



Poster Session Feedback









Hayit Greenspan

Parvin Mousavi

Anant Madabhushi

Tim Salcudean





Poster Distribution by Country









VANCOUVER / CANADA



Audience Poll- thank you to all participants!







graphs mesh Words in Titles of anatomy-driven reliability approach cloud Posters that dataset learn surface mri shape accurate **Received Votes** network cortical endoscopic anomaly transformer video models scans boosting contrast-enhanced model analysis intraoperative statistical screening used iearnin deep K multi-scale prediction out-of assessing dynamic segmentation images contour using framework latent metrics pet object image dental unsupervised medica ^{graph} imaging brain virtual domain detection x-rays tumor robust contrastive conditional distribution surgical cancer estimation disease feature reconstruction automatic classification chest point geometric ultrasound ct via diffusion surgery dose networks representations diagnosis federated reliable structure cognitive patient generative automated





point approach conditional fusion tissue consistency breast tles of networks prediction models representation multi-modal cardiac ers brain analysis registration graph multimodal automatic temporal instance transformer ultrasound pet detection super-resolution functional mage dynamic joint mri imaging attention hierarchic recognition efficient Words in Titles of all Posters semi-supervised Image dynamic video joint mri imaging attention hierarchical adaptive space cancer tumor multiple localization distillation robust via surgery medical disease contrastive distillation robust via based lesion images deep tumor distinguised to the structural using supervised medical distructural using supervised medical chest portugery of the surgery of the supervised medical distructural using supervised medical distructural d using supervised model chest network latent videos self-supervised diagnosis reconstruction accurate multi-task interpretable synthesis augmentation





Thank you to the Poster Chairs!

Katharina Breininger, FAU Erlangen-Nürnberg, Germany	Anees Kazi, MGH and Harvard Medical School, USA
Yuankai Huo, Vanderbilt University, USA	Aristeidis Sotiras, Washington University in St. Louis, USA
Sang Hyun Park, DGIST, Korea	Pingkun Yan, Rensselaer Polytechnic Institute, USA
Leo Joskowicz, Hebrew University of Jerusalem, Israel	Dajiang Zhu, University of Texas at Arlington, USA
Jose Dolz, ETS Montreal, Canada	Adrian Galdran, Universitat Pompeu Fabra, Spain
Fahmi Khalifa, Morgan State University, USA	Shadi Albarqouni, Helmholtz AI & University of Bonn & TU
Esther Puyol-Anton, King's College London, UK	Munich, Germany
Kenji Suzuki, Tokyo Institute of Technology, Japa	Mattias Heinrich, University of Luebeck, Germany
Kayhan Batmanghelich, Boston University, USA Magdalini Paschali, Stanford University, USA Rachel Sparks, King's College London, UK Jonghye Woo, Massachusetts General Hospital and Harvard Medical School, USA	Yutong Xie, University of Adelaide, Australia Moti Freiman, Technion - Israel Institute of Technology, Israel Yoshito Otake, Nara Institute of Science and Technology, Japan Lequan Yu, The University of Hong Kong, Hong Kong SAR

and student volunteers!

David Black, UBC, Canada Wanwen Chen, UBC, Canada





Which poster results did you find to be the most surprising?

M-01-023: Bridging ex-vivo training and intra-operative deployment for surgical margin assessment with Evidential Graph Transformer	Amoon Jamzad (Queen's University)	Original and innovative method that relies on a signal that was not previously considered. Results are promising.
M-01-050: From Tissue to Sound: Model- based Sonification of Medical Imaging	Sasan Matinfar (Technical University of Munich)	This work uses a physical model based on anatomical tissue structure to produce distinct acoustic responses to external interactions.
M-01-107: Self-supervised Sim-to-Real Kinematics Reconstruction for Video-based Assessment of Intraoperative Suturing Skills	Loc Trinh (University of Southern California)	It was fascinating to see how well real kinematics could be reconstructed by jointly training with synthetic data.
M-01-110: Semantic Virtual Shadows (SVS) for Improved Perception in 4D OCT Guided Surgery	Michael Sommersperger (Technical University of Munich)	It is a simple concept (shadows), executed in a clinically relevant and inuitive way - still, it requires to think differently about the data (not just 4-D data) and closely interact with the clinicians





