17 September 2018, Monday

07:00 – 08:00  MICCAI Running

08:30 – 09:30  Registration

09:30 – 10:00  Opening Session
Federico Garcia Lorca – Main Auditorium

10:00 – 11:00  Oral Session I - Reconstruction and Image Quality
Federico Garcia Lorca – Main Auditorium
Chairs:

10:00-10:15  Adversarial Sparse-View CBCT Artifact Reduction
Haofu Liao*; Zhimin Huo; William Sehnert; S. Kevin Zhou; Jiebo Luo

10:15-10:30  Multi-channel Generative Adversarial Network for Parallel
Magnetic Resonance Image Reconstruction in K-space
Pengyue Zhang*; Fushen Wang; Wei Xu; Yulee Li

10:30-10:45  3D Fetal Skull Reconstruction from 2DUS via Deep Conditional
Generative Networks
Juan J. Cerrolaza*; Yuanwei Li; Carlo Biffi; Alberto Gomez; Matthew
Sinclair; Jacqueline Matthew; Caroline Knight; Bernhard Kainz;
Daniel Rueckert

10:45-10:50  Phase-Sensitive Region-of-Interest Computed Tomography
Lina Felsner*; Martin Berger; Sebastian Kaeppler; Johannes Bopp;
Veronika Ludwig; Thomas Weber; Georg Pelzer; Thilo Michel;
Andreas K Maier; Gisela Anton; Christian Riess

10:50-10:55  Cardiac MR Segmentation from Undersampled k-space using Deep
Latent Representation Learning
Jo Schlemper*; Ozan Oktay; Wenjia Bai; Daniel Coelho de Castro;
Jinming Duan; Chen Qin; Joseph Hajnal; Daniel Rueckert

10:55-11:00  Automatic, Fast and Robust Characterization of Noise Distributions
for Diffusion MRI
Samuel St-Jean*; Alberto De Luca; Max Viergever; Alexander
Leemans

11:00 – 11:30  Coffee Break

11:30 – 12:30  Poster Session I
Reconstruction and Image Quality
Machine Learning and Statistical Analysis

12:30 – 13:30  Keynote 1: Geraldine McGinty

13:30 – 15:00  Lunch / Women at MICCAI Lunch
15:00 – 16:15 **Oral Session II - Machine learning and statistical analysis**  
*Federico Garcia Lorca – Main Auditorium*

**Chairs:**

15:00-15:15 **Concurrent Spatial and Channel 'Squeeze & Excitation' in Fully Convolutional Networks**  
*Abhijit Guha Roy*; *Nassir Navab; Christian Wachinger*

15:15-15:30 **Roto-Translation Covariant Convolutional Networks for Medical Image Analysis**  
*Erik J Bekkers*; *Maxime Lafarge; Mitko Veta; Koen Eppenhof; Josien Pluim; Remco Duits*

15:30-15:45 **Distribution Matching Losses Can Hallucinate Features in Medical Image Translation**  
*Joseph Paul Cohen*; *Margaux Luck; Sina Honari*

15:45-16:00 **Training Medical Image Analysis Systems like Radiologists**  
*Gabriel Maicas*; *Andrew Bradley; Jacinto Nascimento; Ian Reid; Gustavo Carneiro*

16:00-16:15 **Exploring Uncertainty Measures in Deep Networks for Multiple Sclerosis Lesion Detection and Segmentation**  
*Tanya Nair; Doina Precup; Douglas Arnold; Tal Arbel* 

16:15 – 16:45 **Coffee Break**

16:45 – 18:00 **Oral Session III - Registration and Image Guidance**  
*Federico Garcia Lorca – Main Auditorium*

**Chairs:**

16:45-17:00 **Unsupervised Learning for Fast Probabilistic Diffeomorphic Registration**  
*Adrian V Dalca*; *Guha Balakrishnan; John Guttag; Mert Sabuncu*

17:00-17:15 **Adversarial Similarity Network for Evaluating Image Alignment in Deep Learning based Registration**  
*Jingfan Fan*; *Xiaohuan Cao; Zhong Xue; Pew-Thian Yap; Dinggang Shen*

17:15-17:30 **Elastic Registration of Geodesic Vascular Graphs**  
*Stefano Moriconi*; *Maria A. Zuluaga; Rolf Jäger; Parashkev Nachev; Sebastien Ourselin; M. Jorge Cardoso*

17:30-17:45 **Hierarchical Spherical Deformation for Shape Correspondence**  
*Ilwoo Lyu*; *Martin Styner; Bennett A Landman*

