capraro, Anthony, 06  
Carass, Aaron, 0D, 0F, 14  
Cevidanes, Lucia, 0Q, 2H  
Cha, Jungwon, 1R  
Chakravorti, Srijata, 0T  
Chang, Gregory, 1L  
Chaves, Lee, 1M  
Chen, Cheng, 1L  
Chen, Chung-Ming, 2M  
Chen, Fei, 2R  
Chen, Leng-Rong, 2M  
Chen, Li-Wei, 2M  
Chen, Xinjian, 0Y, 10, 2P, 2Q  
Chen, Yen-Wei, 1S  
Chen, Zhibin, 02  
Chen, Zikuan, 03  
Cheng, Lishui, 1T  
Cheng, Shuna, 0X  
Chittajallu, Deepak, 1K  
Chockanathan, Udaysankar, 0A, 0B, 0C  
Couture, Patrick, 27  
Cover, Giovana S., 15, 17  
Das, Nirmal, 0E  
Dawant, Benoit M., 05, 0T  
de Dumast, Priscille, 2H  
Degens, Hans, 1X  
Demehri, S., 1J  
Deng, Lijie, 1D  
Denton, Erika, 19  
Dewey, Blake E., 0F  
Dighe, M., 09  
DiPalma, Joseph, 26  
Dormer, James D., 2S  
D'Souza, Adora M., 0A, 0B, 0C  
Du, Yang, 0Y, 10  
Eck, Brendan L., 1U  
Edic, Peter M., 1T  
Egger, Jan, 1Z, 2O  
Ellingsen, Lotta M., 0F  
Eschenburg, K., 2T  
Everitt, Alicia C., 1A  
Fares, Anas, 1U  
Fei, Baowei, 2S  
Fernandez-del-Valle, Maria, 1P  
Ferris, Glenn, 1X  
Fornwalt, Brandon K., 26  
Fuentes, David, 2G  
Gaber, M. Waleed, 2F  
Gao, Peng, 0Z, 1I, 21  
Gao, Xiaohong, 2L  
Gao, Yurui, 05  
Gargesha, Madhu, 1B  
Gatenby, C., 09  
Gdaniec, Nadine, 1G  
Ghaghada, Ketan B., 1C, 1E

