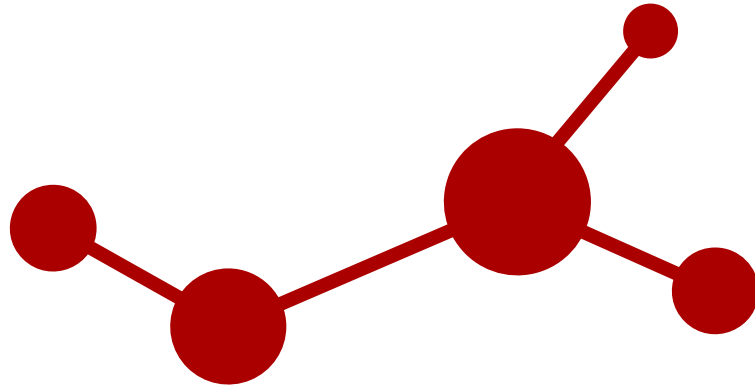


International Conference on Medical Imaging with Deep Learning 2024

PMLR volume 250



MIDL Paris 2024

*Ninon Burgos, Caroline Petitjean, Maria Vakalopoulou, Stergios Christodoulidis, Pierrick Coupe,
Hervé Delingette, Carole Lartizien, Diana Mateus*

Preface

This volume contains the Proceedings of the Seventh International Conference on Medical Imaging with Deep Learning – MIDL 2024. The conference was held from July 3 to 5, 2024, in Paris, France and it was organized by co-chairs Ninon Burgos, Caroline Petitjean and Maria Vakalopoulou from Centre national de la recherche scientifique (CNRS) - Paris Brain Institute, University of Rouen Normandie and CentraleSupélec Université Paris Saclay, respectively. The scientific program was organized by a team of program chairs from CentraleSupélec, CNRS - LaBRI, Inria Sophia-Antipolis, CNRS - CREATIS and Centrale Nantes - LS2N.

Similar to the previous editions of the conference, MIDL 2024 had two submission tracks: full papers and short papers. 181 valid full papers and 124 short papers underwent a transparent review process through the OpenReview platform. Both the full paper and short paper track review processes were single-blind. The papers and reviews are publicly available through OpenReview, the papers with a final decision of rejection were not listed in the OpenReview platform.

The full paper submissions underwent a rigorous single-blind review process that involved a team of 5 Program Chairs (PC), 27 Area Chairs (AC), and 202 reviewers. For each submission at least 3 reviews were ensured. After desk rejection of incomplete submissions by PC, each of the remaining 217 papers received at least three reviews as well as a meta-review by an AC, and the authors were allowed to respond to the reviews during a rebuttal period. The PC then discussed each borderline paper over a virtual meeting to make the accept/reject decisions and to select oral presentations. The acceptance rate of the full paper track was 54%, with 36 oral presentations and 81 posters.

The short paper submissions underwent a more streamlined single-blind review process involving a team of the same 5 PCs and 25 reviewers, most of whom had also served as AC for the full paper track. Of the 170 submissions, 105 were accepted as posters.

We want to thank the Area Chairs and reviewers for their careful reviews and constructive feedback to the authors, which made it possible to create this robust technical program. We are grateful to our sponsors for their financial support of the conference. Finally, we would also like to thank the OpenReview team for their tech support throughout the entire process.

The articles in these proceedings are presented in alphabetical order by first author surnames. The papers consist of a wide range of topics including segmentation, representation learning, multimodal methods, semi/weakly-supervised learning, clinical translation & domain adaptation, geometric deep learning, federated learning, synthesis, explainable AI, uncertainty and foundation models.

Paris, September 25, 2024

The editorial team:

Ninon Burgos
CNRS, Paris Brain Institute (ICM), Paris, France
ninon.burgos@icm-institute.org

Caroline Petitjean
University of Rouen Normandy, Rouen, France
caroline.petitjean@univ-rouen.fr

Maria Vakalopoulou
CentraleSupélec, Paris-Saclay, Gif-sur-Yvette, France
maria.vakalopoulou@centralesupelec.fr

Stergios Christodoulidis
CentraleSupélec, Paris-Saclay, Gif-sur-Yvette, France
stergios.christodoulidis@centralesupelec.fr