17:45-17:50 **Improving Surgical Training Phantoms by Hyperrealism: Deep Unpaired Image-to-Image Translation from Real Surgeries**  
*Sandy Engelhardt*; *Raffale De Simone; Peter M. Full; Matthias Karck; Ivo Wolf*
17:50-17:55 Uncertainty in Multitask Learning: Joint Representations for Probabilistic MR-only Radiotherapy Planning
Felix JS Bragman*; Ryutaro Tanno; Zach Eaton-Rosen; Wenqi Li; David Hawkes; Sebastien Ourselin; Daniel Alexander; Jamie R McClelland; M. Jorge Cardoso

17:55-18:00 A Combined Simulation & Machine Learning Approach for Image-based Force Classification during Robotized Intravitreal Injection
Andrea Mendizabal*; Jan Hermann; Tatiana Fountoukidou; Raphael Sznitman; Stephane Cotin

18:00 – 19:30 Poster Session II
Registration and Image Guidance
Optical and Histology Applications

19:30 Departure to Gala Dinner

20:00 - 23:30 MICCAI 2018 Gala Dinner
18 September 2018, Tuesday

07:00 – 08:00  MICCAI Running

08:30 – 09:30  Registration

09:30 – 11:00  Parallel Oral Sessions IV-A & IV-B

Oral Session IV-A - Optical and Histology Applications
Federico García Lorca – Main Auditorium

Chairs:

09:30-09:45  Instance Segmentation and Tracking with Cosine Embeddings and Recurrent Hourglass Networks
Christian Payer*; Darko Stern; Thomas Neff; Horst Bischof; Martin Urschler

09:45-10:00  A Pixel-wise Distance Regression Approach for Joint Retinal Optical Disc and Fovea Detection
Maria Ines Ferraz Meyer*; Adrian GALDRAN; Ana Maria Mendonça; Aurélio Campilho

10:00-10:15  Predicting Cancer with a Recurrent Visual Attention Model for Histopathology Images
Aicha BenTaieb*; Ghassan Hamarneh

10:15-10:30  Model-based Refinement of Nonlinear Registrations in 3D Histology Reconstruction
Juan Eugenio Iglesias*; Marco Lorenzi; Sebastiano Ferraris; Loic Peter; Marc Modat; Allison Stevens; Bruce Fischl; Tom Vercauteren

10:30-10:45  Adversarial Domain Adaptation for Classification of Prostate Histopathology Whole-Slide Images
Jian Ren*; Ilker Hacihaliloglu; Eric Singer; David Foran; Xin Qi

10:45-11:00  A Cascaded Refinement GAN for Phase Contrast Microscopy Image Super Resolution
Liang Han; Zhaozheng Yin*

Oral Session IV-B - fMRI and Diffusion Imaging
Manuel De Falla Auditorium – Level 1

Chairs:

09:30-09:45  Tract Orientation Mapping for Bundle-Specific Tractography
Jakob Wasserdthal; Peter F Neher; Klaus H. Maier-Hein*

09:45-10:00  A Global Estimation Framework for Asymmetric Fiber Orientation Distributions
Ye Wu*; Yuanjing Feng; Dinggang Shen; Pew-Thian Yap

10:00-10:15  Harmonizing Diffusion MRI Data across Magnetic Field Strengths
Suheyla Cetin Karayumak*; Marek Kubicki; Yogesh Rathi
10:15-10:30  A Region-of-Interest-Reweight 3D Convolutional Neural Network for the Analytics of Brain Information Processing
Xiuyan Ni*; Zhennan Yan; Tingting Wu; Jin Fan; Chao Chen

10:30-10:45  Quantitative Deconvolution of fMRI data with Multiecho Sparse Paradigm Free Mapping
Cesar Caballero-Gaudes*; Stefano Moia; Peter A. Bandettini; Javier Gonzalez-Castillo

10:45-11:00  Brain Decoding from Functional MRI using Long Short-Term Memory Recurrent Neural Networks
Hongming Li*; Yong Fan

11:00 – 11:30  Coffee Break

11:30 – 12:30  Poster Session III
Cardiac, Chest and Abdominal Applications

12:30 – 13:30  Keynote 2: Paolo Dario

13:30 – 15:00  Lunch / Media Editorial Board Lunch

15:00 – 15:30  MICCAI Society Update

15:30 – 16:30  Keynote 3: Kristen Grauman

16:30 – 17:00  Coffee Break

17:00 – 18:15  Parallel Oral Sessions V-A & V-B

Oral Session V-A - Cardiac, Chest and Abdominal applications
Federico Garcia Lorca – Main Auditorium
Chairs:

17:00-17:15  Quantifying Tensor Field Similarity With Global Distributions and Optimal Transport
Arnold Gomez*; Maureen Stone; Philip Bayly; Jerry Prince

17:15-17:30  Factorised Spatial Representation Learning: Application in Semi-supervised Myocardial Segmentation
Agisilaos Chartsias*; Thomas Joyce; Giorgos Papanastasiou; Scott Semple; Michelle Williams; David Newby; Rohan Dharmakumar; Sotirios Tsafataris

17:30-17:45  High-dimensional Bayesian Optimization of Personalized Cardiac Model Parameters via an Embedded Generative Model
Jwala Dhamala*; Sandesh Ghimire; John L. Sapp; Bohumil Milan Horacek; Linwei Wang
17:45-18:00  **TextRay: Mining Clinical Reports to Gain a Broad Understanding of Chest X-rays**  
Jonathan Laserson*; Christine Dan Lantsman; Michal Cohen-Sdady; Itamar Tamir; Eli Goz; Chen Brestel; Shir Bar; Maya Atar; Eldad Elnekave

18:00-18:15  **Task Driven Generative Modeling for Unsupervised Domain Adaptation: Application to X-ray Image Segmentation**  
Yue Zhang*; Shun Miao; Tommaso Mansi; Rui Liao

**Oral Session V-B - Neuroimaging**  
Manuel De Falla Auditorium – Level 1  
Chairs:

17:00-17:15  **Exploratory Population Analysis with Unbalanced Optimal Transport**  
Samuel Gerber*; Marc Niethammer; Martin Styner; Stephen R Aylward

17:15-17:30  **Learning Myelin Content in Multiple Sclerosis from Multimodal MRI through Adversarial Training**  
Wen Wei*; Emilie Poirion; Benedetta Bodini; Stanley Durrleman; Nicholas Ayache; Bruno Stankoff; Olivier Colliot

17:30-17:45  **Generative Discriminative Models for Multivariate Inference and Statistical Mapping in Medical Imaging**  
Erdem Varol*; Aristeidis Sotiras; Ke Zeng; Christos Davatzikos

17:45-18:00  **Using the Anisotropic Laplace Equation to Compute Cortical Thickness**  
Anand Joshi*; Chitresh Bhushan; Ronald Salloum; Jessica Wisnowski; David Shattuck; Richard Leahy

18:00-18:15  **Multi-Label Transduction for Identifying Disease Comorbidity Patterns**  
Ehsan Adeli*; Dongjin Kwon; Kilian Pohl

18:15 – 19:45  **Poster Session IV**  
fmRI and Diffusion Imaging  
Neuroimaging

19:45 – 20:45  **Networking at Posters**
19 September 2018, Wednesday

07:00 – 08:00 MICCAI Running

08:30 – 09:30 Registration

09:30 – 11:00 Oral Session VI - Computer Assisted Intervention
Federico Garcia Lorca – Main Auditorium
Chairs:

09:30-09:45 X-ray-transform Invariant Anatomical Landmark Detection for Pelvic Trauma Surgery
Bastian Bier*; Mathias Unberath; Jan-Nico Zaech; Javad Fotouhi; Mehran Armand; Greg Osgood; Nassir Navab; Andreas K Maier

09:45-10:00 Endoscopic Navigation in the Absence of CT Imaging
Ayushi Sinha*; Xingtong Liu; Austin Reiter; Masaru Ishii; Gregory D. Hager; Russell H. Taylor

10:00-10:15 Spatiotemporal Manifold Prediction Model for Anterior Vertebral Body Growth Modulation Surgery in Idiopathic Scoliosis
William Mandel; Olivier Turcot; Dejan Knez; Stefan Parent; Samuel Kadoury*

10:15-10:30 Evaluating Surgical Skills from Kinematic Data using Convolutional Neural Networks
Hassan Ismail Fawaz*; Germain Forestier; Jonathan Weber; Lhassane Idoumghar; Pierre-Alain Muller

10:30-10:45 Volumetric Clipping Surface: Un-occluded Visualization of Structures Preserving Depth Cues into Surrounding Organs
Bhavya Ajani; Aditya Bharadwaj; Karthik Krishnan*

10:45-10:50 Needle Tip Force Estimation using an OCT Fiber and a Fused convGRU-CNN Architecture
Nils Gessert*; Torben Priegnitz; Thore Saathoff; Sven-Thomas Antoni; David Meyer; Moritz Franz Hamann; Klaus-Peter Jünemann; Christoph Otte; Alexander Schlaefer