M-02-001: 3D Arterial Segmentation via Single 2D Projections and Depth Supervision in Contrast-Enhanced CT Images	Alina F Dima (Technical University of Munich)	Annotation cost is huge burden when it's 3D. This study achieved equivalent or slight lower performance with only 2D annotations compared with 3D annotation.
M-02-047: Geometry-invariant abnormality detection	Ashay Patel (King's College London)	The authors work showed outstanding performance against various state of the art methods.
M-02-070: Multi-modal Variational Autoencoders for normative modelling across multiple imaging modalities	Ana Lawry Aguila (UCL)	Novel approach to combine modalities.
M-02-096: Structured State Space Models for Multiple Instance Learning in Digital Pathology	Leo Fillioux (CentraleSupelec)	While this work presents results at par with state-of- the-art methods, it brings much faster inference, which alleviates the complexity burden of existing methods for similar tasks.
T-03-120: Towards frugal unsupervised detection of subtle abnormalities in medical imaging	Geoffroy Oudoumanessah (Inserm)	I think this is a nice paper showing where a classic method (EM optimisation) outperforms deep learning.





T-03-084: One-shot Federated Learning on Medical Data using Knowledge Distillation with Image Synthesis and Client Model Adaptation	Myeongkyun Kang (DGIST)	Traditional federated learning methods often require multiple communication rounds between the central server and clients, making them impractical in scenarios with limited communication resources or concerns about data privacy. One-shot federated learning, as proposed here, offers an efficient and privacy-preserving alternative.
T-03-034: Deployment of Image Analysis Algorithms under Prevalence Shifts	"Patrick Godau (German Cancer Research Center)"	Using traditional methods for model calibration and computing the model prediction is suboptimal under prevelance shift and novel metrics and calibration is required.
T-04-082: Polar-Net: A Clinical-Friendly Model for Alzheimer's Disease Detection in OCTA Images	Shouyue Liu (Wenzhou Medical University, Zhejiang, China.)	Detecting Alzheimer's Disease from OCTA images
T-04-111: Uncovering Heterogeneity in Alzheimer's Disease from Graphical Modeling of the Tau Spatiotemporal Topography	Jiaxin Yue (University of Southern California)	The results are very impressive because it uses PET for AD subtyping, which is important in AD clinical settings.





W-05-018: Category-level Regularized Unlabeled-to-labeled Learning for Semi- supervised Prostate Segmentation with Multi-site Unlabeled Data	Zhe Xu (The Chinese University of Hong Kong)	This paper is interesting and the results are better than previous works.
W-05-072: MedNeXt: Transformer-driven Scaling of ConvNets for Medical Image 0Segmentation	Saikat Roy (German Cancer Research Center (DKFZ))	Its a bit surprising that just simply upsampling kernels works out of the box.
W-05-053: From Sparse to Precise: A Practical Editing Approach for Intracardiac Echocardiography Segmentation	Ahmed H. Shahin (University College London)	The paper showed that supervised landmark prediction can be impaired by the weak isotropic labels used as ground truth. By employing a hierarchical graph based network with multiscale losses they were able to address this shortcoming
W-06-027: DISA: DIfferentiable Similarity Approximation for Universal Multimodal Registration	Matteo Ronchetti (ImFusion GmbH)	The ability to learn invariant feature representation from unregistered data is surprising. I would expect such a model to learn only from registered data.
W-06-102: Unified Brain MR-Ultrasound Synthesis using Multi-Modal Hierarchical Representations	Reuben Dorent (Harvard Medical School)	MRI and intraoperative ultrasound image synthesis is a very challenging and under-explored problem. This poster presents an VAE-based framework and shows some feasible results.
W-06-040: Generating High-Resolution 3D CT with 12-bit Depth using a Diffusion Model with Adjacent Slice and Intensity Calibration Network	Jiheon Jeong (Asan Medical Center)	Very high quality and high intensity resolution images were generated.





Which poster presentation was easiest to follow?