Pierrick Coupe
CNRS Bordeaux
pierrick.coupe@u-bordeaux.fr

Hervé Delingette,
Inria, Sophia-Antipolis
Herve.Delingette@inria.fr

Carole Lartizien,
CNRS Lyon
carole.lartizien@creatis.insa-lyon.fr

Diana Mateus,
Centrale Nantes
diana.mateus@ec-nantes.fr

Area chairs Adrian V Dalca, Benjamin Billot, Carole Frindel, Dwarikanath Mahapatra, Francesco Ciompi, Guang Yang, Hao Chen, Herve Lombaert, Ilker Hacihaliloglu, Jelmer M. Wolterink, Jianming Liang, Jonas Richiardi, Juan Eugenio Iglesias, Konstantinos Kamnitsas, Lisa M. Koch, Mathias Unberath, Miaomiao Zhang, Minjeong Kim, Nicha C Dvornek, Olivier Bernard, Sandy Engelhardt, Sila Kurugol, Stéphanie Bricq, Tolga Tasdizen, Veronika Cheplygina, Yan Zhuang, Yuankai Huo

Outstanding Reviewers Alessa Hering, Amelia Jiménez-Sánchez, Antoine Theberge, Attila Simkó, Hans Meine, Henrik Skibbe, Hoel Kervadec, Hongwei Bran Li, Julio Silva-Rodríguez, Katharina Breininger, Kivanc Kose, Leo Milecki, Lilla Zollei, Linwei Wang, Lukas Fischer, Marc Aubre-

ville, Marin Scalbert, Mattias P Heinrich, Mengliang Zhang, Nicolas Pinon, Raghav Mehta, Tian Xia, Vincent Andrearczyk, Yashbir Singh, Yongjun Chang, Yuankai Huo

Reviewers Adrian Galdran, Alaa Alzoubi, Aldo Zaimi, Alessa Hering, Alexis Arnaudon, Amaury Leroy, Amelia Jiménez-Sánchez, Andreas M Kist, Antoine Theberge, Arinbjörn Kolbeinsson, Arya Yazdan-Panah, Attila Simkó, Bishesh Khanal, Bokai Zhang, Bruno De Santi, Caner Ozer, Canlin Zhang, Carole H. Sudre, Cheng Jin, Cheng Ouyang, Chenyu You, Chenyu ZHAO, Christian Desrosiers, Christopher P. Bridge, Chun-Mei Feng, Colin Jacobs, Dana Moukheiber, Daniel H Pak, Daniel Moyer, Dewei Hu, Dewinda Julianensi Rumala, Diana Mateus, Dieuwertje Alblas, Dmitrii Lachinov, Dong Zhang, DongAo Ma, Emmanuel Oladokun, Emmanuel Roux, Ender Konukoglu, Erwan Kerrien, Estibaliz Gómez-de-Mariscal, Fabien Millioz, Fatemeh Haghghi, Felix Meister, Fleur Gaudfernau, Francesco Caliva, Guangyi Zhang, Hai Xie, Hakim Benkirane, Han Liu, Hans Meine, Hao Li, Haocheng Dai, Haofeng Liu, Haoxin Zheng, Harini Veeraraghavan, Hayato Itoh, Henning Höfener, Henrik Skibbe, Hoel Kervadec, Hongwei Bran Li, Hrishikesh Deshpande, Ibrahim Hadzic, Janan Arslan, Jason Piquenot, Jaume Banus, Jay Shah, Jeya Maria Jose Valanarasu, Jia-Xin Zhuang, Jiaxuan Pang, Jingwei Zhang, Jinwei Zhang, Jiyao Wang, Johanna Paula Müller, Jon Sparring, Joseph Paul Cohen, Juan Liu, Judit Chamorro-Servent, Julio Silva-Rodríguez, Junlin Guo, Junxiang Chen, Justin P Haldar, Karthik Ramadass, Katharina Breininger, Kathleen Larson, Ke Zou, Kersten Petersen, Khrystyna Faryna, Kivanc Kose, Klaus Eickel, Konstantinos Alexis, Lalithkumar Seenivasan, Lama Moukheiber, Lars Leijten, Leo Milecki, Liangchen Liu, Lilla Zollei, Linwei Wang, Loïc Le Bescond, Louis van Harten, Luciano Oliveira, Lukas Fischer, Marc Aubreville, Marianne Rakic, Marijn F. Stollenga, Marin Scalbert, Mark S Graham, Markus Wenzel, Matthew C.H. Lee, Matthew Toews, Matthis Manthe, Mattias Hansson, Mattias P Heinrich, Mehdi OUNISSI, Mengliang Zhang, Michela Antonelli, Michele Svanera, Mickael Tardy, Mihir Sahasrabudhe, Minghui Chen, mira.rizkallah@ls2n.fr, Mitko Veta, Mohammad Reza Hosseinzadeh Taher, Molin Zhang, Nahid Ul Islam, Nalini M Singh, Neeraj Kumar, Negar Golestani, Nico Scherf, Nicola K Dinsdale, Nicolas Pinon, Niharika S. D'Souza, Odyssee Merveille, Olfa BEN AHMED, Olivier Salvado, Olivier Saut, Oriane Thiery, Othmane Laousy, Pauline Mouches, Peiqi Wang, Peiyu Duan, Prabhat Agarwal, Raghav Mehta, Raphael Prevost, Razmig KECHICHIAN, Roberto Souza, Robin Trombetta, Rodney LaLonde, Roza G Bayrak, Ruibin Feng, Ruining Deng, Ruisheng Su, Ruochen Jin, Salman Ul Hassan Dar, Sandeep Angara, Sayantan Bhadra, Shiv Gehlot, Shunxing Bao, Siem de Jong, Siyu Shi, Sofiane Horache, Sriprabha Ramanarayanan, Suresh Adiga Vasudeva, Suresh Adiga Vasudeva, Suprosanna Shit, Susu Sun, Syed Nouman Hasany, Théo Moutakanni, Theodoros P. Vagenas, Tian Xia, Ulas Bagci, Umang Gupta, Valentine Wagnier Dauchelle, Victor Ion Butoi, Vincent Andrearczyk, Vincent Jaouen, Vivek Gopalakrishnan, Walid Yassine, Weiqiang Jin, Willemina van Veldhuizen, Xueqi Guo, Yannick Raphael Suter, Yashbir Singh, Ye Wu, Yichi Zhang, Yihao Luo, Yongjun Chang, Yuanhan Mo, Yuankai Huo, Yucheng Lu, Yuxin Zhang, Zhe Xu, Zi Li

