

MICCAI 2021 – Oral presentation Schedule (Final)

Tuesday, September 28, 2021

11:00 – 12:30 (UTC)

	Oral Session Tue-Oral-AM-A Label Efficient Learning	Oral Session Tue-Oral-AM-B Surgical Data Science
	Chairs: Darko Stern, Maria A. Zuluaga	Chairs: Sophia Bano, Mingchen Gao
#1	TransPath: Transformer-based Self-supervised Learning for Histopathological Image Classification <i>Xiyue Wang, Sen Yang, Jun Zhang, Minghui Wang, Jing Zhang, Junzhou Huang, Wei Yang, Xiao Han</i>	Surgical Instruction Generation with Transformers <i>Jinglu Zhang, Yinyu Nie, Jian Chang, Jian Jun Zhang</i>
#2	Dual-Consistency Semi-Supervised Learning with Uncertainty Quantification for COVID-19 Lesion Segmentation from CT Images <i>Yanwen Li, Luyang Luo, Huangjing Lin, Hao Chen, Pheng-Ann Heng</i>	Task Fingerprinting for Meta Learning in Biomedical Image Analysis <i>Patrick Godau, Lena Maier-Hein</i>
#3	Self-supervised visual representation learning for histopathological images <i>Pengshuai Yang, Zhiwei Hong, Xiaoxu Yin, Chengzhan Zhu, Rui Jiang</i>	Trans-SVNet: Accurate Phase Recognition from Surgical Videos via Hybrid Embedding Aggregation Transformer <i>Xiaojie Gao, Yueming Jin, Yonghao Long, Qi Dou, Pheng-Ann Heng</i>
#4	Functional Magnetic Resonance Imaging data augmentation through conditional ICA <i>Badr Tajini, Hugo Richard, Bertrand Thirion</i>	Surgical Workflow Anticipation using Instrument Interaction <i>Kun Yuan, Matthew Holden, Shijian Gao, Won-Sook Lee</i>
#5	USCL: Pretraining Deep Ultrasound Image Diagnosis Model through Video Contrastive Representation Learning <i>Yixiong Chen, Chunhui Zhang, Li Liu, Cheng Feng, Changfeng Dong, Yongfang Luo, Xiang Wan</i>	Detection of critical structures in laparoscopic cholecystectomy using label relaxation and self-supervision <i>David Owen, Maria Grammatikopoulou, Imanol Luengo, Danail Stoyanov</i>

Tuesday, September 28, 2021

14:00 – 15:30 (UTC)

Oral Session Tue-Oral-PM-A

Image Registration

Chairs: Hervé Lombaert, Qian Wang

#1

Spectral Embedding Approximation and Descriptor Learning for Craniofacial Volumetric Image Correspondence

Diya Sun, Yungeng Zhang, Yuru Pei, Tianmin Xu, Hongbin Zha

#2

Medical Image Registration Based on Uncoupled Learning and Accumulative Enhancement

Yucheng Shu, Hao Wang, Bin Xiao, Xiuli Bi, Weisheng Li

#3

Conditional Deformable Image Registration with Convolutional Neural Network

Tony C. W. Mok, Albert C. S. Chung

#4

Cross-modal Attention for MRI and Ultrasound Volume Registration

Xinrui Song, Hengtao Guo, Xuanang Xu, Hanqing Chao, Sheng Xu, Baris Turkbey, Bradford J. Wood, Ge Wang, Pingkun Yan

#5

4D-CBCT Registration with a FBCT-derived Plug-and-Play Feasibility Regularizer

Yudi Sang, Dan Ruan

Oral Session Tue-Oral-PM-B

Intervention Planning and Simulation

Chairs: Ehsan Adeli, Samuel Kadoury

A new Approach to Orthopedic Surgery Planning using Deep Reinforcement Learning and Simulation

Joëlle Ackermann, Matthias Wieland, Armando Hoch, Reinhold Ganz, Jess G. Snedeker, Martin R. Oswald, Marc Pollefeys, Patrick O. Zingg, Hooman Esfandiari, Philipp Fürnstahl

High-particle simulation of Monte-Carlo dose distribution with 3D ConvLSTMs

Sonia Martinot, Norbert Bus, Maria Vakalopoulou, Charlotte Robert, Eric Deutsch, Nikos Paragios

Whole Heart Mesh Generation For Image-Based Computational Simulations By Learning Free-From Deformations

Fanwei Kong, Shawn C. Shadden

Rapid treatment planning for low-dose-rate prostate brachytherapy with TP-GAN

Tajwar Abrar Aleef, Ingrid T. Spadinger, Michael D. Peacock, Septimiu E. Salcudean, S. Sara Mahdavi

Deep Simulation of Facial Appearance Changes Following Craniomaxillofacial Bony Movements in Orthognathic Surgical Planning