Gibas, Christian, 2E  
 Giger, Maryellen L., 0X  
 Goyal, Manu, 19  
 Goyal, Sachin, 14  
 Grabowski, T., 2T  
 Graeser, Matthias, 1G  
 Griese, Florian, 1G  
 Grünewald, Armin, 2E  
 Gsaxner, Christina, 1Z, 2O  
 Guan, Liling, 2P  
 Guan, Shuyue, 1O  
 Gueaieb, Wail, 0K, 0U  
 Guédon, Jeanpierre, 25  
 Guha, Indranil, 0E  
 Gutierrez, Marco A., 1Y  
 Haggerty, Christopher M., 26  
 Halicek, Martin, 2S  
 Halter, Ryan J., 1A, 1Q  
 Han, Shuo, 0D  
 Han, Xian-Hua, 1S  
 Harmon, Eric S., 08  
 Haynor, D., 2T  
 Hazle, John, 2G  
 He, Huiguang, 28  
 Helbich, Thomas, 18  
 Helguera, María, 0I  
 Henn, Alexander, 1R  
 Hernandez, Pablo, 1K  
 Hinaman, J., 0N  
 Hinsdale, Taylor A., 0X  
 Honan, Amanda, 1M  
 Hsu, Fu-Sheng, 2M  
 Huang, Haixiang, 1D  
 Hunt, D., 09  
 Ionita, Ciprian N., 0J, 0L, 0N, 1M  
 Itoh, H., 1W  
 Iyer, Vijay, 0J  
 Jakse, Norbert, 1Z, 2O  
 Jalalahmadi, Golnaz, 0I  
 James, Paul, 22  
 Janssen, Christopher F., 16  
 Jiang, Jiehui, 0M, 0O  
 Jiang, X., 24  
 Jo, Javier A., 0X  
 Jog, Amod, 14  
 Joshi, Vivek, 1L  
 Juette, Arne, 19  
 Kaneko, Shikou, 1V  
 Karkhanis, Nitant Vivek, 0J  
 Kawakami, Haruna, 1V  
 Kawata, Y., 1W  
 Khan, Asma, 1K  
 Kitrungrotsakul, Titinunt, 1S  
 Klingensmith, Jon D., 1P  
 Knopp, Tobias, 1G  
 Kobayashi, Y., 1W  
 Krol, Andrzej, 08  
 Kuppuswamy Parthasarathy, Mohana, 2N  
 Kwon, S., 16  
 Lakshminarayanan, Vasudevan, 2N  
 Landman, Bennett A., 05  
 Lee, H. Felix, 1P  
 Lee, Soochahn, 1N  
 Leistrütz, Lutz, 0C  
 Lemos, Pedro, 1Y  
 Levi, Jacob, 1U  
 Li, Chia-Chen, 2M  
 Li, Haibo, 0P  
 Li, Li, 0Y  
 Li, S., 24  
 Li, Xia, 1T  
 Li, Xiang, 0F  
 Li, Yu, 2R  
 Li, Yuemeng, 1U  
 Liang, Guoyuan, 1L  
 Liang, Jimin, 2R  
 Liang, Zhengrong, 1I, 2I  
 Lin, Mong-Wei, 2M  
 Lindner, Lydia, 1Z, 2O  
 Linte, Cristian A., 0I  
 Liu, Tianshuai, 0Z, 1I, 2I  
 Liu, Xin, 0M, 0O  
 Liu, Ying, 0M, 0O  
 Liu, Yiqiao, 1B  
 Liu, Yue, 28  
 Loew, Murray, 1O  
 Long, Zhiying, 2A  
 Lu, Hongbing, 0Z, 1I, 2I  
 Lu, Zhengrong, 1B  
 Luo, Limin, 0P  
 Lv, Minglei, 0M, 0O  
 Ma, Ling, 2S  
 Ma, Zilin, 26  
 Macedo, Maysa M. G., 1Y  
 Magnowska, Marta, 0E  
 Maitland, Kristen C., 0X  
 Malik, Bilal H., 0X  
 Mandal, Krishna C., 08  
 Manwaring, Preston K., 1A  
 Marron, J. S., 0Q  
 Martí, Robert, 19  
 Mathieu, Kelsey, 2G  
 Matsutani, Noritsugu, 1V  
 Mayer, Oscar H., 06  
 McCormick, Matthew, 0Q  
 McDonough, Joseph M., 06  
 McKeen, Conor, 0K  
 McLaughlin, David, 22  
 Merchant, Fatima, 2K  
 Meyer-Baese, Anke, 18, 29  
 Michel, Pierre, 25  
 Mirabel, Clement, 2H  
 Mitra, Sunanda, 1P  
 Mitsouras, Dimitrios, 0J  
 Mix, Doran S., 0I  
 Möddel, Martin, 1G  
 Mol, André, 1K  
 Moradi Amani, Ali, 29  
 Morgan, Victoria L., 0T  
 Mori, Kensaku, 0V, 20