Contents

A Comprehensive Benchmark of Supervised and Self-supervised Pre-training on Multi-view Chest X-ray Classification *Muhammad Muneeb Afzal, Muhammad Osama Khan, Yi Fang*, PMLR250:1–16, 2024 p 1

Interpretable Uncertainty-Aware Deep Regression with Cohort Saliency Analysis for Three-Slice CT Imaging Studies *Nouman Ahmad, Johan Öfverstedt, Sambit Tarai, Göran Bergström, Håkan Ahlström, Joel Kullberg*, PMLR250:17–32, 2024 p 17

Distance-Aware Non-IID Federated Learning for Generalization and Personalization in Medical Imaging Segmentation *Julia Alekseenko, Alexandros Karargyris, Nicolas Padoy*, PMLR250:33–47, 2024 p 33

FluidRegNet: Longitudinal registration of retinal OCT images with new pathological fluids *Julia Andresen, Jan Ehrhardt, Claus Burchard, Ayse Tatli, Johann Roider, Heinz Handels, Hristina Uzunova*, PMLR250:48–60, 2024 p 48

HoVer-NeXt: A Fast Nuclei Segmentation and Classification Pipeline for Next Generation Histopathology *Elias Baumann, Bastian Dislich, Josef Lorenz Rumberger, Iris D. Nagtegaal, Maria Rodriguez Martinez, Inti Zlobec*, PMLR250:61–86, 2024 p 61

Combining Reconstruction-based Unsupervised Anomaly Detection with Supervised Segmentation for Brain MRIs *Finn Behrendt, Debayan Bhattacharya, Lennart Maack, Julia Krüger, Roland Opfer, Alexander Schlaefer*, PMLR250:87–102, 2024 p 87

GazeDiff: A radiologist visual attention guided diffusion model for zero-shot disease classification *Moinak Bhattacharya, Prateek Prasanna*, PMLR250:103–118, 2024 p 103

Network conditioning for synergistic learning on partial annotations *Benjamin Billot, Neel Dey, Esra Abaci Turk, Ellen Grant, Polina Golland*, PMLR250:119–130, 2024 p 119

