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# Program in Chronological Order

## (Copyrighted Papers)

\* Author Name – Corresponding Author • \* Following Paper Title – Paper not Available

Thursday, 5 April 2018

ThS1T2: 10:00-11:30 Empire Room

**Brain Connectivity Analysis** (Oral Session)

**Chair:** Gerig, Guido (*NYU Tandon School of Engineering*)

**Co-Chair:** Caballero Gaudes, Cesar (*Basque Center on Cognition, Brain and Language*)

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Fang, Jian (*Tulane University*); Stephen, Julia (*The Mind Research Network*); Wilson, Tony (*University of Nebraska*); Calhoun, Vince D. (*The Mind Research Network*); Wang, Yu-Ping\* (*Tulane University*)

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**Chair:** Aylward, Stephen (*Kitware Inc.*)

**Co-Chair:** Tam, Johnny (*National Institutes of Health*)

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 Yi, Jingru\* (*Rutgers, State Univ. of New Jersey*); Wu, Pengxiang (*Rutgers, State Univ. of New Jersey*); Hoepfner, Daniel J. (*Astellas Research Inst. of America*); Metaxas, Dimitris (*Rutgers, State Univ. of New Jersey*)

11:30-12:30 ThPO-05.2  
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11:30-12:30 ThPO-05.7  
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 Bermúdez-Chacón, Róger\* (*École Polytechnique Fédérale de Lausanne*); Márquez-Neila, Pablo (*École Polytechnique Fédérale de Lausanne*); Salzmann, Mathieu (*École Polytechnique Fédérale de Lausanne*); Fua, Pascal (*École Polytechnique Fédérale de Lausanne*)

11:30-12:30 ThPO-05.8  
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 Guay, Matthew\* (*National Institute of Biomedical Imaging and Bioengineering*); Emam, Zeyad (*University of Maryland, College Park*); Anderson, Adam (*University of Maryland, College Park*); Leapman, Richard (*National Institute of Biomedical Imaging and Bioengineering*)

11:30-12:30 ThPO-05.9  
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 Zhang, Donghao\* (*Univ. of Sydney*); Song, Yang (*Univ. of Sydney*); Liu, Siqi (*Univ. of Sydney*); Feng, Dagan (*Univ. of Sydney*); Wang, Yue (*Virginia Polytechnic Institute and State Univ.*); Cai, Weidong (*Univ. of Sydney*)



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Al-Kofahi, Yousef* ( <i>GE Global Research</i> ); Fiona, Ginty ( <i>GE Global Research</i> )	
11:30-12:30	ThPO-05.13
<b>Resolving Single Cells in Heavily Clustered Nissl-Stained Images for the Analysis of Brain Cytoarchitecture</b> .....	427-430
Grisan, Enrico* ( <i>University of Padova and King's College London</i> ); Graïc, Jean-Marie ( <i>University of Padova</i> ); Corain, Livio ( <i>University of Padova</i> ); Peruffo, Antonella ( <i>University of Padova</i> )	
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del Aguila Pla, Pol* ( <i>KTH Royal Institute of Technology</i> ); Jaldén, Joakim ( <i>KTH Royal Institute of Technology</i> )	
11:30-12:30	ThPO-05.15
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Shu, Chang ( <i>Chinese Academy of Sciences</i> ); Chen, Xi* ( <i>Chinese Academy of Sciences</i> ); Xie, Qiwei ( <i>Chinese Academy of Sciences</i> ); Xiao, Chi ( <i>Chinese Academy of Sciences</i> ); Han, Hua ( <i>Chinese Academy of Sciences</i> )	
11:30-12:30	ThPO-05.16
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Qin, Jing* ( <i>Montana State University</i> ); Yi, Xiyu ( <i>University of California, Los Angeles</i> ); Weiss, Shimon ( <i>University of California, Los Angeles</i> )	
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Boyd, Joseph ( <i>MINES Paristech, Institut Curie and INSERM U900</i> ); Pinheiro, Alice ( <i>Institut Curie</i> ); Del Nery, Elaine ( <i>Institut Curie</i> ); Reyat, Fabien ( <i>Institut Curie</i> ); Walter, Thomas* ( <i>MINES Paristech, Institut Curie and INSERM U900</i> )	
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<b>Neighborhood Regularized Image Superresolution for Applications to Microscopic Imaging</b> .....	453-457
Mukherjee, Lopamudra* ( <i>University of Wisconsin Whitewater</i> ); Keikhosravi, Adib ( <i>University of Wisconsin Madison</i> ); Eliceiri, Kevin W. ( <i>University of Wisconsin Madison</i> )	
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Yao, Yao* ( <i>Erasmus University Medical Center</i> ); Smal, Ihor ( <i>Erasmus University Medical Center</i> ); Meijering, Erik ( <i>Erasmus University Medical Center</i> )	



ThS2T2: 14:30-16:00	Empire Room
<b>Cardiac Image Analysis</b> (Oral Session)	
<b>Chair:</b> Schnabel, Julia ( <i>King's College London</i> )	
<b>Co-Chair:</b> Duncan, James ( <i>Yale University</i> )	

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 Oksuz, Ilkay (*King's College London*); Ruijsink, Bram (*King's College London and Guy's and St Thomas' Hospital NHS Foundation Trust*); Puyol-Antón, Esther (*King's College of London*); Sinclair, Matthew (*Imperial College London*); Rueckert, Daniel (*Imperial College London*); Schnabel, Julia A.\* (*King's College London*); King, Andrew P. (*King's College London*)

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 Yan, Siming (*Cedars Sinai Medical Center and Peking University*); Shi, Feng (*Cedars-Sinai Medical Center*); Chen, Yuhua (*Cedars Sinai Medical Center and University of California, Los Angeles*); Dey, Damini (*Cedars-Sinai Medical Center*); Lee, Sang-Eun (*Cedars Sinai Medical Center and Yonsei University College of Medicine*); Chang, Hyuk-Jae (*Yonsei University College of Medicine*); Li, Debiao (*Cedars Sinai Medical Center and University of California, Los Angeles*); Xie, Yibin\* (*Cedars-Sinai Medical Center*)

15:00-15:15 ThS2T2.3  
**A Multi-Level Convolutional LSTM Model for the Segmentation of Left Ventricle Myocardium in Infarcted Porcine Cine MR Images** ..... 470-473  
 Zhang, Dongqing (*Merck & Co., Inc. and Vanderbilt University*); Icke, Ilknur (*Merck & Co., Inc.*); Dogdas, Belma (*Merck & Co., Inc.*); Parimal, Sarayu (*Merck Sharpe & Dhome*); Sampath, Smita (*Merck Sharpe & Dhome*); Forbes, Joseph (*Merck & Co., Inc.*); Bagchi, Ansuman (*Merck & Co., Inc.*); Chin, Chih-Liang (*Merck & Co., Inc.*); Chen, Antong\* (*Merck & Co., Inc.*)

15:15-15:30 ThS2T2.4  
**Time Resolved Displacement-Based Registration of in Vivo cDTI Cardiomyocyte Orientations** ..... 474-478  
 Verzhbinsky, Ilya A.\* (*University of California, Los Angeles*); Magrath, Patrick (*University of California, Los Angeles*); Aliotta, Eric (*University of California, Los Angeles*); Ennis, Daniel B. (*University of California, Los Angeles*); Perotti, Luigi E. (*University of California, Los Angeles*)

15:30-15:45 ThS2T2.5  
**Multi-Component Deformable Models Coupled with 2D-3D U-Net for Automated Probabilistic Segmentation of Cardiac Walls and Blood** ..... 479-483  
 Yang, Dong\* (*Rutgers, The State Univ. of New Jersey*); Huang, Qiaoying (*Rutgers, The State Univ. of New Jersey*); Axel, Leon (*New York Univ.*); Metaxas, Dimitris (*Rutgers, The State Univ. of New Jersey*)

ThS2T3: 14:30-16:00	Diplomat Room
<b>Microscopic Imaging</b> (Oral Session)	
<b>Chair:</b> Unser, Michael ( <i>EPFL</i> )	
<b>Co-Chair:</b> Bouthemy, Patrick ( <i>INRIA</i> )	

14:30-14:45 ThS2T3.1  
**Optimal Multivariate Gaussian Fitting for PSF Modeling in Two-Photon Microscopy** ..... 484-488  
 Lau, Tim Tsz-Kit (*Hong Kong University of Science and Technology*); Chouzenoux, Emilie\* (*University Paris Saclay and Université Paris-Est Marne-la-Vallée*); Lefort, Claire (*Université de Limoges*); Pesquet, Jean-Christophe (*University Paris Saclay*)

14:45-15:00 ThS2T3.2  
**Spatially Variant PSF Modeling in Confocal Macroscopy** ..... 489-492  
 Jezierska, Anna\* (*Systems Research Institute at Polish Academy of Sciences, Gdansk Univ. of Technology, and Université Paris-Est*); Talbot, Hugues (*Université Paris-Est*); Pesquet, Jean-Christophe (*Univ. Paris-Saclay*)

15:00-15:15 ThS2T3.3  
**Intensity-Based Matching and Registration for 3D Correlative Microscopy with Large Discrepancies** ..... 493-496  
 Toledo Acosta, Bertha Mayela\* (*Inria*); Heiligenstein, Xavier (*Institut Curie*); Malandain, Grégoire (*Inria*); Bouthemy, Patrick (*Inria*)

15:15-15:30 ThS2T3.4  
**Multi-Resolution based Spatially Adaptive Multi-Order Total Variation for Image Restoration** ..... 497-500  
Viswanath, Sanjay (*Indian Institute of Science Bangalore*); de Beco, Simon (*Institut Curie*);  
Dahan, Maxime (*Institut Curie*); Arigovindan, Muthuvel\* (*Indian Institute of Science Bangalore*)

15:30-15:45 ThS2T3.5  
**Accurate 3D PSF Estimation from a Wide-Field Microscopy Image** ..... 501-504  
Li, Jizhou\* (*The Chinese University of Hong Kong*); Xue, Feng (*National Key Laboratory of Science and  
Technology*); Blu, Thierry (*The Chinese University of Hong Kong*)

ThS2T4: 14:30-16:00 Congressional Room  
**Lung Image Analysis** (Oral Session)  
**Chair:** Angelini, Elsa (*Imperial NIHR BRC, Imperial College London*)  
**Co-Chair:** Yin, Zhaozheng (*Missouri University of Science and Technology*)

14:30-14:45 ThS2T4.1  
**Lung Segmentation in CT Images using a Fully Convolutional Neural Network with  
Multi-Instance and Conditional Adversary Loss** ..... 505-509  
Zhao, Tianyi\* (*Missouri University of Science and Technology*); Gao, Dashan (*12 Sigma Technologies*);  
Wang, Jiao (*12 Sigma Technologies*); Yin, Zhaozheng (*Missouri University of Science and Technology*)

14:45-15:00 ThS2T4.2  
**Detecting Emphysema with Multiple Instance Learning** ..... 510-513  
Ørting, Silas Nyboe\* (*University of Copenhagen*); Petersen, Jens (*University of Copenhagen*);  
Thomsen, Laura H. (*Gentofte Hospital*); Wille, Mathilde M.W. (*Bispebjerg Hospital*);  
de Bruijne, Marleen (*University of Copenhagen and University Medical Center Rotterdam*)

15:00-15:15 ThS2T4.3  
**Multi-Scale Segmentation using Deep Graph Cuts: Robust Lung Tumor Delineation in MVCBCT** ..... 514-518  
Wu, Xiaodong\* (*University of Iowa*); Zhong, Zisha (*University of Iowa*); Buatti, John (*University of Iowa*);  
Bai, Junjie (*University of Iowa*)

15:15-15:30 ThS2T4.4  
**Emphysema Classification using a Multi-View Convolutional Network** ..... 519-522  
Bermejo Peláez, David\* (*Univ. Politécnica de Madrid & CIBER-BBN*); San José Estépar, Raúl (*Brigham Women's  
Hospital and Harvard Medical School*); Ledesma-Carbayo, M.J. (*Univ. Politécnica de Madrid & CIBER-BBN*)

15:30-15:45 ThS2T4.5  
**Automated Pulmonary Nodule Detection using 3D Deep Convolutional Neural Networks** ..... 523-526  
Tang, Hao (*University of California, Irvine*); Kim, Daniel R. (*University of California, Irvine*);  
Xie, Xiaohui\* (*University of California, Irvine*)

ThS3T1: 16:30-18:00 Palladian Room  
**Neuroimage Analysis I** (Oral Session)  
**Chair:** Davatzikos, Christos (*University of Pennsylvania*)  
**Co-Chair:** Li, Gang (*University of North Carolina at Chapel Hill*)

16:30-16:45 ThS3T1.1  
**Non-Euclidean, Convolutional Learning on Cortical Brain Surfaces** ..... 527-530  
Mostapha, Mahmoud\* (*Univ. of North Carolina at Chapel Hill*); Kim, Sun Hyung (*Univ. of North Carolina at Chapel  
Hill*); Wu, Guorong (*Univ. of North Carolina at Chapel Hill*); Zsembik, Leo (*Univ. of North Carolina at Chapel Hill*);  
Pizer, Stephen (*Univ. of North Carolina at Chapel Hill*); Styner, Martin (*Univ. of North Carolina at Chapel Hill*)

16:45-17:00 ThS3T1.2  
**Changepoint Analysis of Putamen and Thalamus Subregions in Premanifest Huntington's Disease** ..... 531-535  
Tan, Xiaoqing (*Sun Yat-sen Univ.*); Ross, Christopher A. (*Johns Hopkins Univ.*); Miller, Michael I. (*Johns  
Hopkins Univ.*); Tang, Xiaoying\* (*Sun Yat-sen Univ. and Sun Yat-sen Univ.-Carnegie Mellon Univ.*)

17:00-17:15 ThS3T1.3  
**Exploring Latent Structures of Alzheimer's Disease via Structure Learning** ..... 536-540  
Zhu, Dajiang\* (*University of Texas at Arlington*); Wang, Li (*University of Texas at Arlington*)

17:15-17:30 ThS3T1.4  
**Weighted Group Sparse Functional Connectivity Modeling for Alzheimer's Disease Identification** ..... 541-544  
Zhao, Qinghua\* (*Nanjing University of Science and Technology*); Sang, Xiaoshuang (*Nanjing University of Science and Technology*); Lu, Jianfeng (*Nanjing University of Science and Technology*)

17:30-17:45 ThS3T1.5  
**Predicting Progressions of Cognitive Outcomes via High-Order Multi-Modal Multi-Task Feature Learning** ..... 545-548  
Lu, Lyujian (*Colorado School of Mines*); Wang, Hua\* (*Colorado School of Mines*); Yao, Xiaohui (*Indiana University*); Risacher, Shannon (*Indiana University*); Saykin, Andrew (*Indiana University*); Shen, Li (*Indiana University and University of Pennsylvania*)

ThS3T2: 16:30-18:00 Empire Room  
**Deep Image Segmentation I** (Oral Session)  
**Chair:** Greenspan, Hayit K. (*Tel Aviv University*)  
**Co-Chair:** Rohde, Gustavo (*University of Virginia*)

16:30-16:45 ThS3T2.1  
**Improving the Robustness of Convolutional Networks to Appearance Variability in Biomedical Images** ..... 549-553  
Tasdizen, Tolga\* (*University of Utah*); Sajjadi, Mehdi (*University of Utah*); Javanmardi, Mehran (*University of Utah*); Ramesh, Nisha (*University of Utah*)

16:45-17:00 ThS3T2.2  
**Domain Adaptation for Biomedical Image Segmentation using Adversarial Training** ..... 554-558  
Javanmardi, Mehran\* (*University of Utah*); Tasdizen, Tolga (*University of Utah*)

17:00-17:15 ThS3T2.3  
**Train a 3D U-Net to Segment Cranial Vasculature in CTA Volume without Manual Annotation** ..... 559-563  
Chen, Xuhui (*Peking University Shenzhen Hospital*); Lu, Yi (*CuraCloud Corporation*); Bai, Junjie (*CuraCloud Corporation*); Yin, Youbing (*CuraCloud Corporation*); Cao, Kunlin (*CuraCloud Corporation*); Li, Yuwei (*CuraCloud Corporation*); Chen, Hanbo\* (*CuraCloud Corporation*); Song, Qi (*CuraCloud Corporation*); Wu, Jun (*Peking University Shenzhen Hospital*)

17:15-17:30 ThS3T2.4  
**Deep Learning with Ultrasound Physics for Fetal Skull Segmentation** ..... 564-567  
Cerrolaza, Juan J.\* (*Imperial College London*); Sinclair, Matthew (*Imperial College London*); Li, Yuanwei (*Imperial College London*); Gomez, Alberto (*King's College London*); Ferrante, Enzo (*Universidad Nacional del Litoral*); Matthew, Jacqueline (*King's College London*); Gupta, Chandni (*King's College London*); Knight, Caroline L. (*King's College London and Guy's and St Thomas' NHS Foundation Trust*); Rueckert, Daniel (*Imperial College London*)

17:30-17:45 ThS3T2.5  
**Abnormality Detection using Deep Neural Networks with Robust Quasi-Norm Autoencoding and Semi-Supervised Learning** ..... 568-572  
Shah, Meet P.\* (*Indian Institute of Technology Bombay*); Merchant, S.N. (*Indian Institute of Technology Bombay*); Awate, Suyash P. (*Indian Institute of Technology Bombay*)

ThS3T3: 16:30-18:00 Diplomat Room  
**Histological Image Analysis I** (Oral Session)  
**Chair:** Rohr, Karl (*University of Heidelberg, DKFZ Heidelberg*)  
**Co-Chair:** Pluim, Josien (*Eindhoven University of Technology*)

16:30-16:45 ThS3T3.1  
**Stain Normalization of Histopathology Images using Generative Adversarial Networks** ..... 573-577  
Ghazvinian Zanjani, Farhad\* (*Eindhoven University of Technology*); Zinger, Svitlana (*Eindhoven University of Technology*); Ehteshami Bejnordi, Babak (*Radboud University Medical Center*); van der Laak, Jeroen A.W.M. (*Radboud University Medical Center*); de With, Peter H.N. (*Eindhoven University of Technology*)

16:45-17:00 ThS3T3.2  
**Multiple Instance Learning of Deep Convolutional Neural Networks for Breast Histopathology**  
**Whole Slide Classification** ..... 578-581  
 Das, Kausik (*Indian Institute of Technology Kharagpur*); Conjeti, Sailesh (*Technical University of Munich*);  
 Guha Roy, Abhijit (*Indian Institute of Technology Kharagpur, Technical University of Munich and Ludwig*  
*Maximilian University of Munich*); Chatterjee, Jyotirmoy (*Indian Institute of Technology Kharagpur*);  
 Sheet, Debdoot\* (*Indian Institute of Technology Kharagpur*)