Lei Ma, Daeseung Kim, Chunfeng Lian, Deqiang Xiao, Tianshu Kuang, Qin Liu, Yankun Lang, Hannah H. Deng, Jaime Gateno, Ye Wu, Erkun Yang, Michael A.K. Liebschner, James J. Xia, Pew-Thian Yap

Wednesday, September 29, 2021

11:00 – 12:30 (UTC)

Oral Session Wed-Oral-AM-A

Advances in Machine Learning

Chairs: Baiying Lei, Yixuan Yuan

#1

Distilling effective supervision for robust medical image segmentation with noisy labels

Jialin Shi, Ji Wu

#2

Personalized Retrogress-Resilient Framework for Real-World Medical Federated Learning

Zhen Chen, Meilu Zhu, Chen Yang, Yixuan Yuan

#3

Variational Topic Inference for Chest X-Ray Report Generation

Ivona Najdenkoska, Xiantong Zhen, Marcel Worring, Ling Shao

#4

Targeted Gradient Descent: A Novel Method for Convolutional Neural Networks Fine-tuning and Online-learning

Junyu Chen, Evren Asma, Chung Chan

#5

Group Shift Pointwise Convolution for Volumetric Medical Image Segmentation

Junjun He, Jin Ye, Cheng Li, Diping Song, Wanli Chen, Shanshan Wang, Lixu Gu, Yu Qiao

Oral Session Wed-Oral-AM-B

Image Reconstruction

Chairs: Ruogu Fang, Alberto Gomez

Learned super resolution ultrasound for improved breast lesion characterization

Or Bar-Shira, Ahuva Grubstein, Yael Rapson, Dror Suhami, Eli Atar, Keren Peri-Hanania, Ronnie Rosen, Yonina C. Eldar

Acceleration by deep-learnt sharing of superfluous information in multi-contrast MRI

Sudhanya Chatterjee, Suresh Emmanuel Joel, Ramesh Venkatesan, Dattesh Dayanand Shanbhag

RLP-Net: Recursive Light Propagation Network for 3-D Virtual Refocusing

Changyeop Shin, Hyun Ryu, Eun-Seo Cho, Young-Gyu Yoon

Universal Undersampled MRI Reconstruction

Xinwen Liu, Jing Wang, Feng Liu, S. Kevin Zhou

Real-Time Mapping of Tissue Properties for Magnetic Resonance Fingerprinting

Yilin Liu, Yong Chen, Pew-Thian Yap

Wednesday, September 29, 2021

13:30 – 15:00 (UTC)

Oral Session Wed-Oral-PM-A

Computer Aided Diagnosis

Chairs: Mingxia Liu, Su Ruan

#1

AutoFB: Automating Fetal Biometry Estimation from Standard Ultrasound Planes

Sophia Bano, Brian Dromey, Francisco Vasconcelos, Raffaele Napolitano, Anna L. David, Donald M. Peebles, Danail Stoyanov

#2

Continual Learning with Bayesian Model based on a Fixed Pre-trained Feature Extractor

Yang Yang, Zhiying Cui, Junjie Xu, Changhong Zhong, Ruixuan Wang, Wei-Shi Zheng

#3

Learning from Subjective Ratings Using Auto-Decoded Deep Latent Embeddings

Bowen Li, Xiping Ren, Ke Yan, Le Lu, Lingyun Huang, Guotong Xie, Jing Xiao, Dar-In Tai, Adam P. Harrison

#4

Self-Supervised Longitudinal Neighbourhood Embedding

Jiahong Ouyang, Qingyu Zhao, Ehsan Adeli, Edith V Sullivan, Adolf Pfefferbaum, Greg Zaharchuk, Kilian M. Pohl

#5

AMINN: Autoencoder-based Multiple Instance Neural Network Improves Outcome Prediction of Multifocal Liver Metastases

Jianan Chen, Helen M. C. Cheung, Laurent Milot, Anne L. Martel

Oral Session Wed-Oral-PM-B

Uncertainty and Interpretability

Chairs: Christian Baumgartner, Guotai Wang

Focusing on Clinically Interpretable Features: Selective Attention Regularization for Liver Biopsy Image Classification

Chong Yin, Siqi Liu, Rui Shao, Pong C. Yuen

Detecting when pre-trained nnU-Net models fail silently for Covid-19 lung lesion segmentation

Camila Gonzalez, Karol Gotkowski, Andreas Bucher, Ricarda Fischbach, Isabel Kaltenborn, Anirban Mukhopadhyay

Deep Neural Dynamic Bayesian Networks applied to EEG sleep spindles modeling

Carlos A. Loza, Laura L. Colgin

Sharpening Local Interpretable Model-agnostic Explanations for Histopathology: Improved Understandability and Reliability

Mara Graziani, Iam Palatnik de Sousa, Marley M.B.R. Vellasco, Eduardo Costa da Silva, Henning Müller, Vincent Andrearczyk

Scalable, Axiomatic Explanations of Deep Alzheimer's Diagnosis from Heterogeneous Data