There Are No Shortcuts to Anywhere Worth Going: Identifying Shortcuts in Deep Learning Models for Medical Image Analysis *Christopher Boland, Keith A Goatman, Sotirios A. Tsafaris, Sonia Dahdouh*, PMLR250:131–150, 2024 p 131

Video-CT MAE: Self-supervised Video-CT Domain Adaptation for Vertebral Fracture Diagnosis *Lukas Buess, Marijn F. Stollenga, David Schinz, Benedikt Wiestler, Jan Kirschke, Andreas Maier, Nassir Navab, Matthias Keicher*, PMLR250:151–167, 2024 p 151

Evaluating ChatGPT’s Performance in Generating and Assessing Dutch Radiology Report Impressions *Luc Bultjes, Monique Brink, Souraya Belkhir, Bram Ginneken, Alessa Hering*, PMLR250:168–183, 2024 p 168

Predicting Age-related Macular Degeneration Progression from Retinal Optical Coherence Tomography with Intra-Subject Temporal Consistency *Arunava Chakravarty, Taha Emre, Dmitrii Lachinov, Antoine Rivail, Ursula Schmidt-Erfurth, Hrvoje Bogunović*, PMLR250:184–198, 2024 p 184

Hyperparameter-Free Medical Image Synthesis for Sharing Data and Improving Site-Specific Segmentation *Alexander Chebykin, Peter Bosman, Tanja Alderliesten*, PMLR250:199–219, 2024 p 199

Learned morphological features guide cell type assignment of deconvolved spatial transcriptomics *Eduard Chelebian, Christophe Avenel, Julio Leon, Chung-Chau Hon, Carolina Wahlby*, PMLR250:220–233, 2024 p 220

FedFDD: Federated Learning with Frequency Domain Decomposition for Low-Dose CT Denoising *Xuhang Chen, Zeju Li, Zikun Xu, Xu, Cheng Ouyang, Chen Qin*, PMLR250:234–249, 2024 p 234

MFIF-Net: A Multi-Focal Image Fusion Network for Implantation Outcome Prediction of Blastocyst *Yi Cheng, Tingting Chen, Yaojun Hu, Xiangqian Meng, Zuozhu Liu, Danny Chen, Jian Wu, Haochao Ying*, PMLR250:250–262, 2024 p 250

Pretraining Vision-Language Model for Difference Visual Question Answering in Longitudinal Chest X-rays *Yeongjae Cho, Taehee Kim, Heejun Shin, Sungzoon Cho, Dongmyung Shin*, PMLR250:263–275, 2024 p 263

Finite Volume Informed Graph Neural Network for Myocardial Perfusion Simulation *Raoul Sallé Chou, Matthew Sinclair, Sabrina Lynch, Nan Xiao, Laurent Najman, Irene Vignon-clementel, Hugues Talbot*, PMLR250:276–288, 2024 p 276

The Multiscale Surface Vision Transformer *Simon Dahan, Logan Zane John Williams, Daniel Rueckert, Emma Claire Robinson*, PMLR250:289–305, 2024 p 289

Spatio-Temporal Encoding of Brain Dynamics with Surface Masked Autoencoders *Simon Dahan, Logan Zane John Williams, Yourong Guo, Daniel Rueckert, Emma Claire Robinson*, PMLR250:306–325, 2024 p 306