17:00-17:15 ThS3T3.3  
**Adversarial Domain Adaptation to Improve Automatic Breast Cancer Grading in Lymph Nodes** ..... 582-585  
 Wollmann, T.\* (*University of Heidelberg and DKFZ Heidelberg*); Eijkman, C.S. (*University of Heidelberg and*  
*DKFZ Heidelberg*); Rohr, K. (*University of Heidelberg and DKFZ Heidelberg*)

17:15-17:30 ThS3T3.4  
**Inferring a Third Spatial Dimension from 2D Histological Images** ..... 586-589  
 Lafarge, Maxime W.\* (*Eindhoven University of Technology*); Pluim, Josien P.W. (*Eindhoven University of*  
*Technology*); Eppenhof, Koen A.J. (*Eindhoven University of Technology*); Moeskops, Pim (*Eindhoven*  
*University of Technology*); Veta, Mitko (*Eindhoven University of Technology*)

17:30-17:45 ThS3T3.5  
**SAMS-Net: Stain-Aware Multi-Scale Network for Instance-Based Nuclei Segmentation in**  
**Histology Images** ..... 590-594  
 Graham, S.\* (*University of Warwick*); Rajpoot, N.M. (*University of Warwick*)

ThS3T4: 16:30-18:00	Congressional Room
<b>Functional Imaging and Analysis</b> (Oral Session)	
<b>Chair:</b> Pham, Dzung ( <i>Center for Neuroscience and Regenerative Medicine</i> )	
<b>Co-Chair:</b> Barillot, Christian ( <i>IRISA (UMR CNRS 674), INRIA, INSERM</i> )	

16:30-16:45 ThS3T4.1  
**Latent Source Mining of fMRI Data via Deep Belief Network** ..... 595-598  
 Li, Lei (*Northwestern Polytechnical Univ.*); Hu, Xintao\* (*Northwestern Polytechnical Univ.*); Huang, Heng  
 (*Northwestern Polytechnical Univ.*); He, Chunlin (*Northwestern Polytechnical Univ.*); Wang, Liting (*Northwestern*  
*Polytechnical Univ.*); Han, Junwei (*Northwestern Polytechnical Univ.*); Guo, Lei (*Northwestern Polytechnical*  
*Univ.*); Zhang, Wei (*Univ. of Georgia*); Liu, Tianming (*Univ. of Georgia*)

16:45-17:00 ThS3T4.2  
**PET-MR Respiratory Signal Estimation using Semi-Supervised Manifold Alignment** ..... 599-603  
 Balfour, D.R.\* (*King's College London*); Clough, J.R. (*King's College London*); Chen, X. (*Kings College London*  
*and Univ. of Nottingham*); Belzunce, M. (*King's College London*); Prieto, C. (*King's College London*); Marsden,  
 P.K. (*King's College London*); Reader, A.J. (*King's College London*); King, A.P. (*King's College London*)

17:00-17:15 ThS3T4.3  
**GPU Accelerated Extraction of Sparse Granger Causality Patterns** ..... 604-607  
 Sahoo, Dushyant\* (*University of Pennsylvania*); Honnorat, Nicolas (*University of Pennsylvania*);  
 Davatzikos, Christos (*University of Pennsylvania*)

17:15-17:30 ThS3T4.4  
**A Temporal Deconvolution Algorithm for Multiecho Functional MRI** ..... 608-611  
 Caballero Gaudes, César\* (*Basque Center on Cognition, Brain and Language*); Bandettini, Peter A. (*National*  
*Institute of Health*); Gonzalez-Castillo, Javier (*National Institute of Health*)

17:30-17:45 ThS3T4.5  
**Generating 3D Spatio-Temporal Models of Vocal Folds Vibrations from High Speed Digital Imaging** ..... 612-615  
 Kopczynski, Bartosz\* (*Lodz University of Technology*); Strumillo, Pawel (*Lodz University of Technology*);  
 Just, Marcin (*DiagNova Technologies*); Niebudek-Bogusz, Ewa (*Nofer Institute of Occupational Medicine*)



FrS1T2: 10:00-11:30	Empire Room
<b>Brain Image Segmentation</b> (Oral Session)	
<b>Chair:</b> Gholipour, Ali ( <i>Children's Hospital Boston and Harvard Medical School</i> )	
<b>Co-Chair:</b> Dolz, Jose ( <i>ETS</i> )	

10:00-10:15	FrS1T2.1
<b>Isointense Infant Brain Segmentation with a Hyper-Dense Connected Convolutional Neural Network</b> .....	616-620
Dolz, Jose* ( <i>École de Technologie Supérieure</i> ); Ben Ayed, Ismail ( <i>École de Technologie Supérieure</i> ); Yuan, Jing ( <i>Xidian University</i> ); Desrosiers, Christian ( <i>École de Technologie Supérieure</i> )	
10:15-10:30	FrS1T2.2
<b>Towards Integrating Spatial Localization in Convolutional Neural Networks for Brain Image Segmentation</b> .....	621-625
Ganaye, Pierre-Antoine* ( <i>Université Claude Bernard Lyon</i> ); Sdika, Michaël ( <i>Université Claude Bernard Lyon</i> ); Benoit-Cattin, Hugues ( <i>Université Claude Bernard Lyon</i> )	
10:30-10:45	FrS1T2.3
<b>3D cGAN based Cross-Modality MR Image Synthesis for Brain Tumor Segmentation</b> .....	626-630
Yu, Biting* ( <i>University of Wollongong</i> ); Zhou, Luping ( <i>University of Wollongong and University of Sydney</i> ); Wang, Lei ( <i>University of Wollongong</i> ); Fripp, Jurgen ( <i>CSIRO</i> ); Bourgeat, Pierrick ( <i>CSIRO</i> )	
10:45-11:00	FrS1T2.4
<b>Optimization of a Variational Model using Deep Learning: An Application to Brain Tumor Segmentation</b> .....	631-634
Ramírez, I.* ( <i>Univ. Rey Juan Carlos</i> ); Martín, A. ( <i>Univ. of Graz</i> ); Schiavi, E. ( <i>Univ. Rey Juan Carlos</i> )	
11:00-11:15	FrS1T2.5
<b>Automatic Body Localization and Brain Ventricle Segmentation in 3D High Frequency Ultrasound Images of Mouse Embryos</b> .....	635-639
Kuo, Jen-wei ( <i>New York Univ.</i> ); Qiu, Ziming ( <i>New York Univ.</i> ); Aristizabal, Orlando ( <i>Riverside Research and New York Univ. School of Medicine</i> ); Mamou, Jonathan ( <i>Riverside Research</i> ); Turnbull, Daniel H. ( <i>New York Univ. School of Medicine</i> ); Ketterling, Jeffrey ( <i>Riverside Research</i> ); Wang, Yao* ( <i>New York Univ.</i> )	

FrS1T3: 10:00-11:30	Diplomat Room
<b>Cell Image Segmentation</b> (Oral Session)	
<b>Chair:</b> Maška, Martin ( <i>Masaryk University</i> )	
<b>Co-Chair:</b> Smal, Ihor ( <i>Erasmus MC - University Medical Center Rotterdam</i> )	

10:00-10:15	FrS1T3.1
<b>Part-Wise Neuron Segmentation using Artificial Templates</b> .....	640-644
Gulyanov, S. ( <i>Indiana Univ.-Purdue Univ. Indianapolis</i> ); Sharifai, N. ( <i>Univ. of Miami</i> ); Kim, M.D. ( <i>Univ. of Miami</i> ); Chiba, A. ( <i>Univ. of Miami</i> ); Tsechpenakis, G.* ( <i>Indiana Univ.-Purdue Univ. Indianapolis</i> )	
10:15-10:30	FrS1T3.2
<b>Microscopy Cell Segmentation via Adversarial Neural Networks</b> .....	645-648
Arbelle, Assaf* ( <i>Ben-Gurion Univ. of the Negev</i> ); Riklin Raviv, Tammy ( <i>Ben-Gurion Univ. of the Negev</i> )	
10:30-10:45	FrS1T3.3
<b>The Candidate Multi-Cut for Cell Segmentation</b> .....	649-653
Funke, Jan* ( <i>Universitat Politècnica de Catalunya</i> ); Zhang, Chong ( <i>SimBioSys, DTIC, Universitat Pompeu Fabra</i> ); Pietzsch, Tobias ( <i>MPI-CBG Dresden</i> ); Gonzalez Ballester, Miguel A. ( <i>SimBioSys, DTIC, Universitat Pompeu Fabra and ICREA</i> ); Saalfeld, Stephan ( <i>Janelia Research Campus</i> )	
10:45-11:00	FrS1T3.4
<b>Segmentation of Cell Nuclei using Intensity-Based Model Fitting and Sequential Convex Programming</b> .....	654-657
Kostykin, Leonid* ( <i>University of Heidelberg and DKFZ Heidelberg</i> ); Schnörr, Christoph ( <i>University of Heidelberg</i> ); Rohr, Karl ( <i>University of Heidelberg and DKFZ Heidelberg</i> )	



11:00-11:15 FrS1T3.5  
**Voting-Based Segmentation of Overlapping Nuclei in CLARITY Images** ..... 658-662  
 Quachtran, Benjamin (*University of California, Los Angeles*); de la Torre Ubieta, Luis (*University of California, Los Angeles*); Yusupova, Marianna (*University of California, San Diego*); Geschwind, Daniel H. (*University of California, Los Angeles*); Shattuck, David W.\* (*University of California, Los Angeles*)

FrS1T4: 10:00-11:30	Congressional Room
<b>Image Reconstruction II (Oral Session)</b>	
<b>Chair:</b> Ying, Leslie ( <i>The State University of New York at Buffalo</i> )	
<b>Co-Chair:</b> Ye, Jong Chul ( <i>Korea Advanced Inst of Science and Tech</i> )	

10:00-10:15 FrS1T4.1  
**Robust Autocalibrated LORAKS for EPI Ghost Correction** ..... 663-666  
 Lobos, Rodrigo A.\* (*University of Southern California*); Javed, Ahsan (*University of Southern California*); Nayak, Krishna S. (*University of Southern California*); Hoge, W. Scott (*Brigham and Women's Hospital and Harvard Medical School*); Haldar, Justin P. (*University of Southern California*)

10:15-10:30 FrS1T4.2  
**Improving Image Reconstructions for Simultaneous Multi-Slice Readout-Segmented Diffusion MRI Data with Phase Errors** ..... 667-670  
 HashemizadehKolowri, S.K.\* (*University of Utah*); Chen, Rong-Rong (*University of Utah*); DiBella, Edward V.R. (*University of Utah*); Hsu, Edward W. (*University of Utah*); Ying, Leslie (*University at Buffalo, State University of New York*); Adluru, Ganesh (*University of Utah*)

10:30-10:45 FrS1T4.3  
**Model based Image Reconstruction using Deep Learned Priors (MODL)** ..... 671-674  
 Aggarwal, Hemant Kumar\* (*Univ. of Iowa*); Mani, Merry P. (*Univ. of Iowa*); Jacob, Mathews (*Univ. of Iowa*)

10:45-11:00 FrS1T4.4  
**Probing in Vivo Microstructure with T1-T2 Relaxation Correlation Spectroscopic Imaging** ..... 675-678  
 Kim, Daeun\* (*University of Southern California*); Wisnowski, Jessica L. (*Children's Hospital Los Angeles*); Nguyen, Christopher T. (*Massachusetts General Hospital*); Haldar, Justin P. (*University of Southern California*)

11:00-11:15 FrS1T4.5  
**Denosing and Deinterleaving of EPSI Data using Structured Low-Rank Matrix Recovery** ..... 679-682  
 Bhattacharya, Ipshita (*University of Iowa*); Jacob, Mathews\* (*University of Iowa*)

FrP1O-01: 11:30-12:30	Ambassador Ballroom
<b>Brain Imaging and Analysis II – Poster Session 2 (Poster Session)</b>	

11:30-12:30 FrP1O-01.1  
**A Computational Method for Longitudinal Mapping of Orientation-Specific Expansion of Cortical Surface Area in Infants** ..... 683-686  
 Xia, Jing\* (*Shandong University and University of North Carolina at Chapel Hill*); Zhang, Caiming (*Shandong University*); Wang, Fan (*University of North Carolina at Chapel Hill*); Meng, Yu (*University of North Carolina at Chapel Hill*); Wu, Zhengwang (*University of North Carolina at Chapel Hill*); Wang, Li (*University of North Carolina at Chapel Hill*); Lin, Weili (*University of North Carolina at Chapel Hill*); Shen, Dinggang (*University of North Carolina at Chapel Hill*); Li, Gang (*University of North Carolina at Chapel Hill*)

11:30-12:30 FrP1O-01.2  
**A Deep Learning Framework for Brain Extraction in Humans and Animals with Traumatic Brain Injury** ..... 687-691  
 Roy, Snehashis\* (*Henry Jackson Foundation*); Knutsen, Andrew (*Henry Jackson Foundation and Uniformed Services University of the Health Sciences*); Korotcov, Alexandru (*Henry Jackson Foundation and Uniformed Services University of the Health Sciences*); Bosomtwi, Asamoah (*Henry Jackson Foundation and Uniformed Services University of the Health Sciences*); Dardzinski, Bernard (*Uniformed Services University of the Health Sciences*); Butman, John A. (*National Institute of Health*); Pham, Dzung L. (*Henry Jackson Foundation*)

- 11:30-12:30 FrP1O-01.3  
**A Label-Fusion-Aided Convolutional Neural Network for Isointense Infant Brain Tissue Segmentation** ..... 692-695  
 Li, Tengfei (*The Univ. of Texas MD Anderson Cancer Center*); Zhou, Fan (*Univ. of North Carolina at Chapel Hill*);  
 Zhu, Ziliang (*Univ. of North Carolina at Chapel Hill*); Shu, Hai (*The Univ. of Texas MD Anderson Cancer Center*);  
 Zhu, Hongtu\* (*The Univ. of Texas MD Anderson Cancer Center and Univ. of North Carolina at Chapel Hill*)
- 11:30-12:30 FrP1O-01.4  
**Fetal Cortical Parcellation based on Growth Patterns** ..... 696-699  
 Xia, Jing\* (*Shandong University and University of North Carolina at Chapel Hill*); Zhang, Caiming (*Shandong University*); Wang, Fan (*University of North Carolina at Chapel Hill*); Benkarim, Oualid M. (*Universitat Pompeu Fabra*); Sanroma, Gerard (*Universitat Pompeu Fabra*); Piella, Gemma (*Universitat Pompeu Fabra*); González Ballester, Miguel A. (*Universitat Pompeu Fabra and ICREA*); Hahner, Nadine (*BCNatal, Hospital Clínic and Hospital Sant Joan de Déu*); Eixarch, Elisenda (*BCNatal, Hospital Clínic and Hospital Sant Joan de Déu*); Shen, Dinggang (*University of North Carolina at Chapel Hill*); Li, Gang (*University of North Carolina at Chapel Hill*)
- 11:30-12:30 FrP1O-01.5  
**Dense and Structured Representations of U-Shape Fiber Connectivity in the Central Sulcus** ..... 700-703  
 Pron, A.\* (*Aix-Marseille Université*); Brun, L. (*Aix-Marseille Université*); Deruelle, C. (*Aix-Marseille Université*);  
 Coulon, O. (*Aix-Marseille Université*)
- 11:30-12:30 FrP1O-01.6  
**Construction of Spatiotemporal Infant Cortical Surface Atlas of Rhesus Macaque** ..... 704-707  
 Wang, Fan (*Univ. of North Carolina at Chapel Hill*); Lian, Chunfeng (*Univ. of North Carolina at Chapel Hill*); Xia, Jing (*Univ. of North Carolina at Chapel Hill*); Wu, Zhengwang (*Univ. of North Carolina at Chapel Hill*); Duan, Dingna (*Univ. of North Carolina at Chapel Hill*); Wang, Li (*Univ. of North Carolina at Chapel Hill*); Shen, Dinggang (*Univ. of North Carolina at Chapel Hill*); Li, Gang\* (*Univ. of North Carolina at Chapel Hill*)
- 11:30-12:30 FrP1O-01.7  
**FiberNet 2.0: An Automatic Neural Network based Tool for Clustering White Matter Fibers in the Brain** ..... 708-711  
 Gupta, Vikash\* (*University of Southern California*); Thomopoulos, Sophia I. (*University of Southern California*);  
 Corbin, Conor K. (*University of Southern California*); Rashid, Faisal (*University of Southern California*);  
 Thompson, Paul M. (*University of Southern California*)
- 11:30-12:30 FrP1O-01.8  
**Recognizing Task-Specific Dynamic Structure of the Brain Function from EEG** ..... 712-715  
 Haddad, Ali (*Rutgers, State Univ. of New Jersey*); Najafizadeh, Laleh\* (*Rutgers, State Univ. of New Jersey*)
- 11:30-12:30 FrP1O-01.9  
**Automatic Real-Time CNN-Based Neonatal Brain Ventricles Segmentation** ..... 716-719  
 Wang, Puyang\* (*Rutgers, The State University of New Jersey*); Cuccolo, Nick G. (*Rutgers Robert Wood Johnson Medical School*); Tyagi, Rachana (*Rutgers Robert Wood Johnson Medical School*); Hacihaliloglu, Ilker (*Rutgers, The State University of New Jersey and Rutgers Robert Wood Johnson Medical School*);  
 Patel, Vishal M. (*Rutgers, The State University of New Jersey*)
- 11:30-12:30 FrP1O-01.10  
**Real-Time Automatic Fetal Brain Extraction in Fetal MRI by Deep Learning** ..... 720-724  
 Mohseni Salehi, Seyed Sadegh\* (*Boston Children's Hospital, and Harvard Medical School and Northeastern Univ.*); Hashemi, Seyed Raein (*Boston Children's Hospital, and Harvard Medical School and Northeastern Univ.*); Velasco-Annis, Clemente (*Boston Children's Hospital, and Harvard Medical School*); Ouaalam, Abdelhakim (*Boston Children's Hospital, and Harvard Medical School*); Estroff, Judy A. (*Boston Children's Hospital, and Harvard Medical School*); Erdogmus, Deniz (*Northeastern Univ.*); Warfield, Simon K. (*Boston Children's Hospital, and Harvard Medical School*); Gholipour, Ali (*Boston Children's Hospital, and Harvard Medical School*)
- 11:30-12:30 FrP1O-01.11  
**Combining Phenotypic and Resting-State fMRI Data for Autism Classification with Recurrent Neural Networks** ..... 725-728  
 Dvornek, Nicha C.\* (*Yale School of Medicine*); Ventola, Pamela (*Yale School of Medicine*);  
 Duncan, James S. (*Yale University*)