M-01-017: AR2T: Advanced Realistic Rendering Technique for Biomedical Volumes	Elena Denisova (UNIFI)	Nice visuals, clear and succint explanation, good poster layout.
M-01-038: Domain-agnostic segmentation of thalamic nuclei from joint structural and diffusion MRI	Henry FJ Tregidgo (University College London)	The poster is well designed with clear motivation, methodology, and results. It is very easy to follow.
M-01-076: MixUp-MIL: Novel Data Augmentation for Multiple Instance Learning and a Study on Thyroid Cancer Diagnosis	Michael Gadermayr (Salzburg University of Applied Sciences)	This was a simple idea, but it increased performance well. Presented in an easy to understand manner.
M-01-109: Semantic segmentation of surgical hyperspectral images under geometric domain shifts	Jan Sellner (German Cancer Research Center)	Very straight-forward idea, clear presentation with good illustrations and examples, engaged presenters (+sweets)
M-02-011: Anatomy-Driven Pathology Detection on Chest X-rays	Philip Müller (Technical University of Munich)	Including area prediction in lesion detection in chest radiographs gives substantially better performance than without.
M-02-036: Disentangling Site Effects with Cycle- Consistent Adversarial Autoencoder for Multi-site Cortical Data Harmonization	Fenqiang Zhao (University of North Carolina at Chapel Hill)	Nicely laid out, Few text, and informative illustrations





M-02-073: Multi-Scale Self-Supervised Learning for Longitudinal Lesion Tracking with Optional Supervision	Anamaria Vizitiu (Siemens SRL.)	Very well designed and clear speech
M-02-106: Unsupervised Domain Transfer with Conditional Invertible Neural Networks	Kris K Dreher (German Cancer Research Center)	The structure was similar to many other posters, but the graphics really helped to understand the proposed approach. The results, represented with several types of box plots and bars made the interpretation of the results quite easy.
T-03-116: The Role of Subgroup Separability in Group-Fair Medical Image Classification	Charles Jones (Imperial College London)	Very clear, simple slides and description making this easy to follow and breaking down the key findings in the paper.
T-03-080: Multimodal brain age estimation using interpretable adaptive population-graph learning	Kyriaki-Margarita Bintsi (Imperial College London)	This poster follows a logical flow, starting with the problem statement, presenting the limitations of existing models, and then introducing the proposed approach. This sequential organization helps readers follow the development of the research.
T-03-101: Right for the Wrong Reason: Can Interpretable ML Techniques Detect Spurious Correlations?	Susu Sun (University of Tübingen)	Intuitive work that highlighted the abilities of commonly used interpretability techiques. The method and presentation was easy to follow and the take-aways very useful.





T-04-089: Rad-ReStruct: A Novel VQA Benchmark and Method for Structured Radiology Reporting	Chantal Pellegrini (TUM)	Well structured poster with clear illustrations of the work
T-04-115: Vision Transformer based Multi-Class Lesion Detection in IVOCT	Zixuan Wang (Sichuan University)	The poster is easy to follow even without explaination.
W-05-023: Conditional Temporal Attention Networks for Neonatal Cortical Surface Reconstruction	Qiang Ma (Imperial College London)	The poster is easiest to read and understand.
W-05-080: MultiTalent: A Multi-Dataset Approach to Medical Image Segmentation	Constantin Ulrich (German Cancer Research Center (DKFZ))	Really easy-to-follow work
W-05-054: Guiding the Guidance: A Comparative Analysis of User Guidance Signals for Interactive Segmentation of Volumetric Images	Zdravko Marinov (Karlsruhe Institute of Technology)	The presenter explained both the baseline methods for interactive segmentation as well as the newly proposed guidance operator very well and had a well organised experimental section.
W-06-035: Estimation of 3T MR images from 1.5T images regularized with Physics based Constraint	Prabhjot Kaur (Indian Institute of Technology, Mandi)	Clear and detailed definition of the problem, the solution, and the experimental setup
W-06-079: Physics-Informed Neural Networks for Tissue Elasticity Reconstruction in Magnetic Resonance Elastography	Matthew Ragoza (University of Pittsburgh)	This poster adopts many figures to demonstrate the motivation and framework, which ease the readers to follow.
W-06-041: Generating Realistic Brain MRIs via a Conditional Diffusion Probabilistic Model	Wei Peng (Stanford University)	The demonstration of the generated and real images using the tSNE plot is very impressive and helped my understanding significantly.