- Video Polyp Segmentation using Implicit Networks** *Aviad Dahan, Tal Shaharabany, Raja Giryes, Lior Wolf*, PMLR250:326–337, 2024 p 326
- An unexpected confounder: how brain shape can be used to classify MRI scans ?** *Valentine Wargnier Dauchelle, Thomas Grenier, Michaël Sdika*, PMLR250:338–351, 2024 p 338
- Multi-scale Stochastic Generation of Labelled Microscopy Images for Neuron Segmentation** *Meghane Decroocq, Binbin XU, Katherine L Thompson-Peer, Adrian Moore, Henrik Skibbe*, PMLR250:352–366, 2024 p 352
- Multimodal Image Registration Guided by Few Segmentations from One Modality** *Basar Demir, Marc Niethammer*, PMLR250:367–390, 2024 p 367
- Auto-Generating Weak Labels for Real & Synthetic Data to Improve Label-Scarce Medical Image Segmentation** *Tanvi Deshpande, Eva Prakash, Elsie Gyang Ross, Curtis Langlotz, Andrew Y. Ng, Jeya Maria Jose Valanarasu*, PMLR250:391–405, 2024 p 391
- Parameter-Efficient Fine-Tuning for Medical Image Analysis: The Missed Opportunity** *Raman Dutt, Linus Ericsson, Pedro Sanchez, Sotirios A. Tsaftaris, Timothy Hospedales*, PMLR250:406–425, 2024 p 406
- Predicting DNA Content Abnormalities in Barrett’s Esophagus: A Weakly Supervised Learning Paradigm** *Caner Ercan, Xiaoxi Pan, Thomas G. Paulson, Matthew D. Stachler, Carlo C. Maley, William M. Grady, Yinyin Yuan*, PMLR250:426–438, 2024 p 426
- DeCoDEX: Confounder Detector Guidance for Improved Diffusion-based Counterfactual Explanations** *Nima Fathi, Amar Kumar, Brennan Nichyporuk, Mohammad Havaei, Tal Arbel*, PMLR250:439–451, 2024 p 439
- Improving CNN-Based Mitosis Detection through Rescanning Annotated Glass Slides and Atypical Mitosis Subtyping** *Rutger RH Fick, Christof Bertram, Marc Aubreville*, PMLR250:452–464, 2024 p 452
- HARP: Unsupervised Histopathology Artifact Restoration** *Moritz Fuchs, Ssharvien Kumar R Sivakumar, Mirko Schöber, Niklas Woltering, Marie-Lisa Eich, Leonille Schweizer, Anirban Mukhopadhyay*, PMLR250:465–479, 2024 p 465
- Active Learning with the nnUNet and Sample Selection with Uncertainty-Aware Submodular Mutual Information Measure** *Bernhard Föllmer, Kenrick Schulze, Christian Wald, Sebastian Stober, Wojciech Samek, Marc Dewey*, PMLR250:480–503, 2024 p 480
- Structure Size as Confounder in Uncertainty Based Segmentation Quality Prediction** *Kai Geißler, Jochen G. Hirsch, Stefan Heldmann, Hans Meine*, PMLR250:504–519, 2024 p 504

- Modeling the acquisition shift between axial and sagittal MRI for diffusion super-resolution to enable axial spine segmentation** *Robert Graf, Hendrik Möller, Julian McGinnis, Sebastian Rühling, Maren Wehrauch, Matan Atad, Suprosanna Shit, menze, Mark Mühlau, Johannes C. Paetzold, Daniel Rueckert, Jan Kirschke*, PMLR250:520–537, 2024 p 520
- Multi-Objective Learning for Deformable Image Registration** *Monika Grewal, Henrike Westerveld, Peter Bosman, Tanja Alderliesten*, PMLR250:538–553, 2024 p 538
- Predicting 3D forearm fracture angle from biplanar Xray images with rotational bone pose estimation** *Hanxue Gu, Roy Colglazier, Jikai Zhang, Robert Lark, Benjamin Alman, Maciej A Mazurowski*, PMLR250:554–576, 2024 p 554
- REINDIR: Repeated Embedding Infusion for Neural Deformable Image Registration** *Louis Harten, Rudolf Leonardus Mirjam Van Herten, Ivana Isgum*, PMLR250:577–595, 2024p 577
- Implicit neural obfuscation for privacy preserving medical image sharing** *Mattias P Heinrich, Lasse Hansen*, PMLR250:596–609, 2024 p 596
- Beyond Structured Attributes: Image-Based Predictive Trends for Chest X-Ray Classification** *Katharina V Hoebel, Jesseba Fernando, William Lotter*, PMLR250:610–640, 2024p 610
- ICL-SAM: Synergizing In-context Learning Model and SAM in Medical Image Segmentation** *Jiesi Hu, Yang Shang, Yanwu Yang, Guo Xutao, Hanyang Peng, Ting Ma*, PMLR250:641–656, 2024 p 641
- A recurrent network for segmenting the thrombus on brain MRI in patients with hyper-acute ischemic stroke** *Sofia Vargas Ibarra, Vincent Martin VIGNERON, Sonia Garcia Salicetti, Hichem Maaref, Jonathan Kobold, Nicolas Chausson, Yann Lhermitte, Didier Smadja*, PMLR250:657–671, 2024 p 657
- Uncertainty-aware retinal layer segmentation in OCT through probabilistic signed distance functions** *Mohammad Mohaiminul Islam, Coen Vente, Bart Liefers, Caroline Klaver, Erik J Bekkers, Clara I. Sánchez*, PMLR250:672–693, 2024 p 672
- Reducing Uncertainty in 3D Medical Image Segmentation under Limited Annotations through Contrastive Learning** *Sanaz Jarimijafarbigloo, Reza Azad, Amirhossein Kazerouni, Dorit Merhof*, PMLR250:694–707, 2024 p 694
- Self-supervised pretraining in the wild imparts image acquisition robustness to medical image transformers: an application to lung cancer segmentation** *Jue Jiang, Harini Veeraraghavan*, PMLR250:708–721, 2024 p 708
- Train Once, Deploy Anywhere: Edge-Guided Single-source Domain Generalization for Medical Image Segmentation** *JunJiang, Shi Gu*, PMLR250:722–741, 2024 p 722