11:30-12:30	FrP1O-01.12
<b>Evaluating Local Features in High-Resolution 3D-PLI Data</b> .....	729-733
Ali, Sharib* ( <i>University of Heidelberg and DKFZ Heidelberg</i> ); Axer, Markus ( <i>Research Centre Jülich</i> ); Amunts, Katrin ( <i>Research Centre Jülich</i> ); Eils, Roland ( <i>University of Heidelberg and DKFZ Heidelberg</i> ); Rohr, Karl ( <i>University of Heidelberg and DKFZ Heidelberg</i> )	
11:30-12:30	FrP1O-01.13
<b>GAN-Based Synthetic Brain MR Image Generation</b> .....	734-738
Han, Changhee* ( <i>The University of Tokyo</i> ); Hayashi, Hideaki ( <i>Kyushu University</i> ); Rundo, Leonardo ( <i>University of Milano-Bicocca</i> ); Araki, Ryosuke ( <i>Chubu University</i> ); Shimoda, Wataru ( <i>The University of Electro-Communications</i> ); Muramatsu, Shinichi ( <i>Shinshu University</i> ); Furukawa, Yujiro ( <i>Kanto Rosai Hospital</i> ); Mauri, Giancarlo ( <i>University of Milano-Bicocca</i> ); Nakayama, Hideki ( <i>The University of Tokyo</i> )	
11:30-12:30	FrP1O-01.14
<b>Brain MRI Super Resolution using 3D Deep Densely Connected Neural Networks</b> .....	739-742
Chen, Yuhua* ( <i>University of California, Los Angeles and Cedars-Sinai Medical Center</i> ); Xie, Yibin ( <i>Cedars-Sinai Medical Center</i> ); Zhou, Zhengwei ( <i>University of California, Los Angeles and Cedars-Sinai Medical Center</i> ); Shi, Feng ( <i>Cedars-Sinai Medical Center</i> ); Christodoulou, Anthony G. ( <i>Cedars-Sinai Medical Center</i> ); Li, Debiao ( <i>University of California, Los Angeles and Cedars-Sinai Medical Center</i> )	
11:30-12:30	FrP1O-01.15
<b>Towards Optimal Linear Estimation of Orientation Distribution Functions with Arbitrarily Sampled Diffusion MRI Data</b> .....	743-746
Varadarajan, Divya* ( <i>University of Southern California</i> ); Haldar, Justin P. ( <i>University of Southern California</i> )	
11:30-12:30	FrP1O-01.16
<b>Deep Learning of Resting State Networks from Independent Component Analysis</b> .....	747-751
Chou, Yiyu* ( <i>Natl Institute of Health</i> ); Roy, Snehashis ( <i>Natl Institute of Health</i> ); Chang, Catie ( <i>Natl Institutes of Health</i> ); Butman, John A. ( <i>Natl Institute of Health</i> ); Pham, Dzung L. ( <i>Natl Institute of Health</i> )	
11:30-12:30	FrP1O-01.17
<b>Incorporating Temporal Dependency on ERP based BCI</b> .....	752-756
Koçanaoğullari, Aziz* ( <i>Northeastern University</i> ); Quivira, Fernando ( <i>Northeastern University</i> ); Erdoğmuş, Deniz ( <i>Northeastern University</i> )	
11:30-12:30	FrP1O-01.18
<b>Improved Classification in Tactile BCIs using a Noisy Label Model</b> .....	757-761
McLean, James ( <i>Columbia University</i> ); Quivira, Fernando* ( <i>Northeastern University</i> ); Erdoğmuş, Deniz ( <i>Northeastern University</i> )	
11:30-12:30	FrP1O-01.19
<b>Scale-Bundle Spline-Based Non-Rigid Registration for Handling Fissures</b> .....	762-765
Ali, Sharib* ( <i>University of Heidelberg and DKFZ Heidelberg</i> ); Amunts, Katrin ( <i>Research Centre Jülich</i> ); Eils, Roland ( <i>University of Heidelberg and DKFZ Heidelberg</i> ); Axer, Markus ( <i>Research Centre Jülich</i> ); Rohr, Karl ( <i>University of Heidelberg and DKFZ Heidelberg</i> )	
11:30-12:30	FrP1O-01.20
<b>A Time Domain Classification of Steady-State Visual Evoked Potentials using Deep Recurrent-Convolutional Neural Networks</b> .....	766-769
Attia, Mohamed* ( <i>Deakin University</i> ); Hettiarachchi, Imali ( <i>Deakin University</i> ); Hossny, Mohammed ( <i>Deakin University</i> ); Nahavandi, Saeid ( <i>Deakin University</i> )	

FrP1O-02: 11:30-12:30	Ambassador Ballroom
<b>Cancer Imaging and Analysis II – Poster Session 2</b> (Poster Session)	

11:30-12:30	FrP1O-02.1
<b>Active Deep Learning: Improved Training Efficiency of Convolutional Neural Networks for Tissue Classification in Oral Cavity Cancer</b> .....	770-773
Folmsbee, Jonathan* ( <i>Univ. at Buffalo, State Univ. of New York</i> ); Liu, Xulei ( <i>The Mount Sinai Hospital</i> ); Brandwein-Weber, Margaret ( <i>The Mount Sinai Hospital</i> ); Doyle, Scott ( <i>Univ. at Buffalo, State Univ. of New York</i> )	

11:30-12:30	FrP1O-02.2
<b>Diagnostic Classification of Lung Nodules using 3D Neural Networks</b> .....	774-778
Dey, Raunak* ( <i>University of Georgia</i> ); Lu, Zhongjie ( <i>Zhejiang University</i> ); Hong, Yi ( <i>University of Georgia</i> )	
11:30-12:30	FrP1O-02.3
<b>Statistical Correlation of CT Ventilation Imaging and V/Q SPECT in Patients with Lung Cancer</b> .....	779-783
Cha, Jungwon* ( <i>Univ. of Louisville</i> ); Dunlap, Neal ( <i>Univ. of Louisville</i> ); Amini, Amir A. ( <i>Univ. of Louisville</i> )	
11:30-12:30	FrP1O-02.4
<b>Basal Cell Carcinoma Detection in Full Field OCT Images using Convolutional Neural Networks</b> .....	784-787
Mandache, D.* ( <i>Institut Pasteur</i> ); Dalimier, E. ( <i>LLTech</i> ); Durkin, J.R. ( <i>Drexel University College of Medicine</i> ); Boccaro, C. ( <i>LLTech</i> ); Olivo-Marin, J.-C. ( <i>Institut Pasteur</i> ); Meas-Yedid, V. ( <i>Institut Pasteur</i> )	
11:30-12:30	FrP1O-02.5
<b>Tumor Localization using Prone to Supine Surface based Registration for Breast Cancer Surgical Planning</b> .....	788-791
Alfano, F.* ( <i>Universidad Politécnica de Madrid</i> ); Pérez García, F. ( <i>Universidad Politécnica de Madrid and Hospital de Madrid Sanchinarro</i> ); Ortuño Fisac, J.E. ( <i>Universidad Politécnica de Madrid and Hospital de Madrid Sanchinarro</i> ); Herrero Conde, M. ( <i>Hospital de Madrid Sanchinarro</i> ); Bueno Zamora, O. ( <i>Instituto de Investigación Sanitaria Gregorio Marañón</i> ); Calvo, Felipe A. ( <i>Instituto de Investigación Sanitaria Gregorio Marañón</i> ); Lizarraga, S. ( <i>Instituto de Investigación Sanitaria Gregorio Marañón</i> ); Santos, A. ( <i>Universidad Politécnica de Madrid and Hospital de Madrid Sanchinarro</i> ); Pascau, J. ( <i>Instituto de Investigación Sanitaria Gregorio Marañón and Universidad Carlos III de Madrid</i> ); Ledesma-Carbayo, M.J. ( <i>Universidad Politécnica de Madrid and Hospital de Madrid Sanchinarro</i> )	
11:30-12:30	FrP1O-02.6
<b>Preliminary Study of CEDBT and CSM Performances using Simulated Analytical Contrast Uptakes</b> .....	792-795
Sánchez de la Rosa, R.* ( <i>GE Healthcare and Univ. Paris-Saclay</i> ); Carton, A.-K. ( <i>GE Healthcare</i> ); Milioni de Carvalho, P. ( <i>GE Healthcare</i> ); Li, Z. ( <i>GE Healthcare</i> ); Muller, S. ( <i>GE Healthcare</i> ); Bloch, I. ( <i>Univ. Paris-Saclay</i> )	
11:30-12:30	FrP1O-02.7
<b>A Method for Quantification of Calponin Expression in Myoepithelial Cells in Immunohistochemical Images of Ductal Carcinoma in Situ</b> .....	796-799
Gray, Elliot ( <i>Oregon Health and Science University</i> ); Mitchell, Elizabeth ( <i>Oregon Health and Science University</i> ); Jindal, Sonali ( <i>Oregon Health and Science University</i> ); Schedin, Pepper ( <i>Oregon Health and Science University</i> ); Chang, Young Hwan* ( <i>Oregon Health and Science University</i> )	
11:30-12:30	FrP1O-02.8
<b>Deep Multi-Modal Classification of Intraductal Papillary Mucinous Neoplasms (IPMN) with Canonical Correlation Analysis</b> .....	800-804
Hussein, Sarfaraz* ( <i>University of Central Florida</i> ); Kandel, Pujan ( <i>Mayo Clinic</i> ); Corral, Juan E. ( <i>Mayo Clinic</i> ); Bolan, Candice W. ( <i>Mayo Clinic</i> ); Wallace, Michael B. ( <i>Mayo Clinic</i> ); Bagci, Ulas ( <i>University of Central Florida</i> )	
11:30-12:30	FrP1O-02.9
<b>Correlating Cellular Features with Gene Expression using CCA</b> .....	805-808
Subramanian, Vaishnavi* ( <i>University of Illinois at Urbana-Champaign</i> ); Chidester, Benjamin ( <i>Carnegie Mellon University</i> ); Ma, Jian ( <i>Carnegie Mellon University</i> ); Do, Minh N. ( <i>University of Illinois at Urbana-Champaign</i> )	
11:30-12:30	FrP1O-02.10
<b>Collaborative Learning based Feature Adaption Model with Applications on MRI Prostate Boundary Delineation</b> .....	809-812
Wang, Xiuying ( <i>The University of Sydney</i> ); Cui, Hui* ( <i>The University of Sydney</i> ); Zheng, Chaojie ( <i>The University of Sydney</i> ); Zeng, Shan ( <i>Wuhan Polytechnic University</i> ); Tang, Wensi ( <i>The University of Sydney</i> ); Gong, Peng ( <i>Royal Prince Alfred Hospital</i> ); Feng, Dagan ( <i>The University of Sydney and Shanghai Jiao Tong University</i> )	
11:30-12:30	FrP1O-02.11
<b>A Discriminative Learning based Approach for Automated Nasopharyngeal Carcinoma Segmentation Leveraging Multi-Modality Similarity Metric Learning</b> .....	813-816
Ma, Zongqing ( <i>Sichuan University</i> ); Wu, Xi ( <i>Chengdu University of Information Technology</i> ); Sun, Shanhui ( <i>CuraCloud Corporation</i> ); Xia, Chaoyang ( <i>Chengdu University of Information Technology</i> ); Yang, Zhipeng ( <i>Chengdu University of Information Technology</i> ); Li, Shuo ( <i>Western University</i> ); Zhou, Jiliu* ( <i>Sichuan University and Chengdu University of Information Technology</i> )	



11:30-12:30	FrP1O-02.12
<b>Information Theory Optimization based Feature Selection in Breast Mammography Lesion Classification</b> .....	817-821
Uthoff, Johanna ( <i>University of Iowa</i> ); Sieren, Jessica C.* ( <i>University of Iowa</i> )	
11:30-12:30	FrP1O-02.13
<b>Lung Nodule Classification by the Combination of Fusion Classifier and Cascaded Convolutional Neural Networks</b> .....	822-825
Sakamoto, Masaharu* ( <i>IBM Tokyo Laboratory</i> ); Nakano, Hiroki ( <i>IBM Tokyo Laboratory</i> ); Zhao, Kun ( <i>IBM Research - Tokyo</i> ); Sekiyama, Taro ( <i>IBM Research - Tokyo</i> )	
11:30-12:30	FrP1O-02.14
<b>Abbreviated Breast Biopsy Procedure by Registration of Craniocaudal and Mediolateral Breast MR Images</b> .....	826-830
Haarburger, Christoph* ( <i>RWTH Aachen University</i> ); R��ther, Johannes ( <i>RWTH Aachen University</i> ); Truhn, Daniel ( <i>University Hospital Aachen</i> ); Schradring, Simone ( <i>University Hospital Aachen</i> ); Bug, Daniel ( <i>RWTH Aachen University</i> ); Kuhl, Christiane K. ( <i>University Hospital Aachen</i> ); Merhof, Dorit ( <i>RWTH Aachen University</i> )	
11:30-12:30	FrP1O-02.15
<b>Quantum Cascade Laser Infrared Microscopy Differentiates Malignant Phenotypes in Breast Histology Sections</b> .....	831-834
Winkelmaier, Garrett ( <i>University of Nevada, Reno</i> ); Khoshdeli, Mina ( <i>University of Nevada, Reno</i> ); Cheng, Qingsu ( <i>University of Nevada, Reno</i> ); Borowsky, Alexander ( <i>University of California, Davis</i> ); Parvin, Bahram* ( <i>University of Nevada, Reno</i> )	
11:30-12:30	FrP1O-02.16
<b>Radiomics Analysis of Baseline 18F-FDG PET/CT Images for Improved Prognosis in Nasopharyngeal Carcinoma</b> .....	835-838
Lv, Wenbing ( <i>Southern Medical Univ.</i> ); Yuan, Qingyu ( <i>Southern Medical Univ.</i> ); Wang, Quanshi ( <i>Southern Medical Univ.</i> ); Ma, Jianhua ( <i>Southern Medical Univ.</i> ); Feng, Qianjin ( <i>Southern Medical Univ.</i> ); Chen, Wufan ( <i>Southern Medical Univ.</i> ); Rahmim, Arman ( <i>Johns Hopkins Univ.</i> ); Lu, Lijun* ( <i>Southern Medical Univ.</i> )	
11:30-12:30	FrP1O-02.17
<b>Differentiating Tumor Recurrence from Radiation-Induced Necrosis: An Image-Based Mathematical Modeling Framework</b> .....	839-842
Narasimhan, Saramati* ( <i>Vanderbilt University</i> ); Miga, Michael I. ( <i>Vanderbilt University</i> ); Rana, Nitesh ( <i>Vanderbilt University Medical Center</i> ); Johnson, Haley B. ( <i>Wake Forest School of Medicine</i> ); Attia, Albert ( <i>Vanderbilt University Medical Center</i> ); Weis, Jared A. ( <i>Wake Forest School of Medicine</i> )	
11:30-12:30	FrP1O-02.18
<b>Determining the Scale of Image Patches using a Deep Learning Approach</b> .....	843-846
Ot��lora, Sebastian* ( <i>University of Applied Sciences</i> ); Perdomo, Oscar ( <i>Universidad Nacional de Colombia</i> ); Atzori, Manfredo ( <i>University of Applied Sciences</i> ); Andersson, Mats ( <i>ContextVision AB</i> ); Jacobsson, Ludwig ( <i>ContextVision AB</i> ); Hedlund, Martin ( <i>Contextvision AB</i> ); M��ller, Henning ( <i>University of Applied Sciences</i> )	
FrP1O-04: 11:30-12:30	Ambassador Ballroom
<b>Deep Image Segmentation III – Poster Session 2 (Poster Session)</b>	
11:30-12:30	FrP1O-04.1
<b>Adversarial Deep Structured Nets for Mass Segmentation from Mammograms</b> .....	847-850
Zhu, Wentao* ( <i>University of California, Irvine</i> ); Xiang, Xiang ( <i>Johns Hopkins University</i> ); Tran, Trac D. ( <i>Johns Hopkins University</i> ); Hager, Gregory D. ( <i>Johns Hopkins University</i> ); Xie, Xiaohui ( <i>University of California, Irvine</i> )	
11:30-12:30	FrP1O-04.2
<b>Automatic Knee Cartilage Segmentation using Fully Volumetric Convolutional Neural Networks for Evaluation of Osteoarthritis</b> .....	851-854
Raj, Archit* ( <i>Samsung R&amp;D Institute India Bangalore Pvt. Ltd.</i> ); Viswanathan, Srikrishnan ( <i>Samsung R&amp;D Institute India Bangalore Pvt. Ltd.</i> ); Ajani, Bhavya ( <i>Samsung R&amp;D Institute India Bangalore Pvt. Ltd.</i> ); Krishnan, Karthik ( <i>Samsung R&amp;D Institute India Bangalore Pvt. Ltd.</i> ); Agarwal, Harsh ( <i>Samsung R&amp;D Institute India Bangalore Pvt. Ltd.</i> )	