Sebastian Pölsterl, Christina Aigner, Christian Wachinger

Thursday, September 30, 2021

11:00 – 12:30 (UTC)

Oral Session Thu-Oral-AM-A

Segmentation

Chairs: Caroline Petitjean, Tuo Zhang

#1 **3D-UCaps: 3D Capsules Unet for Volumetric Image Segmentation**

Tan Nguyen, Binh-Son Hua, Ngan Le

#2 **CoTr: Efficiently Bridging CNN and Transformer for 3D Medical Image Segmentation**

Yutong Xie, Jianpeng Zhang, Chunhua Shen, Yong Xia

#3 **Federated Contrastive Learning for Volumetric Medical Image Segmentation**

Yawen Wu, Dewen Zeng, Zhepeng Wang, Yiyu Shi, Jingtong Hu

#4 **Orthogonal Ensemble Networks for Biomedical Image Segmentation**

Agostina J. Larrazabal, César Martínez, Jose Dolz, Enzo Ferrante

#5 **Quality-Aware Memory Network for Interactive Volumetric Image Segmentation**

Tianfei Zhou, Liulei Li, Gustav Bredell, Jianwu Li, Ender Konukoglu

Oral Session Thu-Oral-AM-B

Image Synthesis

Chairs: Adrian Dalca, Luping Zhou

Demystifying T1-MRI to FDG18-PET Image Translation via Representational Similarity

Chia-Hsiang Kao, Yong-Sheng Chen, Li-Fen Chen, Wei-Chen Chiu

Q-space Conditioned Translation Networks for Directional Synthesis of Diffusion Weighted Images from Multi-modal Structural MRI

Mengwei Ren, Heejong Kim, Neel Dey, Guido Gerig

Text2Brain: Synthesis of Brain Activation Maps from Free-form Text Query

Gia H. Ngo, Minh Nguyen, Nancy F. Chen, Mert R. Sabuncu

Collaborative Image Synthesis and Disease Diagnosis for Classification of Neurodegenerative Disorders with Incomplete Multi-modal Neuroimages

Yongsheng Pan, Yuanyuan Chen, Dinggang Shen, Yong Xia

Controllable cardiac synthesis via disentangled anatomy arithmetic

Spyridon Thermos, Xiao Liu, Alison O'Neil, Sotirios A. Tsaftaris

Thursday, September 30, 2021

13:30 – 15:00 (UTC)

Oral Session Thu-Oral-PM-A

Domain Adaptation

Chairs: Yi Hong, Islem Rekik

- #1 **Anatomy of Domain Shift Impact on U-Net Layers in MRI Segmentation**
Ivan Zakazov, Boris Shirokikh, Alexey Chernyavskiy, Mikhail Belyaev
- #2 **Semi-supervised Meta-learning with Disentanglement for Domain-generalised Medical Image Segmentation**
Xiao Liu, Spyridon Thermos, Alison O'Neil, Sotirios A. Tsaftaris
- #3 **Multi-Task, Multi-Domain Deep Segmentation with Shared Representations and Contrastive Regularization for Sparse Pediatric Datasets**
Arnaud Boutillon, Pierre-Henri Conze, Christelle Pons, Valerie Burdin, Bhushan Borotikar
- #4 **FoldIt: Haustral Folds Detection and Segmentation in Colonoscopy Videos**
Shawn Mathew, Saad Nadeem, Arie Kaufman
- #5 **Cooperative Training and Latent Space Data Augmentation for Robust Medical Image Segmentation**
Chen Chen, Kerstin Hammernik, Cheng Ouyang, Chen Qin, Wenjia Bai, Daniel Rueckert

Oral Session Thur-Oral-PM-B

Image-Guided Interventions and Surgery

Chairs: Ilker Hacihaliloglu, Nicola Rieke

- C-arm positioning for spinal standard projections in different intra-operative settings**
Lisa Kausch, Sarina Thomas, Holger Kunze, Tobias Norajitra, André Klein, Jan Siad El Barbari, Maxim Privalov, Sven Vetter, Andreas Mahnken, Lena Maier-Hein, Klaus H. Maier-Hein
- Quantitative Assessments for Ultrasound Probe Calibration**
Elvis C. S. Chen, Burton Ma, Terry M. Peters
- Multimodal Sensing Guidewire for C-arm Navigation with Random UV Enhanced Optical Sensors using Spatio-temporal Networks**
Andrei Svecic, Gilles Soulez, Frederic Monet, Raman Kashyap, Samuel Kadoury
- Using Multiple Images and Contours for Deformable 3D-2D Registration of a Preoperative CT in Laparoscopic Liver Surgery**
Yamid Espinel, Lilian Calvet, Karim Botros, Emmanuel Buc, Christophe Tilmant, Adrien Bartoli
- Co-Generation and Segmentation for Generalized Surgical Instrument Segmentation on Unlabelled Data**
Megha Kalia, Tajwar Abrar Aleef, Nassir Navab, Peter Black, Septimiu E. Salcudean