Moriya, Takayasu, 20  
Morris, C., 1J  
Moseley, K. F., 1J  
Muraoka, Shintaro, 1V  
Murphy, Ethan K., 1Q  
Muselmyan, Narine, 1O  
Nagara, Kai, 20  
Nakamura, Shota, 20  
Nakano, Y., 1W  
Naz, Mete, 1P  
Ni, HaoXuan, 10  
Nicz, Pedro, 1Y  
Nie, Baoqing, 2P  
Niki, N., 1W  
Niffa, Norihisa, 1V  
Noji, Sho, 1V  
Oda, Hirohisa, 20  
Oda, Masahiro, 0V, 20  
Odhner, Dewey, 22  
Okamoto, T., 1W  
Omata, Seiji, 0V  
Osgood, G., 1J  
Osman, Fatima, 19  
Pan, Lingjiao, 2P  
Paniagua, Beatriz, 0Q, 1K, 2H  
Park, Taewoo, 1N  
Patel, Chandreshkumar, 1E  
Patel, Paras, 0X  
Pati, Debananda, 2K  
Pednekar, Gargi, 22  
Peng, Yun, 28  
Pereira, Mariana, 17  
Pfarrkirchner, Birgit, 1Z, 2O  
Pham, Dzung L., 04  
Pinheiro, Gustavo R., 15  
Pinker-Domenig, Katja, 18, 29  
Podgorsak, Alexander R., 0L, 1M  
Prezelin, Valentin, 25  
Prieto, Juan C., 2H  
Prince, Jerry L., 0D, 0F, 14  
Prothero, Jack, 0Q  
Pu, Huangsheng, 0Z, 1I  
Qian, Yu, 2L  
Qutaish, Mohammed, 1B  
Ramkorun, Bhavesh, 27  
Reilly, Carolyn M., 2S  
Reynolds, Bryson, 27  
Rittner, Leticia, 15, 17  
Rong, Junyan, 0Z, 1I, 21  
Roszkowska, Matylda, 0E  
Roth, Holger R., 0V, 20  
Roy, Priyanka, 2N  
Roy, Snehashis, 04  
Rudin, Stephen, 0J, 0L, 0N  
Ruellas, Antonio, 0Q, 2H  
Rybicki, Frank J., 0J  
Saha, Punam Kumar, 0E, 1L  
Saito, K., 1W  
Sakai, H., 1W  
Sakuma, Shinya, 0V  
Sanada, Shigeru, 1V  
Sarkar, Poonam, 1C, 2F  
Sarvazyan, Narine, 1O  
Schifitto, Giovanni, 0A, 0B  
Schilling, Kurt G., 05  
Schmalstieg, Dieter, 1Z, 2O  
Schmidlein, C. Ross, 08  
Schreibmann, Eduard, 2S  
Seldeen, Kenneth, 1M  
Setlur Nagesh, S. V., 0L, 0N  
Sevick-Muraca, Eva M., 16, 2B  
Shah, Hina, 1K  
Shah, Manish N., 2B  
Shammo, Geraldine, 22  
Shao, Muhan, 0F  
Shepard, Lauren, 0J  
Shi, Fei, 2P  
Shin, Daniel W., 1M  
Shu, Yuexia, 0M, 0O  
Siddiqui, A., 0L  
Siewerdsen, J. H., 1J  
Simone, Charles B., 22  
Sinha, Neelam, 13  
Smith, Seth, 27  
Sommer, Kelsey N., 0J, 0N  
Song, Sutao, 2A  
Sop, Saygin, 1P  
Sovizi, Javad, 2G  
Starosolski, Zbigniew, 1C  
Stefan, Wolfgang, 2G  
Stepniewska, Iwona, 05  
Stoddard, Marcus, 1R  
Stough, Joshua V., 26  
Studholme, C., 09  
Stupin, Igor, 1C  
Styner, Martin, 2H  
Sugino, Takaaki, 0V  
Szwargulski, Patryk, 1G  
Tabata, Takahisa, 1V  
Tahmassebi, Amirhessam, 18, 29  
Tam, C. M., 24  
Tanaka, Rie, 1V  
Tang, Xiaoying, 02, 1D  
Tani, Tohru, 1V  
Thomas, Shruthi, 1M  
Thompson, Michael O., 08  
Thrower, Sara, 2G  
Tian, Jie, 0Y, 10  
Tian, S., 24  
Tian, Tian, 2R  
Tong, Yubing, 06, 22  
Torigian, Drew A., 06, 22  
Troen, Bruce, 1M  
Trujillo-Diaz, Paula, 0T  
Tubau, Nina, 2H  
Turner, James N., 08  
Udupa, Jayaram K., 06, 22  
Ukwatta, Eranga, 0K, 0U  
Umetani, K., 1W  
Usta, Fatma, 0K, 0U