11:30-12:30	FrP1O-04.3
<b>Deep Patch-Based Priors under a Fully Convolutional Encoder-Decoder Architecture for Interstitial Lung Disease Segmentation</b> .....	855-858
Vakalopoulou, M.* ( <i>Université Paris-Saclay</i> ); Chassagnon, G. ( <i>Université Paris-Saclay and Université Paris Descartes</i> ); Paragios, N. ( <i>Université Paris-Saclay and TheraPanacea</i> ); Revel, M.-P. ( <i>Université Paris Descartes</i> ); Zacharaki, E.I. ( <i>University of Patras and Université Paris-Saclay</i> )	
11:30-12:30	FrP1O-04.4
<b>Adversarial Learning with Multi-Scale Loss for Skin Lesion Segmentation</b> .....	859-863
Xue, Yuan* ( <i>Lehigh University</i> ); Xu, Tao ( <i>Lehigh University</i> ); Huang, Xiaolei ( <i>Lehigh University</i> )	
11:30-12:30	FrP1O-04.5
<b>Comparison of Regularization Techniques for DCNN-Based Abdominal Aortic Aneurysm Segmentation</b> .....	864-867
López-Linares, Karen* ( <i>Vicomtech and Univ. Pompeu Fabra</i> ); Lete, Nerea ( <i>Vicomtech</i> ); Kabongo, Luis ( <i>Vicomtech</i> ); Ceresa, Mario ( <i>Univ. Pompeu Fabra</i> ); Maclair, Gregory ( <i>Vicomtech</i> ); García-Familiar, Ainhoa ( <i>Hospital Univ. Donostia</i> ); Macía, Iván ( <i>Vicomtech</i> ); González Ballester, Miguel Ángel ( <i>Univ. Pompeu Fabra and ICREA</i> )	
11:30-12:30	FrP1O-04.6
<b>A Deep Learning Approach to Spine Segmentation using a Feed-Forward Chain of Pixel-Wise Convolutional Networks</b> .....	868-871
Whitehead, William* ( <i>Univ. of California, Los Angeles</i> ); Moran, Steven ( <i>Univ. of California, Los Angeles</i> ); Gaonkar, Bilwaj ( <i>Univ. of California, Los Angeles</i> ); Macyszyn, Luke ( <i>Univ. of California, Los Angeles</i> ); Iyer, Subramanian ( <i>Univ. of California, Los Angeles</i> )	
11:30-12:30	FrP1O-04.7
<b>Universal Multi-Modal Deep Network for Classification and Segmentation of Medical Images</b> .....	872-876
Harouni, Ahmed* ( <i>IBM Almaden Research Center</i> ); Karargyris, Alexandros ( <i>IBM Almaden Research Center</i> ); Negahdar, Mohammadreza ( <i>IBM Almaden Research Center</i> ); Beymer, David ( <i>IBM Almaden Research Center</i> ); Syeda-Mahmood, Tanveer ( <i>IBM Almaden Research Center</i> )	
11:30-12:30	FrP1O-04.8
<b>Deep Auto-Context Fully Convolutional Neural Network for Skin Lesion Segmentation</b> .....	877-880
Mirikharaji, Zahra* ( <i>Simon Fraser University</i> ); Izadi, Saeed ( <i>Simon Fraser University</i> ); Kawahara, Jeremy ( <i>Simon Fraser University</i> ); Hamarneh, Ghassan ( <i>Simon Fraser University</i> )	
11:30-12:30	FrP1O-04.9
<b>Generative Adversarial Networks to Segment Skin Lesions</b> .....	881-884
Izadi, Saeed* ( <i>Simon Fraser University</i> ); Mirikharaji, Zahra ( <i>Simon Fraser University</i> ); Kawahara, Jeremy ( <i>Simon Fraser University</i> ); Hamarneh, Ghassan ( <i>Simon Fraser University</i> )	
11:30-12:30	FrP1O-04.10
<b>Semi-Supervised Learning for Pelvic MR Image Segmentation based on Multi-Task Residual Fully Convolutional Networks</b> .....	885-888
Feng, Zishun ( <i>Tsinghua University and University of North Carolina at Chapel Hill</i> ); Nie, Dong* ( <i>University of North Carolina at Chapel Hill</i> ); Wang, Li ( <i>University of North Carolina at Chapel Hill</i> ); Shen, Dinggang ( <i>University of North Carolina at Chapel Hill</i> )	
11:30-12:30	FrP1O-04.11
<b>Orchestral Fully Convolutional Networks for Small Lesion Segmentation in Brain MRI</b> .....	889-892
Xu, Botian ( <i>Children's Hospital Los Angeles and University of Southern California</i> ); Chai, Yaqiong ( <i>Children's Hospital Los Angeles and University of Southern California</i> ); Galarza, Cristina M. ( <i>Children's Hospital Los Angeles and University of Southern California</i> ); Vu, Chau Q. ( <i>Children's Hospital Los Angeles and University of Southern California</i> ); Tamrazi, Benita ( <i>Children's Hospital Los Angeles</i> ); Gaonkar, Bilwaj ( <i>University of California, Los Angeles</i> ); Macyszyn, Luke ( <i>University of California, Los Angeles</i> ); Coates, Thomas D. ( <i>Children's Hospital Los Angeles</i> ); Lepore, Natasha* ( <i>Children's Hospital Los Angeles and University of Southern California</i> ); Wood, John C. ( <i>Children's Hospital Los Angeles</i> )	
11:30-12:30	FrP1O-04.12
<b>Fully Automatic Segmentation of Lumbar Vertebrae from CT Images using Cascaded 3D Fully Convolutional Networks</b> .....	893-897
Janssens, Rens ( <i>University of Bern</i> ); Zeng, Guodong ( <i>University of Bern</i> ); Zheng, Guoyan* ( <i>University of Bern</i> )	

11:30-12:30 FrP1O-04.13  
**Echocardiography Segmentation based on a Shape-Guided Deformable Model Driven by a Fully Convolutional Network Prior** ..... 898-902  
 Veni, Gopalkrishna (*IBM Almaden Research Center*); Moradi, Mehdi\* (*IBM Almaden Research Center*); Bulu, Hakan (*IBM Almaden Research Center*); Narayan, Girish (*IBM Almaden Research Center*); Syeda-Mahmood, Tanveer (*IBM Almaden Research Center*)

11:30-12:30 FrP1O-04.14  
**Medical Image Segmentation based on Multi-Modal Convolutional Neural Network: Study on Image Fusion Schemes** ..... 903-907  
 Guo, Zhe (*Harvard Medical School and Beijing Institute of Technology*); Li, Xiang\* (*Harvard Medical School*); Huang, Heng (*Univ. of Pittsburgh*); Guo, Ning (*Harvard Medical School*); Li, Quanzheng (*Harvard Medical School*)

FrP1O-05: 11:30-12:30	Ambassador Ballroom
<b>Microscopic Imaging and Analysis II – Poster Session 2 (Poster Session)</b>	

11:30-12:30 FrP1O-05.1  
**Deep Compressive Macroscopic Fluorescence Lifetime Imaging** ..... 908-911  
 Yao, Ruoyang (*Rensselaer Polytechnic Institute*); Ochoa, Marien (*Rensselaer Polytechnic Institute*); Intes, Xavier (*Rensselaer Polytechnic Institute*); Yan, Pingkun\* (*Rensselaer Polytechnic Institute*)

11:30-12:30 FrP1O-05.2  
**NeuroBFD: Size-Independent Automated Classification of Neurons using Conditional Distributions of Morphological Features** ..... 912-915  
 Batabyal, Tamal\* (*Univ. of Virginia*); Vaccari, Andrea (*Univ. of Virginia*); Acton, Scott T. (*Univ. of Virginia*)

11:30-12:30 FrP1O-05.3  
**Detection of Epithelial versus Mesenchymal Regions in 2D Images of Tumor Biopsies using Shearlets** .... 916-920  
 Li, Yiran\* (*Univ. of Maryland, College Park*); Lockett, Stephen J. (*NCI at Frederick*); Kinders, Robert J. (*Laboratory of Human Toxicology and Pharmacology, LBR*); Czaja, Wojciech (*Univ. of Maryland, College Park*)

11:30-12:30 FrP1O-05.4  
**Denosing of Short Exposure Transmission Electron Microscopy Images for Ultrastructural Enhancement** ..... 921-925  
 Bajić, Buda (*University of Novi Sad*); Suveer, Amit\* (*Uppsala University*); Gupta, Anindya (*Tallinn University of Technology*); Pepić, Ivana (*University of Novi Sad*); Lindblad, Joakim (*Uppsala University and Serbian Academy of Sciences and Arts*); Sladoje, Nataša (*Uppsala University and Serbian Academy of Sciences and Arts*); Sintorn, Ida-Maria (*Uppsala University and Vironova AB*)

11:30-12:30 FrP1O-05.5  
**Deep Feature Representation for the Computational Analytics of 3D Neuronal Morphology** ..... 926-929  
 Li, Zhongyu\* (*University of North Carolina at Charlotte*); Fang, Chaowei (*The University of Hong Kong*); Zhang, Shaoting (*University of North Carolina at Charlotte*)

11:30-12:30 FrP1O-05.6  
**Classification of the Fibronectin Variants with Curvelets** ..... 930-933  
 Grapă, Anca-Ioana\* (*Université Côte d'Azur*); Meunier, Raphaël (*Université Côte d'Azur*); Blanc-Féraud, Laure (*Université Côte d'Azur*); Efthymiou, Georgios (*Université Côte d'Azur*); Schaub, Sébastien (*Université Côte d'Azur*); Radwanska, Agata (*Université Côte d'Azur*); van Obberghen-Schilling, Ellen (*Université Côte d'Azur*); Descombes, Xavier (*Université Côte d'Azur*)

11:30-12:30 FrP1O-05.7  
**A New Registration Approach for Dynamic Analysis of Calcium Signals in Organs** ..... 934-937  
 Liang, Peixian\* (*University of Notre Dame*); Chen, Jianxu (*University of Notre Dame*); Brodskiy, Pavel A. (*University of Notre Dame*); Wu, Qinfeng (*University of Notre Dame*); Zhang, Yejia (*University of California, San Diego*); Zhang, Yizhe (*University of Notre Dame*); Yang, Lin (*University of Notre Dame*); Zartman, Jeremiah J. (*University of Notre Dame*); Chen, Danny Z. (*University of Notre Dame*)

11:30-12:30 FrP1O-05.8  
**Bayesian Joint Super-Resolution, Deconvolution, and Denoising of Images with Poisson-Gaussian Noise** ..... 938-942  
 Gao, Q.\* (*Heidelberg University*); Eck, S. (*Heidelberg University and DKFZ Heidelberg*); Matthias, J. (*Max Planck Institute for Medical Research*); Chung, I. (*DKFZ and BioQuant*); Engelhardt, J. (*Max Planck Institute for Medical Research*); Rippe, K. (*DKFZ and BioQuant*); Rohr, K. (*Heidelberg University and DKFZ Heidelberg*)

11:30-12:30	FrP1O-05.9
<b>Dissecting Branchiomotor Neuron Circuits in Zebrafish – Toward High-Throughput Automated Analysis of Jaw Movements</b> .....	943-947
Kassim, Yasmin M.* ( <i>University of Missouri Columbia</i> ); Al-Shakarji, Noor M. ( <i>University of Missouri Columbia</i> ); Asante, Emilia ( <i>University of Missouri Columbia</i> ); Chandrasekhar, Anand ( <i>University of Missouri Columbia</i> ); Palaniappan, K. ( <i>University of Missouri Columbia</i> )	
11:30-12:30	FrP1O-05.10
<b>Semi-Supervised Learning for Cell Tracking in Microscopy Images</b> .....	948-951
Ramesh, Nisha* ( <i>University of Utah</i> ); Tasdizen, Tolga ( <i>University of Utah</i> )	
11:30-12:30	FrP1O-05.11
<b>A Sparse-to-Dense Method for 3D Optical Flow Estimation in 3D Light-Microscopy Image Sequences</b> .....	952-956
Manandhar, Sandeep* ( <i>Inria</i> ); Bouthemy, Patrick ( <i>Inria</i> ); Welf, Erik ( <i>University of Texas Southwestern Medical Center</i> ); Roudot, Philippe ( <i>University of Texas Southwestern Medical Center</i> ); Kervrann, Charles ( <i>Inria</i> )	
11:30-12:30	FrP1O-05.12
<b>Two-Filter Probabilistic Data Association for Tracking of Virus Particles in Fluorescence Microscopy Images</b> .....	957-960
Ritter, Christian* ( <i>University of Heidelberg and DKFZ Heidelberg</i> ); Imle, Andrea ( <i>University Hospital Heidelberg</i> ); Lee, Ji Young ( <i>University Hospital Heidelberg</i> ); Müller, Barbara ( <i>University Hospital Heidelberg</i> ); Fackler, Oliver T. ( <i>University Hospital Heidelberg</i> ); Bartenschlager, Ralf ( <i>University Hospital Heidelberg</i> ); Rohr, Karl ( <i>University of Heidelberg and DKFZ Heidelberg</i> )	
11:30-12:30	FrP1O-05.13
<b>Detection and Tracking of Migrating Oligodendrocyte Progenitor Cells from in Vivo Fluorescence Time-Lapse Imaging Data</b> .....	961-964
Wang, Yinxue ( <i>Virginia Polytechnic Institute and State University</i> ); Ali, Maria ( <i>University of Virginia</i> ); Wang, Yue ( <i>Virginia Polytechnic Institute and State University</i> ); Kucenas, Sarah ( <i>University of Virginia</i> ); Yu, Guoqiang* ( <i>Virginia Polytechnic Institute and State University</i> )	
11:30-12:30	FrP1O-05.14
<b>Combining Morphological and Migration Profiles of in Vitro Time-Lapse Data</b> .....	965-968
Becker, Tim* ( <i>Broad Institute of MIT and Harvard</i> ); Caicedo, Juan C. ( <i>Broad Institute of MIT and Harvard</i> ); Singh, Shantanu ( <i>Broad Institute of MIT and Harvard</i> ); Weckmann, Markus ( <i>Childrens Hospital at the University of Luebeck</i> ); Carpenter, Anne E. ( <i>Broad Institute of MIT and Harvard</i> )	
11:30-12:30	FrP1O-05.15
<b>Generative Spatiotemporal Modeling of Neutrophil Behavior</b> .....	969-972
Pandhe, Narita ( <i>Univ. of Georgia</i> ); Rada, Balazs ( <i>Univ. of Georgia</i> ); Quinn, Shannon* ( <i>Univ. of Georgia</i> )	
11:30-12:30	FrP1O-05.16
<b>Accurate Estimation of Intracellular Dynamics and Underlying Spatial Structures using Hierarchical Trajectory Smoothing</b> .....	973-976
Smal, Ihor* ( <i>Erasmus University Medical Center</i> ); Galjart, Niels ( <i>Erasmus University Medical Center</i> ); Meijering, Erik ( <i>Erasmus University Medical Center</i> )	
11:30-12:30	FrP1O-05.17
<b>Multi-Channel Boosting and Multi-Scale Localization-Based Tracking of Dense Malarial Sporozoites</b> .....	977-980
Jaiswal, Astha* ( <i>University of Heidelberg and DKFZ Heidelberg</i> ); Beyer, Konrad ( <i>Heidelberg University Medical School</i> ); Frischknecht, Friedrich ( <i>Heidelberg University Medical School</i> ); Rohr, Karl ( <i>University of Heidelberg and DKFZ Heidelberg</i> )	
11:30-12:30	FrP1O-05.18
<b>Unsupervised Discovery of Toxoplasma Gondii Motility Phenotypes</b> .....	981-984
Fazli, Mojtaba S. ( <i>University of Georgia</i> ); Vella, Stephen A. ( <i>University of Georgia</i> ); Moreno, Silvia N.J. ( <i>University of Georgia</i> ); Quinn, Shannon* ( <i>University of Georgia</i> )	

11:30-12:30	FrP1O-06.1
<b>Estimation of Shape and Growth Brain Network Atlases for Connectomic Brain Mapping in Developing Infants</b> .....	985-989
Rekik, Islem* ( <i>University of Dundee</i> ); Li, Gang ( <i>University of North Carolina at Chapel Hill</i> ); Lin, Weili ( <i>University of North Carolina at Chapel Hill</i> ); Shen, Dinggang ( <i>University of North Carolina at Chapel Hill</i> )	
11:30-12:30	FrP1O-06.2
<b>Sparse Description of the Cortical Surface Pediatric Development: A Sulcal Pits Study</b> .....	990-993
Kaltenmark, I.* ( <i>Aix-Marseille Univ.</i> ); Brun, L. ( <i>Aix-Marseille Univ.</i> ); Auzias, G. ( <i>Aix-Marseille Univ.</i> ); Lefèvre, J. ( <i>Aix-Marseille Univ.</i> ); Deruelle, C. ( <i>Aix-Marseille Univ.</i> ); Coulon, O. ( <i>Aix-Marseille Univ.</i> )	
11:30-12:30	FrP1O-06.3
<b>Quantitative Analysis and Automatic Classification of Skull Deformity based on Combined Two- and Three-Dimensional Shape Indices</b> .....	994-997
Lee, Min Jin ( <i>Seoul Women's University</i> ); Hong, Helen* ( <i>Seoul Women's University</i> ); Shim, Kyu Won ( <i>Severance Children's Hospital</i> ); Kim, Yong Oock ( <i>Severance Children's Hospital</i> )	
11:30-12:30	FrP1O-06.4
<b>Automatic Extraction of Interdental Gingiva Regions for Accurate Statistical Shape from Shading-Based Reconstruction of Human Jaw</b> .....	998-1001
Ghanoum, Mohamad* ( <i>University of Louisville</i> ); Ali, Asem M. ( <i>University of Louisville</i> ); Elshazly, Salwa ( <i>University of Louisville</i> ); Alkabbany, Islam ( <i>University of Louisville</i> ); Farag, Aly A. ( <i>University of Louisville</i> )	
11:30-12:30	FrP1O-06.5
<b>Polar Appearance Models: A Fully Automatic Approach for Femoral Model Initialization in MRI</b> .....	1002-1005
Pham, D.D.* ( <i>University of Duisburg-Essen</i> ); Morariu, C.A. ( <i>University of Duisburg-Essen</i> ); Terheiden, T. ( <i>University of Duisburg-Essen</i> ); Warwas, S. ( <i>University of Duisburg-Essen</i> ); Landgraeber, S. ( <i>University of Duisburg-Essen</i> ); Jäger, M. ( <i>University of Duisburg-Essen</i> ); Pauli, J. ( <i>University of Duisburg-Essen</i> )	
11:30-12:30	FrP1O-06.6
<b>Shape Analysis and Tracking of Migrating Macrophages</b> .....	1006-1009
Solís-Lemus, José Alonso* ( <i>City, University of London</i> ); Stramer, Brian ( <i>King's College London</i> ); Slabaugh, Greg ( <i>City, University of London</i> ); Reyes-Aldasoro, Constantino Carlos ( <i>City, University of London</i> )	
11:30-12:30	FrP1O-06.7
<b>Estimating Shape Correspondence for Populations of Objects with Complex Topology</b> .....	1010-1013
Fishbaugh, James* ( <i>NYU Tandon School of Engineering</i> ); Pascal, Laura ( <i>Kitware Inc.</i> ); Fischer, Luke ( <i>Univ. of North Carolina School of Dentistry</i> ); Nguyen, Tung ( <i>Univ. of North Carolina School of Dentistry</i> ); Boen, Celso ( <i>Univ. Estadual Paulista Júlio de Mesquita Filho</i> ); Goncalves, Joao ( <i>Univ. Estadual Paulista Júlio de Mesquita Filho</i> ); Gerig, Guido ( <i>NYU Tandon School of Engineering</i> ); Paniagua, Beatriz ( <i>Kitware Inc.</i> )	
11:30-12:30	FrP1O-06.8
<b>4D Continuous Medial Representation by Geodesic Shape Regression</b> .....	1014-1017
Hong, Sungmin* ( <i>NYU Tandon School of Engineering</i> ); Fishbaugh, James ( <i>NYU Tandon School of Engineering</i> ); Gerig, Guido ( <i>NYU Tandon School of Engineering</i> )	