Which work is most likely to be translated to clinical practice?

M-01-023: Bridging ex-vivo training and intra-operative deployment for surgical margin assessment with Evidential Graph Transformer	Amoon Jamzad (Queen's University)	The additional information provided by the new signal has potential in combination with other modalities.
M-01-042: EndoSurf: Neural Surface Reconstruction of Deformable Tissues with Stereo Endoscope Videos	Ruyi Zha (Australian National University, Australia)	The technology can produce immediate clinical value and ready for translation.
M-01-091: POV-Surgery: A Dataset for Egocentric Hand and Tool Pose Estimation During Surgical Activities	Rui Wang (ETH Zürich)	The authors successfully constructed a dataset applicable in real-world environments and obtained great results
M-01-114: Skin Lesion Correspondence Localization in Total Body Photography	Wei-Lun Huang (Johns Hopkins University)	I could see this as a low-risk approach that allow to track skin lesions without heavy data or hardware requirements
M-02-020: Clustering disease trajectories in contrastive feature space for biomarker proposal in age-related macular degeneration	Robbie M Holland (Imperial College London)	Clustering temporal trajectories in latent space gave performance equivalent to current gold- standard clinical scoring.
M-02-033: Deep Reinforcement Learning Based System for Intraoperative Hyperspectral Video Autofocusing	Charlie Budd (King's College London)	A RL-based technique has been developped and can be deployed on surgical exoscopy





M-02-075: OpenAL: An Efficient Deep Active Learning Framework for Open-Set Pathology Image Classification	Linhao Qu (Fudan University)	Open source platform and tested in different datasets
M-02-108: UOD: Universal One-shot Detection of Anatomical Landmarks	Heqin Zhu (Institute of Computing Technology, Chinese Academy of Sciences)	Having a large experience on segmentation tasks, I have found that their impact on clinical practice is sometimes lower compared to other methods. Thus, I found that the method presented in this poster (M- 02-108) could be easily transferred into clinics.
T-03-103: Robust vertebra identification using simultaneous node and edge predicting Graph Neural Networks	Vincent Bürgin (Technical University of Munich)	A powerful method for graph matching, outperforming classic approaches, applied to vertebrae datasets with clear application to clinical workflows.
T-03-073: Longitudinal Multimodal Transformer Integrating Imaging and Latent Clinical Signatures From Routine EHRs for Pulmonary Nodule Classification	Thomas Z Li (Vanderbilt University)	This work is highly translatable to clinical practice because it addresses a clinically relevant problem, leverages both imaging and EHR data sources, incorporates new and innovative multimodal learning techniques, and demonstrates improved diagnostic performance. These factors make it a promising approach that could potentially enhance solitary pulmonary nodule diagnosis and thereby improve patient care in healthcare settings.





T-03-100: Reveal to Revise: An Explainable AI Life Cycle for Iterative Bias Correction of Deep Models	Frederik Pahde (Fraunhofer Heinrich Hertz Institute)	Bias is a critical issue when dealing with clinical data, therefore developing intuitive techniques that can mitigate bias will allow algorithms to be trustworthy and suitable to be translated to clinical practice.
T-04-074: Multi-View Vertebra Localization and Identification from CT Images	John Orlando Kalkhof (TU Darmstadt)	Localizing and identifying vertebra in multi-views from CT images for clinical translation
T-04-110: Treatment Outcome Prediction for Intracerebral Hemorrhage via Generative Prognostic Model with Imaging and Tabular Data	Wenao Ma (The Chinese University of Hong Kong)	It seems the authors already start to apply the method on clinical data.
T-04-049: Graph-theoretic automatic lesion tracking and detection of patterns of lesion changes in longitudinal CT studies	Beniamin Di Veroli (Hebrew University of Jerusalem)	quantitative analysis of lesion changes and patterns is of clinical importance. evaluating lesion change is already part of clinical routine (e.g., for MS)