Comparing the Performance of Radiation Oncologists versus a Deep Learning Dose Predictor to Estimate Dosimetric Impact of Segmentation Variations for Radiotherapy *Amith Jagannath Kamath, Zahira Mercado Auf Maur, Robert Poel, Jonas Willmann, Ekin Ermis, Elena Riggenbach, Nicolaus Andratschke, Mauricio Reyes*, PMLR250:742–753, 2024 p 742

ASMR: Angular Support for Malfunctioning Client Resilience in Federated Learning *Mirko Konstantin, Moritz Fuchs, Anirban Mukhopadhyay*, PMLR250:754–767, 2024 p 754

Real-time MR-based 3D motion monitoring using raw k-space data *Marius Krusen, Floris Ernst*, PMLR250:768–781, 2024 p 768

Generating Cerebral Vessel Trees of Acute Ischemic Stroke Patients using Conditional Set-Diffusion *Thijs P. Kuipers, Praneeta R. Konduri, Henk Marquering, Erik J Bekkers*, PMLR250:782–792, 2024 p 782

Hidden in Plain Sight: Undetectable Adversarial Bias Attacks on Vulnerable Patient Populations *Pranav Kulkarni, Andrew Chan, Nithya Navarathna, Skylar Chan, Paul Yi, Vishwa Sanjay Parekh*, PMLR250:793–821, 2024 p 793

Registration Quality Evaluation Metric with Self-Supervised Siamese Networks *Tanvi Kulkarni, Sriprabha Ramanarayanan, Keerthi Ram, Mohanasankar Sivaprakasam*, PMLR250:822–840, 2024 p 822

Efficiently correcting patch-based segmentation errors to control image-level performance in retinal images *Patrick Köhler, Jeremiah Fadugba, Philipp Berens, Lisa M. Koch*, PMLR250:841–856, 2024 p 841

Heterogeneous Medical Data Integration with Multi-Source StyleGAN *Wei-Cheng Lai, Matthias Kirchler, Hadya Yassin, Jana Fehr, Alexander Rakowski, Hampus Olsson, Ludger Starke, Jason M. Millward, Sonia Waiczies, Christoph Lippert*, PMLR250:857–887, 2024 p 857

From Barlow Twins to Triplet Training: Differentiating Dementia with Limited Data *Yitong Li, Tom Nuno Wolf, Sebastian Pölsterl, Igor Yakushev, Dennis M. Hedderich, Christian Wachinger*, PMLR250:888–902, 2024 p 888

Detecting Brain Anomalies in Clinical Routine with the β -VAE: Feasibility Study on Age-Related White Matter Hyperintensities *Sophie Loizillon, Yannick Jacob, Maire Aurélien, Didier Dormont, Olivier Colliot, Ninon Burgos, APPRIMAGE Study Group*, PMLR250:903–917, 2024 p 903

SepVAE: a contrastive VAE to separate pathological patterns from healthy ones *Robin Louiset, Edouard Duchesnay, Grigis Antoine, Benoit Dufumier, Pietro Gori*, PMLR250:918–936, 2024 p 918

Efficient Anatomy Segmentation in Laparoscopic Surgery using Multi-Teacher Knowledge Distillation *Lennart Maack, Finn Behrendt, Debayan Bhattacharya, Sarah Latus, Alexander Schlaefer*, PMLR250:937–948, 2024 p 937