15:15-15:30	FrS2T1.4
<b>Recent Developments in Spectral-Based Ultrasonic Tissue Characterization</b> .....	1018-1021
Coila, Andres ( <i>University of Illinois at Urbana-Champaign</i> ); Torres, Gabriela ( <i>University of North Carolina at Chapel Hill</i> ); Rouyer, Julien ( <i>Aix-Marseille Université</i> ); Aristizabal, Sara ( <i>Mayo Clinic</i> ); Urban, Matthew ( <i>Mayo Clinic</i> ); Lavarello, Roberto* ( <i>Pontificia Universidad Católica del Perú</i> )	



FrS2T2: 14:30-16:00	Empire Room
<b>Deep Image Analysis I</b> (Oral Session)	
<b>Chair:</b> Syeda-Mahmood, Tanveer ( <i>IBM Almaden Research Center</i> )	
<b>Co-Chair:</b> Lay, Nathan ( <i>NIH</i> )	

14:30-14:45 FrS2T2.1  
**Unsupervised Body Part Regression via Spatially Self-Ordering Convolutional Neural Networks** ..... 1022-1025  
 Yan, Ke\* (*National Institutes of Health*); Lu, Le (*National Institutes of Health*);  
 Summers, Ronald M. (*National Institutes of Health*)

14:45-15:00 FrS2T2.2  
**Spatial Temporal GRU ConvNets for Vision-Based Real Time Epileptic Seizure Detection** ..... 1026-1029  
 Fang, Zhou\* (*The Chinese University of Hong Kong*); Leung, Howan (*The Chinese University of Hong Kong and Prince of Wales Hospital*); Choy, Chiu Sing (*The Chinese University of Hong Kong*)

15:00-15:15 FrS2T2.3  
**Data-Driven Fiber Tractography with Neural Networks** ..... 1030-1033  
 Wegmayr, Viktor\* (*ETH Zurich*); Giuliari, Giacomo (*ETH Zurich*); Holdener, Stefan (*ETH Zurich*);  
 Buhmann, Joachim (*ETH Zurich*)

15:15-15:30 FrS2T2.4  
**Automatic Detection of Eloquent Axonal Pathways in Diffusion Tractography using Intracranial Electrical Stimulation Mapping and Convolutional Neural Networks** ..... 1034-1037  
 Xu, Haotian\* (*Wayne State University and Childrens Hospital of Michigan*); Dong, Ming (*Wayne State University*); Nakai, Yasuo (*Wayne State University*); Asano, Eishi (*Wayne State University*);  
 Jeong, Jeong-Won (*Wayne State University and Childrens Hospital of Michigan*)

15:30-15:45 FrS2T2.5  
**Semi-Supervised Learning with Generative Adversarial Networks for Chest X-Ray Classification with Ability of Data Domain Adaptation** ..... 1038-1042  
 Madani, Ali (*IBM Almaden Research Center*); Moradi, Mehdi\* (*IBM Almaden Research Center*); Karargyris, Alexandros (*IBM Almaden Research Center*); Syeda-Mahmood, Tanveer (*IBM Almaden Research Center*)

FrS2T3: 14:30-16:00	Diplomat Room
<b>Brain Image Analysis</b> (Oral Session)	
<b>Chair:</b> Venkataraman, Archana ( <i>Johns Hopkins University</i> )	
<b>Co-Chair:</b> Shen, Li ( <i>University of Pennsylvania</i> )	

14:30-14:45 FrS2T3.1  
**A Novel Framework for Analyzing Cortical Folding Patterns based on Sulcal Baselines and Gyral Crestlines** ..... 1043-1047  
 Ge, Fangfei (*Northwestern Polytechnical Univ. and Univ. of Georgia*); Chen, Hanbo (*Univ. of Georgia and CuraCloud Corporation*); Zhang, Tuo (*Northwestern Polytechnical Univ.*); Wang, Xianqiao (*Univ. of Georgia*);  
 Yuan, Lin (*National Univ. of Defense Technology*); Hu, Xintao\* (*Northwestern Polytechnical Univ.*);  
 Guo, Lei (*Northwestern Polytechnical Univ.*); Liu, Tianming (*Univ. of Georgia*)

14:45-15:00 FrS2T3.2  
**Infant Brain Development Prediction with Latent Partial Multi-View Representation Learning** ..... 1048-1051  
 Zhang, Changqing\* (*Univ. of North Carolina at Chapel Hill and Tianjin Univ.*); Adeli, Ehsan (*Stanford Univ.*);  
 Wu, Zhengwang (*Univ. of North Carolina at Chapel Hill*); Li, Gang (*Univ. of North Carolina at Chapel Hill*);  
 Lin, Weili (*Univ. of North Carolina at Chapel Hill*); Shen, Dinggang (*Univ. of North Carolina at Chapel Hill*)

15:00-15:15 FrS2T3.3  
**Fast and Uncertainty-Aware Cerebral Cortex Morphometry Estimation using Random Forest Regression** .... 1052-1055  
 Suter, Yannick\* (*University of Bern*); Rummel, Christian (*University of Bern*); Wiest, Roland (*University of Bern*);  
 Reyes, Mauricio (*University of Bern*)

15:15-15:30 FrS2T3.4  
**Construction of Spatiotemporal Neonatal Cortical Surface Atlases using a Large-Scale Dataset** ..... 1056-1059  
 Wu, Zhengwang\* (*Univ. of North Carolina at Chapel Hill*); Li, Gang (*Univ. of North Carolina at Chapel Hill*);  
 Wang, Li (*Univ. of North Carolina at Chapel Hill*); Lin, Weili (*Univ. of North Carolina at Chapel Hill*); Gilmore, John H. (*Univ. of North Carolina at Chapel Hill*); Shen, Dinggang (*Univ. of North Carolina at Chapel Hill*)



15:30-15:45 FrS2T3.5  
**White Matter Hyperintensity Segmentation from T1 and FLAIR Images using Fully Convolutional Neural Networks Enhanced with Residual Connections** ..... 1060-1064  
 Jin, Dakai (*National Institutes of Health*); Xu, Ziyue\* (*National Institutes of Health*); Harrison, Adam P. (*National Institutes of Health*); Mollura, Daniel J. (*National Institutes of Health*)

FrS2T4: 14:30-16:00 Congressional Room  
**Image Registration** (Oral Session)  
**Chair:** Kybic, Jan (*Czech Technical University in Prague*)  
**Co-Chair:** Vercauteren, Tom (*University College London (UCL)*)

14:30-14:45 FrS2T4.1  
**Forward-Backward Splitting in Deformable Image Registration: A Demons Approach** ..... 1065-1069  
 Ebner, Michael\* (*Univ. College London*); Modat, Marc (*Univ. College London*); Ferraris, Sebastiano (*Univ. College London*); Ourselin, Sebastien (*Univ. College London*); Vercauteren, Tom (*Univ. College London*)

14:45-15:00 FrS2T4.2  
**Label-Driven Weakly-Supervised Learning for Multimodal Deformable Image Registration** ..... 1070-1074  
 Hu, Yipeng\* (*University College London and University of Oxford*); Modat, Marc (*University College London*); Gibson, Eli (*University College London*); Ghavami, Nooshin (*University College London*); Bonmati, Ester (*University College London*); Moore, Caroline M. (*University College London*); Emberton, Mark (*University College London*); Noble, J. Alison (*University of Oxford*); Barratt, Dean C. (*University College London*); Vercauteren, Tom (*University College London*)

15:00-15:15 FrS2T4.3  
**Non-Rigid Image Registration using Self-Supervised Fully Convolutional Networks without Training Data** ... 1075-1078  
 Li, Hongming (*University of Pennsylvania*); Fan, Yong\* (*University of Pennsylvania*)

15:15-15:30 FrS2T4.4  
**Incremental B-Spline Deformation Model for Geometric Graph Matching** ..... 1079-1082  
 Pinheiro, Miguel Amável (*Czech Technical Univ. in Prague*); Kybic, Jan\* (*Czech Technical Univ. in Prague*)

15:30-15:45 FrS2T4.5  
**Statistically-Constrained Robust Diffeomorphic Registration** ..... 1083-1087  
 Zeng, Ke\* (*University of Pennsylvania*); Sotiras, Aristeidis (*University of Pennsylvania*); Davatzikos, Christos (*University of Pennsylvania*)

FrP2O-03: 16:30-17:30 Ambassador Ballroom  
**Deep Image Analysis III – Poster Session 3** (Poster Session)

16:30-17:30 FrP2O-03.1  
**Prediction of Paravalvular Leak Post Transcatheter Aortic Valve Replacement using a Convolutional Neural Network** ..... 1088-1091  
 Wang, Zih Hwei\* (*Georgia Tech Manufacturing Institute, Piedmont Heart Institute and National Tsing Hua University*); Lahoti, Geet (*Georgia Tech Manufacturing Institute*); Wang, Kan (*Georgia Tech Manufacturing Institute*); Liu, Shizhen (*Piedmont Heart Institute*); Zhang, Chuck (*Georgia Tech Manufacturing Institute*); Wang, Ben (*Georgia Tech Manufacturing Institute*); Wu, Chien Wei (*National Tsing Hua University*); Vannan, Mani (*Piedmont Heart Institute*); Qian, Zhen (*Piedmont Heart Institute*)

16:30-17:30 FrP2O-03.2  
**Cascaded Coarse-to-Fine Convolutional Neural Networks for Pericardial Effusion Localization and Segmentation on CT Scans** ..... 1092-1095  
 Liu, Jiamin\* (*National Institutes of Health*); Cai, Jinzheng (*National Institutes of Health*); Chellamuthu, Karthik (*National Institutes of Health*); Bagheri, Mohammadhadi (*National Institutes of Health*); Lu, Le (*National Institutes of Health*); Summers, Ronald M. (*National Institutes of Health*)

16:30-17:30 FrP2O-03.3  
**Anatomical Data Augmentation for CNN based Pixel-Wise Classification** ..... 1096-1099  
 Ben-Cohen, Avi\* (*Tel Aviv University*); Klang, Eyal (*Sheba Medical Center*); Amitai, Michal Marianne (*Sheba Medical Center*); Goldberger, Jacob (*Bar-Ilan University*); Greenspan, Hayit (*Tel Aviv University*)

16:30-17:30	FrP2O-03.4
<b>Self-Learning to Detect and Segment Cysts in Lung CT Images without Manual Annotation</b> .....	1100-1103
Zhang, Ling* ( <i>National Institutes of Health</i> ); Gopalakrishnan, Vissagan ( <i>National Institutes of Health</i> ); Lu, Le ( <i>National Institutes of Health</i> ); Summers, Ronald M. ( <i>National Institutes of Health</i> ); Moss, Joel ( <i>National Institutes of Health</i> ); Yao, Jianhua ( <i>National Institutes of Health</i> )	
16:30-17:30	FrP2O-03.5
<b>Fully Convolutional Structured LSTM Networks for Joint 4D Medical Image Segmentation</b> .....	1104-1108
Gao, Yang* ( <i>University of Utah</i> ); Phillips, Jeff M. ( <i>University of Utah</i> ); Zheng, Yan ( <i>University of Utah</i> ); Min, Renqiang ( <i>NEC Laboratories America</i> ); Fletcher, P. Thomas ( <i>University of Utah</i> ); Gerig, Guido ( <i>NYU Tandon School of Engineering</i> )	
16:30-17:30	FrP2O-03.6
<b>Joint Learning for Pulmonary Nodule Segmentation, Attributes and Malignancy Prediction</b> .....	1109-1113
Wu, Botong* ( <i>Peking University and Deepwise Inc.</i> ); Zhou, Zhen ( <i>Peking University and Deepwise Inc.</i> ); Wang, Jianwei ( <i>Peking Union Medical College</i> ); Wang, Yizhou ( <i>Peking University</i> )	
16:30-17:30	FrP2O-03.7
<b>Silver Standard Masks for Data Augmentation Applied to Deep-Learning-Based Skull-Stripping</b> .....	1114-1117
Lucena, Oeslle* ( <i>Univ. of Campinas</i> ); Souza, Roberto ( <i>Univ. of Campinas and Univ. of Calgary</i> ); Rittner, Letícia ( <i>Univ. of Campinas</i> ); Frayne, Richard ( <i>Univ. of Calgary</i> ); Lotufo, Roberto ( <i>Univ. of Campinas</i> )	
16:30-17:30	FrP2O-03.8
<b>Multi-Scale Neural Network for Automatic Segmentation of Ischemic Strokes on Acute Perfusion Images</b> .....	1118-1121
Lucas, Christian* ( <i>University of Lübeck</i> ); Kemmling, André ( <i>University Medical Center Schleswig-Holstein</i> ); Madany Mamlouk, Amir ( <i>University of Lübeck</i> ); Heinrich, Mattias P. ( <i>University of Lübeck</i> )	
16:30-17:30	FrP2O-03.9
<b>Inter-Vertebral Disk Modelling from Pairs of Segmented Vertebral Models using Trainable Pre-Processing Networks</b> .....	1122-1125
Shakeri, Mahsa ( <i>Polytechnique Montreal</i> ); Nahle, Imad ( <i>CHU Sainte-Justine Research Center</i> ); Finley, Eric ( <i>NuVasive</i> ); Kadoury, Samuel* ( <i>Polytechnique Montreal and CHU Sainte-Justine Research Center</i> )	
16:30-17:30	FrP2O-03.10
<b>A Multi-Task Framework with Feature Passing Module for Skin Lesion Classification and Segmentation</b> ..	1126-1129
Chen, Sheng ( <i>University of Science and Technology of China</i> ); Wang, Zhe ( <i>SenseTime Group</i> ); Shi, Jianping ( <i>SenseTime Group</i> ); Liu, Bin* ( <i>University of Science and Technology of China</i> ); Yu, Nenghai ( <i>University of Science and Technology of China</i> )	
16:30-17:30	FrP2O-03.11
<b>Understanding Anatomy Classification through Attentive Response Maps</b> .....	1130-1133
Kumar, Devinder* ( <i>University of Waterloo</i> ); Menkovski, Vlado ( <i>Technische Universiteit Eindhoven</i> ); Taylor, Graham W. ( <i>University of Guelph</i> ); Wong, Alexander ( <i>University of Waterloo</i> )	
16:30-17:30	FrP2O-03.12
<b>A Stacked Deep Autoencoder Model for Biomedical Figure Classification</b> .....	1134-1138
Almakky, Ibrahim* ( <i>Coventry University</i> ); Palade, Vasile ( <i>Coventry University</i> ); Hedley, Yih-Ling ( <i>Coventry University</i> ); Yang, Jianhua ( <i>Coventry University</i> )	

FrP2O-05: 16:30-17:30	Ambassador Ballroom
<b>Tracking and Motion Analysis – Poster Session 3</b> (Poster Session)	

16:30-17:30	FrP2O-05.1
<b>Fully Automated Myocardial Strain Estimation from Cine MRI using Convolutional Neural Networks</b> .....	1139-1143
Puyol-Antón, Esther* ( <i>King's College of London</i> ); Ruijsink, Bram ( <i>King's College London and Guy's and St Thomas' Hospital NHS Foundation Trust</i> ); Bai, Wenjia ( <i>Imperial College London</i> ); Langet, Hélène ( <i>Philips Research</i> ); De Craene, Mathieu ( <i>Philips Research</i> ); Schnabel, Julia A. ( <i>King's College London</i> ); Piro, Paolo ( <i>Philips Research</i> ); King, Andrew P. ( <i>King's College London</i> ); Sinclair, Matthew ( <i>Imperial College London</i> )	

16:30-17:30 FrP2O-05.2  
**Using Face and Object Detection to Quantify Looks during Social Interactions** ..... 1144-1148  
Guo, Shengyao\* (*Univ. of California, San Diego*); Ho, Eric (*Univ. of California, San Diego*); Zheng, Yalun (*Univ. of California, San Diego*); Chen, Qiming (*Univ. of California, San Diego*); Meng, Vivian (*Univ. of California, San Diego*); Cao, John (*Univ. of California, San Diego*); Wu, Si (*Univ. of California, San Diego*); Chukoskie, Leanne (*Univ. of California, San Diego*); Cosman, Pamela (*Univ. of California, San Diego*)

16:30-17:30 FrP2O-05.3  
**Unsupervised Analysis of Mouse Social Behaviour Reveals How Hyperactivity Impacts Social Aspects in a Mouse Model of Autism** ..... 1149-1152  
Bauer, Oscar\* (*Institut Pasteur*); Bourgeron, Thomas (*Institut Pasteur*); Olivo-Marin, Jean-Christophe (*Institut Pasteur*); Ey, Elodie (*Institut Pasteur*); de Chaumont, Fabrice (*Institut Pasteur*)

16:30-17:30 FrP2O-05.4  
**Heart Motion Tracking on Cine MRI based on a Deep Boltzmann Machine-Driven Level Set Method** ..... 1153-1156  
Wu, Jian (*Washington Univ. in St. Louis*); Ruan, Su (*Université de Rouen*); Mazur, Thomas R. (*Washington Univ. in St. Louis*); Daniel, Nalini (*Washington Univ. in St. Louis*); Lashmett, Hilary (*Washington Univ. in St. Louis*); Ochoa, Laura (*Washington Univ. in St. Louis*); Zoberi, Imran (*Washington Univ. in St. Louis*); Lian, Chunfeng (*Université de Rouen*); Gach, H. Michael (*Washington Univ. in St. Louis*); Mutic, Sasa (*Washington Univ. in St. Louis*); Thomas, Maria (*Washington Univ. in St. Louis*); Anastasio, Mark A. (*Washington Univ. in St. Louis*); Li, Hua\* (*Washington Univ. in St. Louis*)

16:30-17:30 FrP2O-05.5  
**Automatic Tracking of Multiple Zebrafish Larvae with Resilience against Segmentation Errors** ..... 1157-1160  
Wang, Xiaoying\* (*RMIT University*); Cheng, Eva (*University of Technology Sydney*); Burnett, Ian S. (*University of Technology Sydney*); Wilkinson, Richardt (*RMIT University*); Lech, Margaret (*RMIT University*)

16:30-17:30 FrP2O-05.6  
**Ultrasound Imaging for Identifying Dynamics of Soft Tissue** ..... 1161-1165  
Yamada, Daisuke\* (*Harvard University and Toyota Research Institute North America*); Degirmenci, Alperen (*Harvard University*); Howe, Robert D. (*Harvard University*)