GANADA		
W-05-018: Category-level Regularized Unlabeled-to- labeled Learning for Semi-supervised Prostate Segmentation with Multi-site Unlabeled Data	Zhe Xu (The Chinese University of Hong Kong)	This paper considers multi-site unlabeld data, which is closer to clinical scenario
W-05-080: MultiTalent: A Multi-Dataset Approach to Medical Image Segmentation	Constantin Ulrich (German Cancer Research Center (DKFZ))	This model will probabky be a good competitor to TotalSegmentor, which is already widely popular.
W-05-039: Dose Guidance for Radiotherapy-oriented Deep Learning Segmentation	Elias Rüfenacht (University of Bern)	The work very cleverly incorporates dose map estimation to improve tumour segmentation for radiotherapy applications. Rather than focusing only on Dice metric the authors show they achieve better clinical translation.
W-06-022: CTFlow: Mitigating Effects of Computed Tomography Acquisition and Reconstruction with Normalizing Flows	Leihao Wei (Meta)	Radiologists would like the ability to control through some slider the appearance of the CT images during reading them
W-06-077: PCMC-T1: Free-breathing myocardial T1 mapping with Physically-Constrained Motion Correction	Eyal Hanania (Technion)	Physics-informed deep-learning registration enables free-breathing cardiac T1 mapping in clinical setting and the physics prior facilicates the robustness of the model in various clinical scenarios.
W-06-067: MSKdeX: Musculoskeletal (MSK) decomposition from an X-ray image for fine-grained estimation of lean muscle mass and muscle volume	Yi Gu (Nara Institute of Science and Technology)	The method uses only a single X-ray image and provide useful information for clinical diagnosis of sarcopenia. The results reach the level of almost clnically ready.





Which work has the potential to impact other applications of AI and computer vision?

M-01-004: A Multi-Task Network for Anatomy Identification in Endoscopic Pituitary Surgery	Adrito Das (University College London)	Video image processing technique with deep learning that may be applicable to other non medical applications
M-01-067: LABRAD-OR: Lightweight Memory Scene Graphs for Accurate Bimodal Reasoning in Dynamic Operating Rooms	Ege Özsoy (TU Munich)	It provides a real-world scenario for CV community, beyond the toy senses.
M-01-083: Neural Pre-Processing: A Learning Framework for End-to-end Brain MRI Pre-processing	Xinzi He (Cornell University)	Preprocessing is crucial in brain research, and it seems that it can be utilized effectively without complex procedures.
M-01-116: Spatiotemporal Incremental Mechanics Modeling of Facial Tissue Change	Nathan Lampen (Rensselaer Polytechnic Institute)	It provides an interesting method (combination of two networks for iterative estimation of deformations/transformations, relevant for many surgeries/interventions).





M-02-006: Adaptive Region Selection for Active Learning in Whole Slide Image Semantic Segmentation	Jingna Qiu (Friedrich- Alexander-Universität Erlangen-Nürnberg)	Only using 10-20% of annotations through active learning in a pathological task in whole slide imaging got full annotation performance, which reduces the cost of annotations. This method is applicable to other tasks in other areas.
M-02-055: LOTUS: Learning to Optimize Task- based US representations	Yordanka Velikova (Technical University of Munich)	The authors work can be extended to other AI-based task for different application. Also, extension to 3D domains and other modalities is possible
M-02-064: MetaLR: Meta-tuning of Learning Rates for Transfer Learning in Medical Imaging	Yixiong Chen (The Chinese University of Hongkong, Shenzhen)	Novel way to decide which layers to freeze during transfer learning
M-02-106: Unsupervised Domain Transfer with Conditional Invertible Neural Networks	Kris K Dreher (German Cancer Research Center)	Many works in my pool have developed specific strategies that are tailored to a given problem, which makes them unsuitable for general problems or domain. This paper, however, proposed a technique that could be used in a variety of tasks, not being limited to medical imaging. Furthermore, the addressed problem (i.e., unsupervised domain transfer) can be used in general and strategic areas such as autonomous driving, for example.