Automated ranking of chest x-ray radiological finding severity in a binary label setting *Matthew Macpherson, Keerthini Muthuswamy, Ashik Amlani, Vicky Goh, Giovanni Montana*, PMLR250:949–963, 2024 p 949

Training-free Prompt Placement by Propagation for SAM Predictions in Bone CT Scans *Caroline Magg, Lukas P.E. Verweij, Maaike A. Wee, George S. Buijs, Johannes G.G. Dobbe, Geert J. Streekstra, Leendert Blankevoort, Clara I. Sánchez*, PMLR250:964–985, 2024p 964

Laparoflow-SSL: Image Analysis From a Tiny Dataset Through Self-Supervised Transformers Leveraging Unlabeled Surgical Video *Karel Moens, Jonas De Vylder, Matthew B. Blaschko, Tinne Tuytelaars*, PMLR250:986–1010, 2024 p 986

IHCscoreGAN: An unsupervised generative adversarial network for end-to-end ki67 scoring for clinical breast cancer diagnosis *Carl Molnar, Thomas E. Tavolara, Christopher A. Garcia, David S. McClintock, Mark D. Zarella, Wenchao Han*, PMLR250:1011–1025, 2024 p 1011

RADR: A Robust Domain-Adversarial-based Framework for Automated Diabetic Retinopathy Severity Classification *Sara Mínguez Monedero, Fabian Westhaeuser, Ehsan Yaghoubi, Simone Frintrop, Marina Zimmermann*, PMLR250:1026–1039, 2024 p 1026

ADAPT: Multimodal Learning for Detecting Physiological Changes under Missing Modalities *Julie Mordacq, Leo Milecki, Maria Vakalopoulou, Steve Oudot, Vicky Kalogeiton*, PMLR250:1040–1055, 2024 p 1040

Semi-supervised learning with Noisy Students improves domain generalization in optic disc and cup segmentation in uncropped fundus images *Eugenia Moris, Ignacio Larrabide, José Ignacio Orlando*, PMLR250:1056–1072, 2024 p 1056

Unsupervised Domain Adaptation of Brain MRI Skull Stripping Trained on Adult Data to Newborns: Combining Synthetic Data with Domain Invariant Features *Abbas Omid, Amirmohammad Shamaei, Anouk Verschu, Regan King, Lara Leijser, Roberto Souza*, PMLR250:1073–1085, 2024 p 1073

Resolution and Field of View Invariant Generative Modelling with Latent Diffusion Models *Ashay Patel, Mark S Graham, Vicky Goh, Sebastien Ourselin, M. Jorge Cardoso*, PMLR250:1086–1097, 2024 p 1086

Unsupervised Deep Learning Method for Bias Correction *Maria Perez-Caballero, Sergio Morell-Ortega, Marina Ruiz Perez, Pierrick Coupe, Jose V Manjon*, PMLR250:1098–1106, 2024 p 1098

Annotation-Efficient Strategy for Segmentation of 3D Body Composition *Lena Philipp, Maarten Rooij, John Hermans, Matthieu Rutten, Horst Karl Hahn, Bram Ginneken, Alessa Hering,* PMLR250:1107–1127, 2024 p 1107

Cell-DETR: Efficient cell detection and classification in WSIs with transformers *Oscar Pina, Eduard Dorca, Veronica Vilaplana,* PMLR250:1128–1141, 2024 p 1128

Exploring Transfer Learning in Medical Image Segmentation using Vision-Language Models *Kanchan Poudel, Manish Dhakal, Prasiddha Bhandari, Rabin Adhikari, Safal Thapaliya, Bishesh Khanal,* PMLR250:1142–1165, 2024 p 1142

NcIEMIL: Rethinking Decoupled Multiple Instance Learning Framework for Histopathological Slide Classification *Sun Qiehe, Doukou Jiang, Jiawen Li, Renao Yan, Yonghong He, Tian Guan, Zhiqiang Cheng,* PMLR250:1166–1178, 2024 p 1166

Slide-SAM: Medical SAM Meets Sliding Window *Quan Quan, Fenghe Tang, Zikang Xu, Hegin Zhu, S Kevin Zhou,* PMLR250:1179–1195, 2024 p 1179