FrP2O-06: 16:30-17:30 Ambassador Ballroom  
**Ultrasound Imaging and Analysis I – Poster Session 3 (Poster Session)**

16:30-17:30 FrP2O-06.1  
**Restoration of Ultrasonic Images using Non-Linear System Identification and Deconvolution** ..... 1166-1169  
Hourani, Mohamad\* (*Université de Toulouse*); Basarab, Adrian (*Université de Toulouse*); Kouamé, Denis (*Université de Toulouse*); Girault, Jean-Marc (*François-Rabelais University of Tours*); Tourneret, Jean-Yves (*Université de Toulouse*)

16:30-17:30 FrP2O-06.2  
**Automatic Kidney Segmentation in 3D Pediatric Ultrasound Images using Deep Neural Networks and Weighted Fuzzy Active Shape Model** ..... 1170-1173  
Tabrizi, Pooneh R.\* (*Children's National Health System*); Mansoor, Awais (*Children's National Health System*); Cerrolaza, Juan J. (*Children's National Health System*); Jago, James (*Philips Healthcare*); Linguraru, Marius George (*Children's National Health System and George Washington University*)

16:30-17:30 FrP2O-06.3  
**Simulating Patho-Realistic Ultrasound Images using Deep Generative Networks with Adversarial Learning** ..... 1174-1177  
Tom, Francis (*Indian Institute of Technology Kharagpur*); Sheet, Debdoot\* (*Indian Institute of Technology Kharagpur*)

16:30-17:30 FrP2O-06.4  
**Multi-Rate Higher Order Singular Value Decomposition for Enhanced Non-Contrast Ultrasound Doppler Imaging of Slow Flow** ..... 1178-1181  
Bayat, Mahdi\* (*Mayo Clinic*); Alizad, Azra (*Mayo Clinic*); Fatemi, Mostafa (*Mayo Clinic*)

16:30-17:30 FrP2O-06.5  
**Direct Strain Estimation in Ultrasound Elastography using a Novel Dynamic Programming Approach** ... 1182-1186  
Khodadadi, Hossein (*Concordia Univ.*); Aghdam, Amir G. (*Concordia Univ.*); Rivaz, Hassan\* (*Concordia Univ.*)

16:30-17:30	FrP2O-06.6
<b>Regularization Methods for Solving Third-Order Volterra Filter with Improved Convergence Speed: in-Vivo Application</b> .....	1187-1190
Cunningham, James ( <i>The Pennsylvania State Univ.</i> ); Zheng, Yi ( <i>The Pennsylvania State Univ.</i> ); Subramanian, Thyagarajan ( <i>The Pennsylvania State Univ.</i> ); Almekkawy, Mohamed* ( <i>The Pennsylvania State Univ.</i> )	
16:30-17:30	FrP2O-06.7
<b>An Intuitive Muscle-Computer Interface using Ultrasound Sensing and Markovian State Transitions</b> .....	1191-1194
Dhawan, Ananya S.* ( <i>George Mason University</i> ); Košecká, Jana ( <i>George Mason University</i> ); Rangwala, Huzefa ( <i>George Mason University</i> ); Sikdar, Siddhartha ( <i>George Mason University</i> )	
16:30-17:30	FrP2O-06.8
<b>Quantification of Cardiac Bull's-Eye Map based on Principal Strain Analysis for Myocardial Wall Motion Assessment in Stress Echocardiography</b> .....	1195-1198
Omar, Hasmla A.* ( <i>Univ. of Oxford</i> ); Domingos, João S. ( <i>Univ. of Oxford</i> ); Patra, Arijit ( <i>Univ. of Oxford</i> ); Upton, Ross ( <i>John Radcliffe Hospital</i> ); Leeson, Paul ( <i>John Radcliffe Hospital</i> ); Noble, J. Alison ( <i>Univ. of Oxford</i> )	
16:30-17:30	FrP2O-06.13
<b>VibroEEG: Improved EEG Source Reconstruction by Combined Acoustic-Electric Imaging</b> .....	1199-1202
Tsizin, E.* ( <i>Tel Aviv University</i> ); Medvedovsky, M. ( <i>Tel-Aviv Sourasky Medical Center</i> ); Bronstein, A. ( <i>Technion - Israel Institute of Technology</i> )	
16:30-17:30	FrP2O-06.14
<b>Automatic Needle Localization in 3D Ultrasound Images for Brachytherapy</b> .....	1203-1207
Younes, Hatem* ( <i>University Grenoble Alpes</i> ); Voros, Sandrine ( <i>University Grenoble Alpes</i> ); Troccaz, Jocelyne ( <i>University Grenoble Alpes</i> )	

## Saturday, 7 April 2018

SaAT1: 10:00-11:30	Palladian Room
<b>Smart Imaging Systems</b> (Special Session)	
<b>Chair:</b> Ravishankar, Saiprasad ( <i>University of Michigan</i> )	
<b>Co-Chair:</b> Ongie, Greg ( <i>University of Michigan</i> )	

10:15-10:30	SaAT1.2
<b>Deep Dictionary-Transform Learning for Image Reconstruction</b> .....	1208-1212
Ravishankar, Saiprasad* ( <i>University of Michigan</i> ); Lahiri, Anish ( <i>University of Michigan</i> ); Blocker, Cameron ( <i>University of Michigan</i> ); Fessler, Jeffrey A. ( <i>University of Michigan</i> )	

11:00-11:15	SaAT1.5
<b>MLS: Joint Manifold-Learning and Sparsity-Aware Framework for Highly Accelerated Dynamic Magnetic Resonance Imaging</b> .....	1213-1216
Nakarmi, Ukash ( <i>University at Buffalo, State University of New York</i> ); Slavakis, Konstantinos ( <i>University at Buffalo, State University of New York</i> ); Ying, Leslie* ( <i>University at Buffalo, State University of New York</i> )	

SaAT2: 10:00-11:30	Empire Room
<b>Deep Image Segmentation II</b> (Oral Session)	
<b>Chair:</b> de Bruijne, Marleen ( <i>Erasmus MC - University Medical Center Rotterdam</i> )	
<b>Co-Chair:</b> Liu, Jiamin ( <i>NIH</i> )	

10:00-10:15	SaAT2.1
<b>Adversarial Synthesis Learning Enables Segmentation without Target Modality Ground Truth</b> .....	1217-1220
Huo, Yuankai* ( <i>Vanderbilt University</i> ); Xu, Zhoubing ( <i>Vanderbilt University</i> ); Bao, Shunxing ( <i>Vanderbilt University</i> ); Assad, Albert ( <i>Incyte Corporation</i> ); Abramson, Richard G. ( <i>Vanderbilt University</i> ); Landman, Bennett A. ( <i>Vanderbilt University</i> )	



10:15-10:30 SaAT2.2  
**Deep Multi-Task and Task-Specific Feature Learning Network for Robust Shape Preserved Organ Segmentation** ..... 1221-1224  
 Tan, Chaowei\* (*Rutgers, the State University of New Jersey*); Zhao, Liang (*Siemens Healthcare*); Yan, Zhennan (*Siemens Healthcare*); Li, Kang (*Rutgers, the State University of New Jersey*); Metaxas, Dimitris (*Rutgers, The State University of New Jersey*); Zhan, Yiqiang (*Siemens Healthcare*)

10:30-10:45 SaAT2.3  
**ISOODL: Instance Segmentation of Overlapping Biological Objects using Deep Learning** ..... 1225-1229  
 Böhm, Anton\* (*University of Freiburg*); Ücker, Annekathrin (*University of Freiburg and University of Witten/Herdecke*); Jäger, Tim (*University of Freiburg, University of Witten/Herdecke and University of Bern*); Ronneberger, Olaf (*University of Freiburg and DeepMind*); Falk, Thorsten (*University of Freiburg*)

10:45-11:00 SaAT2.4  
**Deep LOGISMOS: Deep Learning Graph-Based 3D Segmentation of Pancreatic Tumors on CT Scans** ... 1230-1233  
 Guo, Zhihui (*University of Iowa*); Zhang, Ling\* (*National Institutes of Health*); Lu, Le (*National Institutes of Health*); Bagheri, Mohammadhadi (*National Institutes of Health*); Summers, Ronald M. (*National Institutes of Health*); Sonka, Milan (*University of Iowa*); Yao, Jianhua (*National Institutes of Health*)

11:00-11:15 SaAT2.5  
**Global Probabilistic Models for Enhancing Segmentation with Convolutional Networks** ..... 1234-1238  
 Fan, Mengran\* (*University of Oxford*); Rittscher, Jens (*University of Oxford*)

SaAT3: 10:00-11:30	Diplomat Room
<b>Functional Brain Imaging</b> (Oral Session)	
<b>Chair:</b> Ciuciu, Philippe ( <i>CEA</i> )	
<b>Co-Chair:</b> Weller, Daniel ( <i>University of Virginia</i> )	

10:00-10:15 SaAT3.1  
**Graph Spleians to Strike a Balance between Local and Global Network Interactions: Application to Functional Brain Imaging** ..... 1239-1243  
 Bolton, Thomas A.W.\* (*École Polytechnique Federale de Lausanne and University of Geneva*); Farouj, Younes (*École Polytechnique Federale de Lausanne and University of Geneva*); Obertino, Silvia (*University of Verona*); Van De Ville, Dimitri (*École Polytechnique Federale de Lausanne and University of Geneva*)

10:15-10:30 SaAT3.2  
**The Model Order Limit: Deep Sparse Factorization for Resting Brain** ..... 1244-1247  
 Dash, Debadatta\* (*Indian Institute of Technology Mandi*); Abrol, Vinayak (*Indian Institute of Technology Mandi*); Sao, Anil Kumar (*Indian Institute of Technology Mandi*); Biswal, Bharat (*New Jersey Institute of Technology*)

10:30-10:45 SaAT3.3  
**Spatially Regularized Wavelet Leader Scale-Free Analysis of fMRI Data** ..... 1248-1251  
 Wendt, Herwig (*Univ. of Toulouse*); Abry, Patrice (*Univ. de Lyon*); Ciuciu, Philippe\* (*Univ. Paris Saclay*)

10:45-11:00 SaAT3.4  
**2-Channel Convolutional 3D Deep Neural Network (2CC3D) for fMRI Analysis: ASD Classification and Feature Learning** ..... 1252-1255  
 Li, Xiaoxiao\* (*Yale Univ.*); Dvornek, Nicha C. (*Yale School of Medicine*); Papademetris, Xenophon (*Yale School of Medicine*); Zhuang, Juntang (*Yale Univ.*); Staib, Lawrence H. (*Yale Univ. and Yale School of Medicine*); Ventola, Pamela (*Yale School of Medicine*); Duncan, James S. (*Yale Univ. and Yale School of Medicine*)

11:00-11:15 SaAT3.5  
**Nodal Degree Distributions of Resting-State Functional Brain Modules** ..... 1256-1259  
 Gupta, Sukrit (*Nanyang Technological University*); Rajapakse, Jagath C.\* (*Nanyang Technological University*)

SaAT4: 10:00-11:30	Congressional Room
<b>Computational Imaging</b> (Oral Session)	
<b>Chair:</b> Haldar, Justin ( <i>University of Southern California</i> )	
<b>Co-Chair:</b> Olivo-Marin, Jean-Christophe ( <i>Institut Pasteur</i> )	

10:00-10:15 SaAT4.1  
**Adaptive Structured Low Rank Algorithm for MR Image Recovery** ..... 1260-1263  
 Hu, Yue\* (*Harbin Institute of Technology*); Liu, Xiaohan (*Harbin Institute of Technology*);  
 Jacob, Mathews (*University of Iowa*)

10:15-10:30 SaAT4.2  
**Fast Total Variation based Image Restoration under Mixed Poisson-Gaussian Noise Model** ..... 1264-1267  
 Ghulyani, Manu (*Indian Institute of Science*); Arigovindan, Muthuvel\* (*Indian Institute of Science*)

10:30-10:45 SaAT4.3  
**Phaseless Diffraction Tomography with Regularized Beam Propagation** ..... 1268-1271  
 Pham, Thanh-an\* (*École Polytechnique Fédérale de Lausanne*); Soubies, Emmanuel (*École Polytechnique Fédérale de Lausanne*); Lim, Joowon (*École Polytechnique Fédérale de Lausanne*); Goy, Alexandre (*École Polytechnique Fédérale de Lausanne*); Soulez, Ferréol (*Université de Lyon*); Psaltis, Demetri (*École Polytechnique Fédérale de Lausanne*); Unser, Michael (*École Polytechnique Fédérale de Lausanne*)

10:45-11:00 SaAT4.4  
**Recovery of Point Clouds on Surfaces: Application to Image Reconstruction** ..... 1272-1275  
 Poddar, Sunrita\* (*University of Iowa*); Jacob, Mathews (*University of Iowa*)

11:00-11:15 SaAT4.5  
**An Analytical Fiber ODF Reconstruction in 3D Polarised Light Imaging** ..... 1276-1279  
 Alimi, Abib\* (*Université Côte d'Azur*); Usson, Yves (*Université Grenoble Alpes*); Jouk, Pierre-Simon (*Université Grenoble Alpes*); Michalowicz, Gabrielle (*Université Grenoble Alpes*); Deriche, Rachid (*Université Côte d'Azur*)

SaPO-01: 11:30-12:30	Ambassador Ballroom
<b>Dynamic and Functional Imaging – Poster Session 4</b> (Poster Session)	

11:30-12:30 SaPO-01.1  
**Spatial Sparsification and Low Rank Projection for Fast Analysis of Multi-Subject Resting State fMRI Data** ..... 1280-1283  
 Dash, Debadatta\* (*Indian Institute of Technology Mandi*); Abrol, Vinayak (*Indian Institute of Technology Mandi*);  
 Sao, Anil Kumar (*Indian Institute of Technology Mandi*); Biswal, Bharat (*New Jersey Institute of Technology*)

11:30-12:30 SaPO-01.2  
**Linear Convolution Model of Fetal Circulation for Hemodynamic Responses to Maternal Hyperoxia using in Utero Functional MRI** ..... 1284-1287  
 You, Wonsang\* (*Children's National Medical Center*); Xu, Feng (*Children's National Medical Center*);  
 Limperopoulos, Catherine (*Children's National Medical Center*)

11:30-12:30 SaPO-01.3  
**A Fetal fMRI Specific Motion Correction Algorithm using 2nd Order Edge Features** ..... 1288-1292  
 Scheinost, Dustin\* (*Yale School of Medicine*); Onofrey, John A. (*Yale School of Medicine*); Kwon, Soo H. (*Yale School of Medicine*); Cross, Sarah N. (*Yale School of Medicine*); Sze, Gordon (*Yale School of Medicine*);  
 Ment, Laura R. (*Yale School of Medicine*); Papademetris, Xenophon (*Yale School of Medicine*)

11:30-12:30 SaPO-01.4  
**Imaging and Moving Magnetic Beads with Magnetic Particle Imaging for Targeted Drug Delivery** ..... 1293-1296  
 Griese, Florian\* (*Univ. Medical Center Hamburg-Eppendorf and Hamburg Univ. of Technology*); Ludewig, Peter (*Univ. Medical Center Hamburg-Eppendorf*); Thieben, Florian (*Univ. Medical Center Hamburg-Eppendorf and Hamburg Univ. of Technology*); Gdaniec, Nadine (*Univ. Medical Center Hamburg-Eppendorf and Hamburg Univ. of Technology*); Knopp, Tobias (*Univ. Medical Center Hamburg-Eppendorf and Hamburg Univ. of Technology*)

11:30-12:30 SaPO-01.5  
**High-Resolution Temporal Reconstruction of Ankle Joint from Dynamic MRI** ..... 1297-1300  
 Makki, K.\* (*Inst. Mines Télécom Atlantique*); Borotikar, B. (*Inst. Mines Télécom Atlantique*); Garetier, M. (*LaTIM*);  
 Brochard, S. (*CHRU Brest*); Ben Salem, D. (*CHRU Brest*); Rousseau, F. (*Inst. Mines Télécom Atlantique*)