10:50-10:55 Closing the Calibration Loop: An Inside-out-tracking Paradigm for Augmented Reality in Orthopedic Surgery
Jonas Hajek; Mathias Unberath*; Javad Fotouhi; Bastian Bier; Sing Chun Lee; Greg Osgood; Andreas K Maier; Mehran Armand; Nassir Navab

10:55-11:00 Higher Order of Motion Magnification for Vessel Localisation in Surgical Video
Mirek Janatka*; Ashwin Sridhar; John Kelly; Danail Stoyanov

11:00 – 11:30 Coffee Break
11:30 – 12:30 Poster Session V
Computer Assisted Intervention
Segmentation

12:30 – 13:30 Keynote 4: Bradley Nelson

13:30 – 15:00 Lunch / IJCARS Editorial Board Lunch

15:00 – 17:00 Oral Session VII - Segmentation
Federico Garcia Lorca – Main Auditorium
Chairs:

15:00-15:15 MS-Net: Mixed-Supervision Fully-Convolutional Networks for Full-Resolution Segmentation
Meet Shah; Shabbir Merchant; Suyash P. Awate*

15:15-15:30 Autofocus Layer for Semantic Segmentation
Yao Qin; Konstantinos Kamnitsas; Siddharth Ancha; Jay Nanavati; Garrison Cottrell; Antonio Criminisi; Aditya Nori*

15:30-15:45 3D Segmentation with Exponential Logarithmic Loss for Highly Unbalanced Object Sizes
Ken C. L. Wong*; Mehdi Moradi; Hui Tang; Tanveer Syeda-Mahmood

15:45-15:50 Revealing Regional Associations of Cortical Folding Alterations with In Utero Ventricular Dilation Using Joint Spectral Embedding
Oualid Benkarim*; Gerard Sanroma; Gemma Piella; Islem Rekik; Nadine Hahner; Elisenda Eixarch; Miguel Angel González Ballester; Dinggang Shen; Gang Li

15:50-15:55 CompNet: Complementary Segmentation Network for Brain MRI Extraction
Raunak Dey*; Yi Hong

15:55-16:00 The Deep Poincaré Map: A Novel Approach for Left Ventricle Segmentation
Yuanhan Mo*; Fangde Liu; Mcilwraith Douglas; Guang Yang; Jingqing Zhang; Taigang He; Yike Guo

16:00-16:15 How to Exploit Weaknesses in Biomedical Challenge Design and Organization
Annika Reinke*; Matthias Eisenmann; Sinan Onogur; Marko Stankovic; Patazick Scholz; Peter Full; Hrvoje Bogunovic; Bennett A Landman; Oskar Maier; Bjoern Menze; Gregory Sharp; Korsuk Sirinukunwattana; Stefanie Speidel; Fons van der Sommen; Guoyan Zheng; Henning Müller; Michal Kozubek; Tal Arbel; Andrew Bradley; Pierre Jannin; Anette Kopp-Schneider

16:15-16:30 Semi-Supervised Learning for Segmentation under Semantic Constraint
Pierre-Antoine Ganaye*; Michael Sdika; Hugues Benoit-Cattin
16:30-16:45  **Training Multi-organ Segmentation Networks with Sample Selection by Relaxed Upper Confident Bound**  
Yan Wang*; Yuyin Zhou; Peng Tang; Wei Shen; Elliot K Fishman; Alan Yuille

16:45-16:50  **Bayesian VoxDRN: A Probabilistic Deep Voxelwise Dilated Residual Network for Whole Heart Segmentation from 3D MR Images**  
Zenglin Shi; Guodong Zeng; Le Zhang; Xiahai Zhuang; Lei Li; Guang Yang; Guoyan Zheng*

16:50-16:55  **Accurate Detection of Inner Ears in Head CTs Using a Deep Volume-to-Volume Regression Network with False Positive Suppression and a Shape-Based Constraint**  
Dongqing Zhang*; Jianing Wang; Jack Noble; Benoit Dawant

16:55-17:00  **Accurate and Robust Segmentation of the Clinical Target Volume for Prostate Brachytherapy**  
Davood Karimi*; Qi Zeng; Prateek Mathur; Apeksha Avinash; Ingrid Spadinger; Sara Mahdavi; Purang Abolmaesumi; Septimiu Salcudean

17:00 – 17:30  **Coffee Break**

17:30 – 18:30  **MICCAI Awards and Closing Ceremony**

19:00 – 20:30  **MICCAI Football + Alhambra Visit (For pre-purchased tickets ONLY)**