T 02 009: Dethinking Semi Supervised Endersted		I think this paper does a good job thinking about how
Learning: How to contrain fully labeled and fully	Pramit Saba (University of	to tackle a very challenging and widely applicable
unlabeled client imaging data	Ovford)	cooperio in federated learning
		The work presented in this paper not only advances
		the state of the art in medical VQA but also introduces
		principles and techniques that can be leveraged in a
		wide range of Al applications. The emphasis on
	Coursia Tanana Manalan	Interpretability, contextual understanding, and multi-
1-03-071: Localized Questions in Medical Visual	Sergio Tascon-Morales	modal learning has the potential to enhance the
Question Answering	(University of Bern)	performance and usability across various domains.
		M3D-NCA is a novel method for 3D segmentation. It is
T-03-074: M3D-NCA: Robust 3D Segmentation with	John Orlando Kalkhof (TU	intuitive and easy to follow and can have wide
Built-in Quality Control	Darmstadt)	technical applicability but also clinical impact.
T-04-077: Parse and Recall: Towards Accurate Lung	Jianpeng Zhang (Alibaba	Incorporating the clinical diagnosis experience of
Nodule Malignancy Prediction like Radiologists	DAMO Academy)	radiologist into the design of deep learning model
T-04-091: Representation, Alignment, Fusion: A		
Generic Transformer-based Framework for Multi-moda	I You Zhou (Renmin	The proposed Transformer-based method has the
Glaucoma Recognition	University of China)	potential to be applied to other applications.
T-04-047: Fundus-Enhanced Disease-Aware	Lehan Wang (The Hong	Used of unpaired modalities seemed innovative and
Distillation Model for Retinal Disease Classification	Kong University of Science	interesting to me
from OCT Images	and Technology)	
5	577	





Crimiter,		
W-05-006: ACC-UNet: A Completely Convolutional UNet model for the 2020s	Nabil Ibtehaz (Purdue University)	This paper focuses on the network design, and is easier to apply to other general domains.
W-05-070: MDViT: Multi-domain Vision Transformer for Small Medical Image Segmentation Datasets	Siyi Du (University of British Columbia)	Small datasets can be found in applications beyond medical
W-05-058: High-Resolution Cranial Defect Reconstruction by Iterative, Low-Resolution, Point Cloud Completion Transformers	Marek Wodzinski (AGH UST)	The paper uses point cloud transformers to predict cranial implants. The proposed new loss function based on k-nearest neighbours is simple but quite effective and could be used for other point cloud applications which are becoming more and more relevant in 3D vision
W-06-026: DiffuseIR: Diffusion Models For Isotropic Reconstruction of 3D Microscopic Images	Mingjie Pan (Peking University)	Isotropic recon is important in many imaging problems, from microscopy to medical imaging. The ability to reconstruct 3D isotropic volumes from anisotropic data is an interesting solution
W-06-092: Single-subject Multi-contrast MRI Super-resolution via Implicit Neural Representations	Julian McGinnis (Technical University of Munich, Germany)	This poster presents a new implicit neural representation approach for MRI super resolution, which should inspire some 3D vision works on handling general volumetric data.
W-06-050: Inverse Consistency by Construction for Multistep Deep Registration	.Thomas H Greer (UNC Chapel Hill)	The method seems to be pretty general and I believe it can be applied to other anatomy straight forwardly.





What common themes or trends have you noticed among the posters in your session?

Multi-modal data models.

The challenges in the field **of CAI area have become more diverse**, and the latest techniques to address them have been proposed.

Many studies have utilized **self-supervised learning**, **VQA model, continual learning, generative models** and so on.

My feeling is that we see also in interventional imaging **considerably larger data sets**. Furthermore, synthetic data continues to play a role (GANs & Diffusion models), and - at least in some papers - we see more often evaluations on actual downstream tasks, which I very much appreciate (though we still need more of this).

Many strategies for **learning under limited supervisio**n, such as weakly supervised, semi-supervised or few-shot learning.





Overall deep learning **interpretation and bias** in complex scenarios such as mixed labels or out of domain distributions.

Transformer-based methods are widely adopted this year.

Use of diffusion models

Medical data sythesis, temporal medical data learning

The session had a more methodological focus, which I enjoyed and a trend was the proposal of **new loss functions rather than network architectures.**

One of the common trends is to incorporate **physics priors** into the deep model design to improve model robustness or generalisability.