11:30-12:30		SaPO-01.6
<b>Tracking Diaphragm and Chest Wall Movement on Cine-MRI</b> .....		1301-1304
Yao, Jianhua* ( <i>Natl Institutes of Health</i> ); Zhu, Robert ( <i>Natl Institutes of Health</i> ); Yun, Pomi ( <i>Natl Institutes of Health</i> ); Hsieh, Nathan ( <i>Natl Institutes of Health</i> ); Kovacs, William ( <i>Natl Institutes of Health</i> ); Arai, Andrew E. ( <i>Natl Institute of Health</i> ); Mankodi, Ami ( <i>Natl Institutes of Health</i> ); Summers, Ronald M. ( <i>Natl Institutes of Health</i> ); Foley, A. Reghan ( <i>Natl Institutes of Health</i> ); Bonnemann, Carsten G. ( <i>Natl Institutes of Health</i> )		
11:30-12:30		SaPO-01.7
<b>Cardiac Disease Prediction from Spatio-Temporal Motion Patterns in Cine-MRI</b> .....		1305-1308
Sarmiento, Everson ( <i>Universidad Industrial de Santander</i> ); Pico, Jean ( <i>Universidad Industrial de Santander</i> ); Martinez, Fabio* ( <i>Universidad Industrial de Santander</i> )		
11:30-12:30		SaPO-01.8
<b>Cerebral Blood Flow and Predictors of White Matter Lesions in Adults with Tetralogy of Fallot</b> .....		1309-1312
Chai, Yaqiong ( <i>Children's Hospital of Los Angeles and Univ. of Southern California</i> ); Chen, Jieshen ( <i>Children's Hospital of Los Angeles and Univ. of Southern California</i> ); Galarza, Cristina ( <i>Children's Hospital of Los Angeles and Univ. of Southern California</i> ); Sluman, Maayke A. ( <i>Academic Medical Centre</i> ); Xu, Botian ( <i>Children's Hospital of Los Angeles and Univ. of Southern California</i> ); Vu, Chau Q. ( <i>Children's Hospital of Los Angeles and Univ. of Southern California</i> ); Richard, Edo ( <i>Radboud Univ. Medical Centre</i> ); Mulder, Barbara ( <i>Academic Medical Centre</i> ); Tamrazi, Benita ( <i>Children's Hospital Los Angeles</i> ); Lepore, Natasha ( <i>Children's Hospital of Los Angeles and Univ. of Southern California</i> ); Mutsaerts, Henri J.M.M. ( <i>Univ. of Toronto and Academic Medical Center Amsterdam</i> ); Wood, John C.* ( <i>Children's Hospital Los Angeles</i> )		
11:30-12:30		SaPO-01.9
<b>Long-Term Prediction of <math>\mu</math>ECOG Signals with a Spatio-Temporal Pyramid of Adversarial Convolutional Networks</b> .....		1313-1317
Wang, Ran ( <i>New York University</i> ); Song, Yilin ( <i>New York University</i> ); Wang, Yao* ( <i>New York University</i> ); Viventi, Jonathan ( <i>Duke University</i> )		
11:30-12:30		SaPO-01.10
<b>Leveraging Simulation Data for Learning a Patient-Specific Model to Localize the Origin of Ventricular Activation</b> .....		1318-1322
Alawad, Mohammed* ( <i>Rochester Institute of Technology and King Abdullah International Medical Research Center</i> ); Wang, Linwei ( <i>Rochester Institute of Technology</i> )		
SaPO-04: 11:30-12:30		Ambassador Ballroom
<b>Image Segmentation – Poster Session 4</b> (Poster Session)		
11:30-12:30		SaPO-04.1
<b>Regularized Multi-Label Fast Marching and Application to Whole-Body Image Segmentation</b> .....		1323-1326
Risser, Laurent* ( <i>Université de Toulouse</i> ); Ken, Soléakhéna ( <i>Institut Universitaire du Cancer Toulouse Oncopôle</i> ); Lebreton, Sandra ( <i>Université de Toulouse</i> ); Grossiord, Eloïse ( <i>Institut Universitaire du Cancer Toulouse Oncopôle</i> ); Kanoun, Salim ( <i>Institut Universitaire du Cancer Toulouse Oncopôle</i> ); Malgouyres, François ( <i>Université de Toulouse</i> )		
11:30-12:30		SaPO-04.2
<b>Visualizing the Palisades of Vogt: Limbal Registration by Surface Segmentation</b> .....		1327-1331
Mathai, Tejas Sudharshan* ( <i>Carnegie Mellon University</i> ); Galeotti, John ( <i>Carnegie Mellon University and University of Pittsburgh</i> ); Lathrop, Kira L. ( <i>University of Pittsburgh</i> )		
11:30-12:30		SaPO-04.3
<b>Liver Lesion Segmentation Informed by Joint Liver Segmentation</b> .....		1332-1335
Vorontsov, Eugene* ( <i>École Polytechnique de Montréal and Montreal Institute for Learning Algorithms</i> ); Tang, An ( <i>Centre de recherche du CHUM</i> ); Pal, Chris ( <i>École Polytechnique de Montréal and Montreal Institute for Learning Algorithms</i> ); Kadoury, Samuel ( <i>École Polytechnique de Montréal and Centre de recherche du CHUM</i> )		
11:30-12:30		SaPO-04.4
<b>Tumor Segmentation via Multi-Modality Joint Dictionary Learning</b> .....		1336-1339
Wang, Yan* ( <i>Sichuan Univ.</i> ); Yu, Biting ( <i>Univ. of Wollongong</i> ); Wang, Lei ( <i>Univ. of Wollongong</i> ); Zu, Chen ( <i>Nanjing Univ. of Aeronautics and Astronautics</i> ); Luo, Yong ( <i>West China Hospital</i> ); Wu, Xi ( <i>Chengdu Univ. of Information Technology</i> ); Yang, Zhipeng ( <i>Chengdu Univ. of Information Technology</i> ); Zhou, Jiliu ( <i>Sichuan Univ. and Chengdu Univ. of Information Technology</i> ); Zhou, Luping ( <i>Univ. of Wollongong and Univ. of Sydney</i> )		

11:30-12:30		SaPO-04.5
<b>Rapid Annotation of 3D Medical Imaging Datasets using Registration-Based Interpolation and Adaptive Slice Selection</b> .....		1340-1343
Wang, Hongzhi* ( <i>IBM Almaden Research Center</i> ); Prasanna, Prasanth ( <i>IBM Almaden Research Center</i> ); Syeda-Mahmood, Tanveer ( <i>IBM Almaden Research Center</i> )		
11:30-12:30		SaPO-04.6
<b>Reliability of using Single Specialist Annotation for Designing and Evaluating Automatic Segmentation Methods: A Skull Stripping Case Study</b> .....		1344-1347
Souza, Roberto* ( <i>University of Calgary and Foothills Medical Centre</i> ); Lucena, Oeslle ( <i>University of Campinas</i> ); Bento, Mariana ( <i>University of Calgary and Foothills Medical Centre</i> ); Garrafa, Julia ( <i>University of Campinas</i> ); Appenzeller, Simone ( <i>University of Campinas</i> ); Rittner, Leticia ( <i>University of Campinas</i> ); Lotufo, Roberto ( <i>University of Campinas</i> ); Frayne, Richard ( <i>University of Calgary and Foothills Medical Centre</i> )		
11:30-12:30		SaPO-04.7
<b>Robust Cerebrovascular Segmentation in 4D ASL MRA Images</b> .....		1348-1351
Phellan, Renzo* ( <i>University of Calgary</i> ); Lindner, Thomas ( <i>University Medical Center Schleswig-Holstein</i> ); Helle, Michael ( <i>Philips Technologie GmbH</i> ); Falcão, Alexandre X. ( <i>University of Campinas</i> ); Forkert, Nils D. ( <i>University of Calgary</i> )		
11:30-12:30		SaPO-04.8
<b>An Automatic Random Walk based Method for 3D Segmentation of the Heart in Cardiac Computed Tomography Images</b> .....		1352-1355
Bui, Vy ( <i>National Institutes of Health and The Catholic Univ. of America</i> ); Hsu, Li-Yueh* ( <i>National Institutes of Health</i> ); Chang, Lin-Ching ( <i>The Catholic Univ. of America</i> ); Chen, Marcus Y. ( <i>National Institutes of Health</i> )		
11:30-12:30		SaPO-04.9
<b>Segmentation-by-Detection: A Cascade Network for Volumetric Medical Image Segmentation</b> .....		1356-1359
Tang, Min* ( <i>University of Alberta</i> ); Zhang, Zichen ( <i>University of Alberta</i> ); Cobzas, Dana ( <i>University of Alberta</i> ); Jagersand, Martin ( <i>University of Alberta</i> ); Jaremko, Jacob L. ( <i>University of Alberta</i> )		
11:30-12:30		SaPO-04.10
<b>Stain Independent Segmentation of Whole Slide Images: A Case Study in Renal Histology</b> .....		1360-1364
Gupta, Laxmi* ( <i>RWTH Aachen Univ.</i> ); Klinkhammer, Barbara Mara ( <i>RWTH Aachen Univ.</i> ); Boor, Peter ( <i>RWTH Aachen Univ.</i> ); Merhof, Dorit ( <i>RWTH Aachen Univ.</i> ); Gadermayr, Michael ( <i>RWTH Aachen Univ.</i> )		
11:30-12:30		SaPO-04.11
<b>A Novel MRA Framework based on Integrated Global and Local Analysis for Accurate Segmentation of the Cerebral Vascular System</b> .....		1365-1368
Kandil, Heba ( <i>Mansoura University and University of Louisville</i> ); Soliman, Ahmed ( <i>University of Louisville</i> ); Fraiwan, Luay ( <i>Abu Dhabi University</i> ); Shalaby, Ahmed ( <i>University of Louisville</i> ); Mahmoud, Ali ( <i>University of Louisville</i> ); ElTanboly, Ahmed ( <i>University of Louisville</i> ); Elmaghraby, Adel ( <i>University of Louisville</i> ); Giridharan, Guruprasad ( <i>University of Louisville</i> ); El-Baz, Ayman* ( <i>University of Louisville</i> )		
11:30-12:30		SaPO-04.12
<b>Morphological Operations on Polygons using Straight Skeletons for Digital Pathology</b> .....		1369-1372
González Obando, Daniel Felipe* ( <i>Institut Pasteur</i> ); Olivo-Marin, Jean-Christophe ( <i>Institut Pasteur</i> ); Meas-Yedid, Vannary ( <i>Institut Pasteur</i> )		
11:30-12:30		SaPO-04.13
<b>Model-Dependent Uncertainty Estimation of Medical Image Segmentation</b> .....		1373-1376
Hershkovich, Tsachi ( <i>Ben-Gurion Univ. of the Negev</i> ); Riklin Raviv, Tammy* ( <i>Ben-Gurion Univ. of the Negev</i> )		

SaPO-05: 11:30-12:30

Ambassador Ballroom

**Neuroimaging and Analysis – Poster Session 4** (Poster Session)

11:30-12:30		SaPO-05.1
<b>A Two-Level ICA Approach Reveals Important Differences in the Female Brain Response to Thermal Pain</b> ..		1377-1380
Song, Xiaowei* ( <i>Univ. of Maryland Baltimore County</i> ); Bhingé, Suchita ( <i>Univ. of Maryland Baltimore County</i> ); Quito, Raimi ( <i>Univ. of Maryland Baltimore County</i> ); Adali, Tülay ( <i>Univ. of Maryland Baltimore County</i> )		



11:30-12:30		SaPO-05.2
<b>Using Resting State Functional MRI to Build a Personalized Autism Diagnosis System</b> .....	1381-1385	
Dekhil, Omar ( <i>University of Louisville</i> ); Hajjiadiabe, Hassan ( <i>Abu Dhabi University</i> ); Ayinde, Babajide ( <i>University of Louisville</i> ); Shalaby, Ahmed ( <i>University of Louisville</i> ); Switala, Andy ( <i>University of Louisville</i> ); Sosnin, Dawn ( <i>University of Louisville</i> ); Elshamekh, Aliaa ( <i>University of Louisville</i> ); Ghazal, Mohammed ( <i>University of Louisville and Abu Dhabi University</i> ); Keynton, Robert ( <i>University of Louisville</i> ); Barnes, Gregory ( <i>University of Louisville</i> ); El-Baz, Ayman* ( <i>University of Louisville</i> )		
11:30-12:30		SaPO-05.3
<b>ENIGMA Military Brain Injury: A Coordinated Meta-Analysis of Diffusion MRI from Multiple Cohorts</b> .....	1386-1389	
Dennis, Emily L.* ( <i>Univ. of Southern California and Univ. of California, Los Angeles</i> ); Wilde, Elisabeth A. ( <i>Michael E. DeBakey Veterans Affairs Medical Center, Univ. of Utah and Baylor College of Medicine</i> ); Newsom, Mary R. ( <i>Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine</i> ); Scheibel, Randall S. ( <i>Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine</i> ); Troyanskaya, Maya ( <i>Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine</i> ); Velez, Carmen ( <i>Univ. of Missouri-St. Louis</i> ); Wade, Benjamin S.C. ( <i>Univ. of Missouri-St. Louis and Univ. of California, Los Angeles</i> ); Drennon, Ann Marie ( <i>Defense and Veterans Brain Injury Center</i> ); York, Gerald E. ( <i>Alaska Radiology Associates</i> ); Bigler, Erin D. ( <i>Brigham Young Univ.</i> ); Abildskov, Tracy J. ( <i>Brigham Young Univ.</i> ); Taylor, Brian A. ( <i>Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine</i> ); Jaramillo, Carlos A. ( <i>South Texas Veterans Healthcare System</i> ); Eapen, Blessen ( <i>South Texas Veterans Health Care System</i> ); Belanger, Heather ( <i>James A. Haley Veterans Hospital and Univ. of South Florida</i> ); Gupta, Vikash ( <i>Univ. of Southern California</i> ); Morey, Rajendra ( <i>Duke Univ.</i> ); Haswell, Courtney ( <i>Duke Univ.</i> ); Levin, Harvey S. ( <i>Michael E. DeBakey Veterans Affairs Medical Center and Baylor College of Medicine</i> ); Hinds II, Sidney R. ( <i>United States Army Medical Research and Materiel Command</i> ); Walker, William C. ( <i>Defense and Veterans Brain Injury Center, Virginia Commonwealth Univ. and Hunter Holmes McGuire VAMC</i> ); Thompson, Paul M. ( <i>Univ. of Southern California and Univ. of California, Los Angeles</i> ); Tate, David F. ( <i>Univ. of Missouri-St. Louis</i> )		
11:30-12:30		SaPO-05.4
<b>Relating Connectivity Changes in Brain Networks to Genetic Information in Alzheimer Patients</b> .....	1390-1393	
Elsheikh, S.* ( <i>University of Cape Town</i> ); Chimusa, E.R. ( <i>University of Cape Town</i> ); Mulder, N. ( <i>University of Cape Town</i> ); Crimi, A. ( <i>University Hospital of Zürich and African Institute for Mathematical Sciences</i> )		
11:30-12:30		SaPO-05.5
<b>Deep Fusion Pipeline for Mild Cognitive Impairment Diagnosis</b> .....	1394-1397	
Senanayake, Upul* ( <i>University of New South Wales</i> ); Sowmya, Arcot ( <i>University of New South Wales</i> ); Dawes, Laughlin ( <i>University of New South Wales and Prince of Wales Hospital</i> )		
11:30-12:30		SaPO-05.6
<b>Longitudinal Analysis for Alzheimer's Disease Diagnosis using RNN</b> .....	1398-1401	
Cui, Ruoxuan ( <i>Shanghai Jiao Tong University</i> ); Liu, Manhua* ( <i>Shanghai Jiao Tong University</i> ); Li, Gang ( <i>Shanghai Jiao Tong University</i> )		
11:30-12:30		SaPO-05.7
<b>Multiple Incomplete Views Clustering via Non-Negative Matrix Factorization with its Application in Alzheimer's Disease Analysis</b> .....	1402-1405	
Liu, Kai ( <i>Colorado School of Mines</i> ); Wang, Hua* ( <i>Colorado School of Mines</i> ); Risacher, Shannon ( <i>Indiana University</i> ); Saykin, Andrew ( <i>Indiana University</i> ); Shen, Li ( <i>Indiana University and University of Pennsylvania</i> )		
11:30-12:30		SaPO-05.8
<b>Multi-Task Sparse Screening for Predicting Future Clinical Scores using Longitudinal Cortical Thickness Measures</b> .....	1406-1410	
Zhang, Jie* ( <i>Arizona State University</i> ); Tu, Yanshuai ( <i>Arizona State University</i> ); Li, Qingyang ( <i>Arizona State University</i> ); Caselli, Richard J. ( <i>Mayo Clinic</i> ); Thompson, Paul M. ( <i>University of Southern California</i> ); Ye, Jieping ( <i>University of Michigan</i> ); Wang, Yalin ( <i>Arizona State University</i> )		
11:30-12:30		SaPO-05.9
<b>Longitudinal and Multi-Modal Data Learning for Parkinson's Disease Diagnosis</b> .....	1411-1414	
Huang, Zhongwei ( <i>Shenzhen University</i> ); Lei, Haijun ( <i>Shenzhen University</i> ); Zhao, Yujia ( <i>Shenzhen University</i> ); Zhou, Feng ( <i>University of Michigan</i> ); Yan, Jin ( <i>The University of Texas MD Anderson Cancer Center</i> ); Elazab, Ahmed ( <i>Shenzhen University</i> ); Lei, Baiying* ( <i>Shenzhen University</i> )		

11:30-12:30 SaPO-05.10  
**Statistical Disease Mapping for Heterogeneous Neuroimaging Studies** ..... 1415-1418  
 Liu, Rongjie (*Rice University*); Huang, Chao (*University of North Carolina at Chapel Hill*); Li, Tengfei (*The University of Texas MD Anderson Cancer Center*); Yang, Liuqing (*University of North Carolina at Chapel Hill*); Zhu, Hongtu\* (*University of North Carolina at Chapel Hill and University of Texas MD Anderson Cancer Center*)

11:30-12:30 SaPO-05.11  
**Deep fMRI: An End-to-End Deep Network for Classification of fMRI Data** ..... 1419-1422  
 Riaz, Atif\* (*City, University of London*); Asad, Muhammad (*City, University London*); Al Arif, S.M. Masudur Rahman (*City, University London*); Alonso, Eduardo (*City, University of London*); Dima, Danai (*City, University of London*); Corr, Philip (*City, University of London*); Slabaugh, Greg (*City, University of London*)

SaPO-06: 11:30-12:30	Ambassador Ballroom
<b>Retinal Imaging and Analysis – Poster Session 4 (Poster Session)</b>	

11:30-12:30 SaPO-06.1  
**OCT-NET: A Convolutional Network for Automatic Classification of Normal and Diabetic Macular Edema using SD-OCT Volumes** ..... 1423-1426  
 Perdomo, Oscar\* (*Universidad Nacional de Colombia*); Otálora, Sebastian (*University of Applied Sciences*); González, Fabio A. (*Universidad Nacional de Colombia*); Meriaudeau, Fabrice (*Universiti Teknologi PETRONAS*); Müller, Henning (*University of Applied Sciences*)

11:30-12:30 SaPO-06.2  
**Detection of Diabetic Macular Edema in Optical Coherence Tomography Scans using Patch based Deep Learning** ..... 1427-1430  
 Vahadane, Abhishek (*SigTuple Technologies Pvt. Ltd.*); Joshi, Ameya\* (*SigTuple Technologies Pvt. Ltd.*); Madan, Kiran (*SigTuple Technologies Pvt. Ltd.*); Rai Dastidar, Tathagato (*SigTuple Technologies Pvt. Ltd.*)

11:30-12:30 SaPO-06.3  
**An Integrated Framework for Automatic Clinical Assessment of Diabetic Retinopathy Grade using Spectral Domain OCT Images** ..... 1431-1435  
 EITanboly, Ahmed (*Mansoura University and University of Louisville*); Ghazal, Mohammed (*Abu Dhabi University*); Khalil, Ashraf (*Abu Dhabi University*); Shalaby, Ahmed (*University of Louisville*); Mahmoud, Ali (*University of Louisville*); Switala, Andy (*University of Louisville*); El-Azab, Magdi (*Mansoura University*); Schaal, Shlomit (*University of Massachusetts Medical School*); El-Baz, Ayman\* (*University of Louisville*)

11:30-12:30 SaPO-06.4  
**Retinal Fluid Segmentation in OCT Images using Adversarial Loss based Convolutional Neural Networks** . 1436-1440  
 Tennakoon, Ruwan\* (*RMIT University*); Gostar, Amirali K. (*RMIT University*); Hoseinnezhad, Reza (*RMIT University*); Bab-Hadiashar, Alireza (*RMIT University*)