Velasquez, Christian Fred, 16  
Venkataraman, A. C., 0L  
Venugopal, Prem, 1T  
Vimort, Jean-Baptiste, 0Q, 1K  
Wallner, Jürgen, 1Z, 2O  
Walters, Rick, 1K  
Wang, Hao-Jen, 2M  
Wei, Xiong, 1S  
Wei, Yuanyuan, 02  
Welbeck, Arakua, 1L  
Wen, Di, 1U  
Wen, Hongwei, 28  
Wengerf, Georg, 18  
White, James A., 0K, 0U  
Wileyto, E. Paul, 06  
Wilson, David L., 1B, 1U  
Wilson, Michael F., 0J  
Wirz, Raul, 0T  
Wismüller, Axel, 0A, 0B, 0C  
Wlodarczyk, Jakub, 0E  
Wright, John, 0X  
Wu, Caiyun, 06  
Wu, Hao, 1U  
Wu, Xingyu, 22  
Xiang, Dehui, 0Y, 10, 2Q  
Xie, Shipeng, 0P  
Xing, Yuxiang, 21  
Xiong, Z., 0N  
Xu, Junzhong, 05  
Yacoub, Rabi, 1M  
Yan, Zhuangzhi, 0M, 0O  
Yang, Bolan, 2Q  
Yang, Shun-Mao, 2M  
Yang, X., 24  
Yao, Li, 2A  
Yap, Moi Hoon, 19, 1X  
Yatabe, Marilia, 2H  
Ye, Jinzuo, 0Y, 10  
Yen, Fan-Yun, 2K  
Yoneyama, Tsutomu, 1V  
Yorkston, J., 1J  
Yu, Feihong, 2Q  
Yuan, Jin, 1D  
Yun, Il Dong, 1N  
Zbijewski, W., 1J  
Zelek, John, 2N  
Zhang, Chuncheng, 2A  
Zhang, Jing, 2A  
Zhang, Jishui, 28  
Zhang, Pengcheng, 0P  
Zhang, Wenli, 0Z, 1I  
Zhang, Xiaoliu, 1L  
Zhang, Yuanke, 0Z, 21  
Zhao, Can, 14  
Zhao, Xiaojie, 2A  
Zhou, Zhuxian, 1B  
Zhu, Banghe, 2B  
Zhu, Weifang, 2P  
Zuo, Lianrui, 0D  
Zwiggelaar, Reyer, 19

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- 11 Bone and Musculoskeletal  
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## Introduction

The 2018 SPIE Biomedical Applications in Molecular, Structural, and Functional Imaging conference was held 11–13 February 2018, at the Marriott Marquis Houston, Houston, Texas, United States. We maintained the high participation we saw last year, both in the number of abstracts submitted and in the conference attendees over previous years. Conference Chair Andrzej Krol welcomed Professor Martin Pomper, The John Hopkins Univ. School of Medicine (United States), who delivered an outstanding, insightful keynote address entitled "Imaging biomarkers in precision medicine" that provided an in-depth review on recent advances in in vivo molecular imaging, including a review of imaging biomarkers and precisely targeted theranostic agents for precision medicine.

The diverse sessions included MRI and fMRI, Keynote and Emerging Trends, Neurological Imaging, Cardiovascular Imaging, Novel Imaging Techniques and Applications, Innovations in Image Processing, Optical, Cancer, Imaging Agents, and Bone and Musculoskeletal.

We are grateful to the chairs of sessions: Ciprian N. Ionita, Vikram Kodibagkar, Changqing Li, Armando Manduca, Nicholas J. Tustison, Baohong Yuan, and Axel Wismüller

The poster session was comprised of vibrant discussions. A panel of judges selected "SLIC robust (SLICR) processing for fast, robust CT myocardial blood flow quantification" by Hao Wu, et al., Case Western Reserve Univ. (United States) for the Cum Laude award. The poster "Heart chamber segmentation from CT using convolutional neural networks" by James D. Dormer et al., Emory Univ. (United States), was selected as an Honorable Mention.

Titinunt Kitrungrotsakul, Ritsumeikan Univ. (Japan), was awarded the conference fee waiver for an outstanding paper entitled "Multi-pathways CNN for robust vascular segmentation".

**Barjor Gimi**  
**Andrzej Krol**



## 2018 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 co-sponsored by:



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2018 Recipients:

First Place: **Dynamic beam filtering for miscentered patients** (10573-29)

Andrew Mao, William Shyr, Grace J. Gang, J. Webster Stayman, Johns Hopkins Univ. (United States)

Second Place: **Tumor margin classification of head and neck cancer using hyperspectral imaging and convolutional neural networks** (10576-4)

Martin Halicek, Georgia Institute of Technology (United States) and Augusta Univ. (United States); James V. Little, Xu Wang, Emory Univ. School of Medicine (United States); Mihir Patel, Emory Univ. School of Medicine (United States) and The Winship Cancer Institute of Emory Univ. (United States); Christopher C. Griffith, Emory Univ. School of Medicine (United States); Amy Y. Chen, Emory Univ. School of Medicine (United States) and The Winship Cancer Institute of Emory Univ. (United States); Baowei Fei, Georgia Institute of Technology & Emory Univ. (United States) and The Winship Cancer Institute of Emory Univ. (United States)