Fun with Large Language Models



Our field according to ChatGPT

Q1: What are the 10 hot topics in AI and Medical Imaging

- 1. Al-Powered Imaging Biomarkers: Unveiling Hidden Patterns in Disease Progression
- 2. Advances in Multi-Modal Fusion: Bridging Radiology, Pathology, and Genomics
- 3. Neuroimaging Frontiers: Deep Learning Innovations in Brain Connectivity Analysis
- 4. Beyond Diagnostics: AI in Personalized Treatment and Intervention Planning
- 5. Transformers in Medical Imaging: Architecture Advances and Applications
- 6. Ethical and Fair AI in Healthcare: Addressing Bias and Ensuring Transparency
- 7. Innovations in Augmented Reality: Enhancing Surgical Precision and Training
- 8. Federated Learning in Healthcare: Distributed AI Models for Global Collaboration
- 9. Automated Image Registration: Recent Advances and Clinical Impacts
- **10. From Macro to Micro**: Integrating Whole-Body Imaging with Cellular Details



Q2: I am trying to find ways to cluster papers for oral sessions at the Medical Image Computing and Computer Assisted Intervention (MICCAI) meeting 2023. The session titles should reflect current and hot topics in the area of machine vision, machine learning, AI and medical image analysis.

Based off the titles of the individual papers consider session titles that represent the hot topics in the area of medical image analysis and AI in medical imaging.

For the 89 papers listed below please suggest a total of 10 sessions with a roughly equal number of papers assigned to each session. I am providing the paper titles and associated keywords for the individual papers below

Session 2: Image Segmentation in Medical Imaging

1.Pelvic Fracture Segmentation Using a Multi-scale Distance-weighted Neural Network

2.Federated Condition Generalization on Low-dose CT Reconstructon via Cross-domain Learning

3.Fully Image-index Remainder based Single Low-dose DR/CT Self-supervised Denoising

4.CorSegRec: A Topology-Preserving Scheme for Extracting Fully-Connected Coronary Arteries from CT Angiography

5.Multi-resolution Adaptive Iteration Network for Metal Artifact Reduction

6.Category-level Regularized Unlabeled-to-labeled Learning for Semi-supervised Prostate Segmentation with Multi-site Unlabeled Data

7.EGE-UNet: an Efficient Group Enhanced UNet for skin lesion segmentation

8. Revisiting Feature Propagation and Aggregation in Polyp Segmentation

9.Structure-Preserving Instance Segmentation via Skeleton-Aware Distance Transform

10.MultiTalent: A Multi-Dataset Approach to Medical Image Segmentation

Session 7: Clinical Applications and Machine Learning in Neuroimaging

1.ProtoASNet: Dynamic Prototypes for Inherently Interpretable and Uncertainty-Aware Aortic Stenosis Classification in Echocardiography

2.Correlation-Aware Mutual Learning for Semi-supervised Medical Image Segmentation

3. Robust T-Loss for Medical Image Segmentation

4.Bidirectional Mapping with Contrastive Learning on Multimodal Neuroimaging Data

5.DeepGraphDMD: Interpretable Spatio-Temporal Decomposition of Non-linear Functional Brain Network Dynamics

6.Registration-free tractography parcellation with a novel local-global streamline point cloud representation

7. Multi-Modal Semi-supervised Evidential Recycle Framework for Alzheimer's Disease Classification

Session 8: Computational (Integrative) Pathology and Computational Anatomy and Physiology

1.Multi-task learning of Histology and Molecular Markers for Classifying Diffuse Glioma

2.CorSegRec: A Topology-Preserving Scheme for Extracting Fully-Connected Coronary Arteries from CT Angiography

3.ASCON: Anatomy-aware Supervised Contrastive Learning Framework for Lowdose CT Denoising

4.Open-Ended Medical Visual Question Answering Through Prefix Tuning of Language Models

5. Towards Generalizable Diabetic Retinopathy Grading in Unseen Domains

Could LLMs serve as a decision support for exhausted Program Chairs?

- Construct a personalized LLM that is specifically trained on all proceedings and keywords of all MICCAI submissions from last 5 years. Could such an LLM help rank submitted papers?
- Could it be used to rank accepted papers?
- Will we not need reviewers anymore?

Unlikely. For the foreseeable future, it would seem that human element will be critical for creating a MICCAI program.