11:30-12:30 SaPO-06.5  
**A ResNet-Based Universal Method for Speckle Reduction in Optical Coherence Tomography Images** ... N/A  
 Cai, Ning (*Southeast University*); Shi, Fei (*Soochow University*); Gu, Yunbo (*Southeast University*); Hu, Dianlin (*Southeast University*); Chen, Yang\* (*SouthEast University*); Chen, Xinjian (*Soochow University*)

11:30-12:30 SaPO-06.6  
**Multi-Layer Fast Level Set Segmentation for Macular OCT** ..... 1445-1448  
 Liu, Yihao\* (*Johns Hopkins University*); Carass, Aaron (*Johns Hopkins University*); Solomon, Sharon D. (*Johns Hopkins University School of Medicine*); Saidha, Shiv (*Johns Hopkins University School of Medicine*); Calabresi, Peter A. (*Johns Hopkins University School of Medicine*); Prince, Jerry L. (*Johns Hopkins University*)

11:30-12:30 SaPO-06.7  
**Deformable Medical Image Registration using Generative Adversarial Networks** ..... 1449-1453  
 Mahapatra, Dwarikanath\* (*IBM Research - Australia*); Antony, Bhavna (*IBM Research - Australia*); Sedai, Suman (*IBM Research - Australia*); Garnavi, Rahil (*IBM Research - Australia*)

11:30-12:30	SaPO-06.8
<b>Susceptibility to Misdiagnosis of Adversarial Images by Deep Learning based Retinal Image Analysis Algorithms</b> ..... 1454-1457	
Shah, Abhay* ( <i>University of Iowa and IDx LLC</i> ); Lynch, Stephanie ( <i>University of Iowa</i> ); Niemeijer, Meindert ( <i>IDx LLC</i> ); Amelon, Ryan ( <i>IDx LLC</i> ); Clarida, Warren ( <i>IDx LLC</i> ); Folk, James ( <i>University of Iowa</i> ); Russell, Stephen ( <i>University of Iowa</i> ); Wu, Xiaodong ( <i>University of Iowa</i> ); Abramoff, Michael D. ( <i>University of Iowa and IDx LLC</i> )	
11:30-12:30	SaPO-06.9
<b>Retinal Vascular Topology Estimation via Dominant Sets Clustering</b> ..... 1458-1462	
Xie, Jianyang ( <i>Beijing Institute of Technology and Chinese Academy of Sciences</i> ); Zhao, Yitian* ( <i>Beijing Institute of Technology and Chinese Academy of Sciences</i> ); Zheng, Yalin ( <i>University of Liverpool</i> ); Liu, Jiang ( <i>Chinese Academy of Sciences</i> ); Wang, Yongtian ( <i>Beijing Institute of Technology</i> )	
11:30-12:30	SaPO-06.10
<b>Optical Flow Estimation in Ocular Endoscopy Videos using FlowNet on Simulated Endoscopy Data</b> ..... 1463-1466	
Guerre, A.* ( <i>LaTIM and Université de Bretagne Occidentale</i> ); Lamard, M. ( <i>LaTIM and Université de Bretagne Occidentale</i> ); Conze, P.-H. ( <i>LaTIM and IMT Atlantique</i> ); Cochener, B. ( <i>LaTIM, Université de Bretagne Occidentale and CHRU Brest</i> ); Quéllec, G. ( <i>LaTIM</i> )	
11:30-12:30	SaPO-06.11
<b>Weakly Supervised Fluid Filled Region Localization in Retinal OCT Scans</b> ..... 1467-1470	
Athar, ShahRukh ( <i>Skolkovo Institute of Science and Technology</i> ); Vahadane, Abhishek ( <i>SigTuple Technologies</i> ); Joshi, Ameya* ( <i>SigTuple Technologies</i> ); Rai Dastidar, Tathagato ( <i>SigTuple Technologies</i> )	

SaPO-07: 11:30-12:30	Ambassador Ballroom
<b>Ultrasound Imaging and Analysis II – Poster Session 4 (Poster Session)</b>	

11:30-12:30	SaPO-07.1
<b>Enhancement and Automated Segmentation of Ultrasound Knee Cartilage for Early Diagnosis of Knee Osteoarthritis</b> ..... 1471-1474	
Desai, Prajna Ramesh* ( <i>Rutgers, The State University of New Jersey</i> ); Hacihaliloglu, Ilker ( <i>Rutgers, The State University of New Jersey</i> )	
11:30-12:30	SaPO-07.2
<b>SonoEyeNet: Standardized Fetal Ultrasound Plane Detection Informed by Eye Tracking</b> ..... 1475-1478	
Cai, Y.* ( <i>University of Oxford</i> ); Sharma, H. ( <i>University of Oxford</i> ); Chatelain, P. ( <i>University of Oxford</i> ); Noble, J.A. ( <i>University of Oxford</i> )	
11:30-12:30	SaPO-07.3
<b>Auto-Context Fully Convolutional Network for Levator Hiatus Segmentation in Ultrasound Images</b> ..... 1479-1482	
Wang, Na ( <i>Shenzhen Univ.</i> ); Wang, Yi ( <i>Shenzhen Univ.</i> ); Wang, Huifang ( <i>Shenzhen Second People's Hospital</i> ); Lei, Baiying ( <i>Shenzhen Univ.</i> ); Wang, Tianfu ( <i>Shenzhen Univ.</i> ); Ni, Dong* ( <i>Shenzhen Univ.</i> )	
11:30-12:30	SaPO-07.4
<b>A Method of Ultrasound Simulation from Patient-Specific CT Image Data: A Preliminary Simulation Study</b> ... 1483-1486	
Satheesh B, Anila ( <i>Indian Institute of Tech. Madras</i> ); Thittai, Arun K.* ( <i>Indian Institute of Tech. Madras</i> )	
11:30-12:30	SaPO-07.5
<b>Transfer Learning for Diagnosis of Congenital Abnormalities of the Kidney and Urinary Tract in Children based on Ultrasound Imaging Data</b> ..... 1487-1490	
Zheng, Qiang ( <i>University of Pennsylvania, Yantai University and Chinese Academy of Sciences</i> ); Tasian, Gregory ( <i>The Children's Hospital of Philadelphia</i> ); Fan, Yong* ( <i>University of Pennsylvania</i> )	
11:30-12:30	SaPO-07.6
<b>Ultrasound Elastography of Breast Cancer-Related Lymphedema</b> ..... 1491-1495	
Hashemi, H.S. ( <i>Univ. of British Columbia</i> ); Fallone, S. ( <i>Concordia Univ.</i> ); Boily, M. ( <i>Concordia Univ. and McGill Univ. Health Centre</i> ); Towers, A. ( <i>McGill Univ.</i> ); Kilgour, R.D. ( <i>Concordia Univ.</i> ); Rivaz, H.* ( <i>Concordia Univ.</i> )	
11:30-12:30	SaPO-07.7
<b>A Time Domain Method to Monitor Temperature in Microwave Hyperthermia using Ultrasound Attenuation</b> . 1496-1499	
Kothawala, AliArshad ( <i>Indian Institute of Tech. Madras</i> ); Baskaran, Divya ( <i>Indian Institute of Tech. Madras</i> ); Arunachalam, Kavitha ( <i>Indian Institute of Tech. Madras</i> ); Thittai, Arun K.* ( <i>Indian Institute of Tech. Madras</i> )	

11:30-12:30	SaPO-07.8
<b>Scoliosis Screening and Monitoring using Self Contained Ultrasound and Neural Networks</b> .....	1500-1503
Greer, Hastings* ( <i>Kitware Inc.</i> ); Gerber, Sam ( <i>Kitware Inc.</i> ); Niethammer, Marc ( <i>University of North Carolina at Chapel Hill</i> ); Kwitt, Roland ( <i>University of Salzburg</i> ); McCormick, Matt ( <i>Kitware Inc.</i> ); Chittajallu, Deepak ( <i>Kitware Inc.</i> ); Siekierski, Neal ( <i>Kitware Inc.</i> ); Oetgen, Matthew ( <i>Children's National Medical Center</i> ); Cleary, Kevin ( <i>Children's National Medical Center</i> ); Aylward, Stephen ( <i>Kitware Inc.</i> )	
11:30-12:30	SaPO-07.9
<b>Detecting Anomalies from Echocardiography using Multi-View Regression of Clinical Measurements</b> ...	1504-1508
Lu, Allen* ( <i>Yale University</i> ); Dehghan, Ehsan ( <i>IBM Almaden Research Center</i> ); Veni, Gopalkrishna ( <i>IBM Almaden Research Center</i> ); Moradi, Mehdi ( <i>IBM Almaden Research Center</i> ); Syeda-Mahmood, Tanveer ( <i>IBM Almaden Research Center</i> )	
11:30-12:30	SaPO-07.10
<b>End-to-End Detection-Segmentation Network with ROI Convolution</b> .....	1509-1512
Zhang, Zichen* ( <i>Univ. of Alberta</i> ); Tang, Min ( <i>Univ. of Alberta</i> ); Cobzas, Dana ( <i>Univ. of Alberta</i> ); Zonoobi, Dornoosh ( <i>Univ. of Alberta</i> ); Jagersand, Martin ( <i>Univ. of Alberta</i> ); Jaremko, Jacob L. ( <i>Univ. of Alberta</i> )	
11:30-12:30	SaPO-07.11
<b>Automated Ovarian Volume Quantification in Transvaginal Ultrasound</b> .....	1513-1516
Narra, Ravi Teja ( <i>Samsung R&amp;D Institute</i> ); Singhal, Nitin* ( <i>Samsung R&amp;D Institute</i> ); Narayan, Nikhil S. ( <i>Samsung R&amp;D Institute</i> ); Ga, Ramaraju ( <i>Krishna IVF Clinic</i> )	
11:30-12:30	SaPO-07.12
<b>Placental Maturity Grading via Hybrid Descriptors based on Fisher Vector</b> .....	1517-1520
Jiang, Feng ( <i>Shenzhen University</i> ); Ni, Dong ( <i>Shenzhen University</i> ); Chen, Siping ( <i>Shenzhen University</i> ); Yao, Yuan ( <i>Hospital of Nanfang Medical University</i> ); Le, Minh Hung ( <i>Shenzhen University</i> ); Wang, Tianfu ( <i>Shenzhen University</i> ); Lei, Baiying* ( <i>Shenzhen University</i> )	

SaBT2: 14:00-15:30	Empire Room
<b>Deep Image Analysis II</b> (Oral Session)	
<b>Chair:</b> Veta, Mitko ( <i>Eindhoven University of Technology</i> )	
<b>Co-Chair:</b> Yao, Jianhua ( <i>National Institutes of Health</i> )	

14:00-14:15	SaBT2.1
<b>SIPID: A Deep Learning Framework for Sinogram Interpolation and Image Denoising in Low-Dose CT Reconstruction</b> .....	1521-1524
Yuan, Huizhuo ( <i>Peking University</i> ); Jia, Jinzhu ( <i>Peking University</i> ); Zhu, Zhanxing* ( <i>Peking University and Beijing Institute of Big Data Research</i> )	
14:15-14:30	SaBT2.2
<b>Deep Convolutional Neural Network based Screening and Assessment of Age-Related Macular Degeneration from Fundus Images</b> .....	1525-1528
Govindaiah, Arun* ( <i>iHealthScreen Inc.</i> ); Hussain, Md Akter ( <i>iHealthScreen Inc.</i> ); Smith, Roland Theodore ( <i>Icahn School of Medicine at Mount Sinai</i> ); Bhuiyan, Alauddin ( <i>iHealthScreen Inc.</i> )	
14:30-14:45	SaBT2.3
<b>Using Deep Neural Networks for Radiogenomic Analysis</b> .....	1529-1533
Smedley, Nova F.* ( <i>University of California, Los Angeles</i> ); Hsu, William ( <i>University of California, Los Angeles</i> )	
14:45-15:00	SaBT2.4
<b>Automatic Renal Segmentation in DCE-MRI using Convolutional Neural Networks</b> .....	1534-1537
Haghighi, Marzieh* ( <i>Boston Children's Hospital, and Harvard Medical School and Northeastern University</i> ); Warfield, Simon K. ( <i>Boston Children's Hospital, and Harvard Medical School</i> ); Kurugol, Sila ( <i>Boston Children's Hospital, and Harvard Medical School</i> )	
15:00-15:15	SaBT2.5
<b>BCD-Net: A Novel Method for Cartilage Segmentation of Knee MRI via Deep Segmentation Networks with Bone-Cartilage-Complex Modeling</b> .....	1538-1541
Lee, Hansang ( <i>KAIST</i> ); Hong, Helen* ( <i>Seoul Women's University</i> ); Kim, Junmo ( <i>KAIST</i> )	



SaBT3: 14:00-15:30	Diplomat Room
<b>Neuroimage Analysis II (Oral Session)</b>	
<b>Chair:</b> Liu, Tianming ( <i>University of Georgia</i> )	
<b>Co-Chair:</b> Falcao, Alexandre Xavier ( <i>University of Campinas</i> )	

14:00-14:15	SaBT3.1
<b>Multi-Modality Feature Selection with Adaptive Similarity Learning for Classification of Alzheimer's Disease</b> .....	1542-1545
Zu, Chen ( <i>Nanjing Univ. of Aeronautics and Astronautics and Univ. of Wollongong</i> ); Wang, Yan ( <i>Sichuan Univ. and Univ. of Wollongong</i> ); Zhou, Luping ( <i>Univ. of Wollongong and Univ. of Sydney</i> ); Wang, Lei ( <i>Univ. of Wollongong</i> ); Zhang, Daoqiang* ( <i>Nanjing Univ. of Aeronautics and Astronautics</i> )	
14:15-14:30	SaBT3.2
<b>Alzheimer's Disease Diagnosis based on Anatomically Stratified Texture Analysis of the Hippocampus in Structural MRI</b> .....	1546-1549
Feng, Xinyang* ( <i>Columbia University</i> ); Yang, Jie ( <i>Columbia University</i> ); Laine, Andrew F. ( <i>Columbia University</i> ); Angelini, Elsa D. ( <i>Columbia University and Imperial College London</i> )	
14:30-14:45	SaBT3.3
<b>Cross-Cohort Dementia Identification using Transfer Learning with FDG-PET Imaging</b> .....	1550-1554
Lu, Shen* ( <i>The University of Sydney</i> ); Xia, Yong ( <i>Northwestern Polytechnical University</i> ); Cai, Weidong ( <i>The University of Sydney</i> ); Feng, David Dagan ( <i>The University of Sydney</i> ); Fulham, Michael ( <i>Royal Prince Alfred Hospital and University of Sydney</i> )	
14:45-15:00	SaBT3.4
<b>Hippocampus Morphometry Study on Pathology-Confirmed Alzheimer's Disease Patients with Surface Multivariate Morphometry Statistics</b> .....	1555-1559
Wu, Jianfeng ( <i>Arizona State University</i> ); Zhang, Jie ( <i>Arizona State University</i> ); Shi, Jie ( <i>Arizona State University</i> ); Chen, Kewei ( <i>Banner Alzheimer's Institute</i> ); Caselli, Richard J. ( <i>Mayo Clinic</i> ); Reiman, Eric M. ( <i>Banner Alzheimer's Institute</i> ); Wang, Yalin* ( <i>Arizona State University</i> )	
15:00-15:15	SaBT3.5
<b>Regionally Discriminative Multivariate Statistical Mapping</b> .....	1560-1563
Varol, Erdem* ( <i>University of Pennsylvania</i> ); Sotiras, Aristeidis ( <i>University of Pennsylvania</i> ); Davatzikos, Christos ( <i>University of Pennsylvania</i> )	

SaBT4: 14:00-15:30	Congressional Room
<b>Microscopic Image Analysis (Oral Session)</b>	
<b>Chair:</b> Walter, Thomas ( <i>Institut Curie, Mines ParisTech</i> )	
<b>Co-Chair:</b> Tsechpenakis, Gavriil ( <i>Indiana University-Purdue University Indianapolis</i> )	

14:00-14:15	SaBT4.1
<b>Neurite Tracking in Time-Lapse Calcium Images using MRF-Modeled Pictorial Structures</b> .....	1564-1568
Gulyanov, S. ( <i>Indiana University-Purdue University Indianapolis</i> ); He, L. ( <i>Indiana University</i> ); Tracey Jr., W.D. ( <i>Indiana University</i> ); Tsechpenakis, G.* ( <i>Indiana University-Purdue University Indianapolis</i> )	
14:15-14:30	SaBT4.2
<b>3D Ab Initio Modeling in Cryo-EM by Autocorrelation Analysis</b> .....	1569-1573
Levin, Eitan* ( <i>Princeton University</i> ); Bendory, Tamir ( <i>Princeton University</i> ); Boumal, Nicolas ( <i>Princeton University</i> ); Kileel, Joe ( <i>Princeton University</i> ); Singer, Amit ( <i>Princeton University</i> )	
14:30-14:45	SaBT4.3
<b>Multi-Class Classification of Pulmonary Endomicroscopic Images</b> .....	1574-1577
Koujan, Mohammad Rami ( <i>Heriot-Watt University</i> ); Akram, Ahsan ( <i>University of Edinburgh</i> ); McCool, Paul ( <i>University of Edinburgh</i> ); Westerfeld, Jody ( <i>Community South Hospital</i> ); Wilson, David ( <i>Community South Hospital</i> ); Dhaliwal, Kevin ( <i>University of Edinburgh</i> ); McLaughlin, Steve ( <i>Heriot-Watt University</i> ); Perperidis, Antonios* ( <i>Heriot-Watt University and University of Edinburgh</i> )	

14:45-15:00

SaBT4.4

**Learning-Based Long-Range Axon Tracing in Dense Scenes** ..... 1578-1582

Hernandez, Mark (*MIT Lincoln Laboratory*); Brewster, Adam (*MIT Lincoln Laboratory*); Thul, Larry (*MIT Lincoln Laboratory*); Telfer, Brian A. (*MIT Lincoln Laboratory*); Majumdar, Arjun (*MIT Lincoln Laboratory*); Choi, Heejin (*Massachusetts Institute of Technology*); Ku, Taeyun (*Massachusetts Institute of Technology*); Chung, Kwanghun (*Massachusetts Institute of Technology*); Brattain, Laura J.\* (*MIT Lincoln Laboratory*)

15:00-15:15

SaBT4.5

**A Novel Bayesian Graphical Model and Perfect Monte Carlo EM Algorithm for Automated Colocalization Estimation in Multichannel Fluorescence Microscopy** ..... 1583-1587

Radhakrishnan, Thyagarajan\* (*Indian Institute of Technology Bombay*); Reddy, K. Krishna Harsha (*University of Illinois at Urbana-Champaign*); Awate, Suyash P. (*Indian Institute of Technology Bombay*)