UltraMAE: Multi-modal Masked Autoencoder for Ultrasound Pre-training *Aimon Rahman, Vishal M. Patel,* PMLR250:1196–1206, 2024 p 1196

UnCLe SAM: Unleashing SAM’s Potential for Continual Prostate MRI Segmentation *Amin Ranem, Mohamed Afham Mohamed Aftal, Moritz Fuchs, Anirban Mukhopadhyay,* PMLR250:1207–1220, 2024 p 1207

Ano-swinMAE: Unsupervised Anomaly Detection in Brain MRI using swin Transformer based Masked Auto Encoder *Kumari Rashmi, Ayantika Das, NagaGayathri Matcha, Keerthi Ram, Mohanasankar Sivaprakasam,* PMLR250:1221–1236, 2024 p 1221

Deep blind arterial input function: signal correction in perfusion cardiac magnetic resonance *rebbah, Magalie Viallon, Pierre Croisille, Timothé Boutelier,* PMLR250:1237–1256, 2024 p 1237

Re-DiffiNet: Modeling discrepancy in tumor segmentation using diffusion models *Tianyi Ren, Abhishek Sharma, Juampablo E Heras Rivera, Lakshmi Harshitha Rebala, Ethan Honey, Agamdeep Chopra, Mehmet Kurt,* PMLR250:1257–1266, 2024 p 1257

Parameter-Efficient Generation of Natural Language Explanations for Chest X-ray Classification *Isabel Rio-Torto, Jaime S Cardoso, Luis Filipe Teixeira,* PMLR250:1267–1281, 2024 p 1267

Improving Identically Distributed and Out-of-Distribution Medical Image Classification with Segmentation-Guided Attention in Small Dataset Scenarios *Mariia Rizhko, Lauren Erdman, Mandy Rickard, Kunj Sheth, Daniel Alvarez, Kyla N Velaer, Megan A. Bonnett, Christopher S. Cooper, Gregory E. Tasian, John Weaver, Alice Xiang, Armando J. Lorenzo, Anna Goldenberg*, PMLR250:1282–1296, 2024 p 1282

Anomaly-focused Single Image Super-resolution with Artifact Removal for Chest X-rays using Distribution-aware Diffusion Model *Dattatreya Roy, Angshuman Paul*, PMLR250:1297–1309, 2024 p 1297

MultiMedEval: A Benchmark and a Toolkit for Evaluating Medical Vision-Language Models *Corentin Royer, menze, Anjany Sekuboyina*, PMLR250:1310–1327, 2024 p 1310

Diffusion X-ray image denoising *Daniel Sanderson, Pablo M. Olmos, Carlos Fernández Del Cerro, Manuel Desco, Mónica Abella*, PMLR250:1328–1340, 2024 p 1328

Imbalance-aware loss functions improve medical image classification *Daniel Scholz, Ayhan Can Erdur, Josef A Buchner, Jan C Peeken, Daniel Rueckert, Benedikt Wiestler*, PMLR250:1341–1356, 2024 p 1341

A Patch-based Student-Teacher Pyramid Matching Approach to Anomaly Detection in 3D Magnetic Resonance Imaging *Johannes Schwarz, Lena Will, Jörg Wellmer, Axel Mosig*, PMLR250:1357–1370, 2024 p 1357

Dense Self-Supervised Learning for Medical Image Segmentation *Maxime Seince, Loïc Le Folgoc, Luiz Facury De Souza, Elsa Angelini*, PMLR250:1371–1386, 2024 p 1371

Zero-Shot Medical Image Segmentation Based on Sparse Prompt Using Finetuned SAM *Tal Shaharabany, Lior Wolf*, PMLR250:1387–1400, 2024 p 1387

Lupus Nephritis Subtype Classification with only Slide Level Labels *Amit Sharma, Ekansh Chauhan, Megha S Uppin, Liza Rajasekhar, C.V. Jawahar, P K Vinod*, PMLR250:1401–1411, 2024 p 1401

Med-Tuning: A New Parameter-Efficient Tuning Framework for Medical Volumetric Segmentation *Jiachen Shen, Wenxuan Wang, Chen Chen, Jianbo Jiao, Jing Liu, Yan Zhang, Shanshan Song, Jiangyun Li*, PMLR250:1412–1433, 2024 p 1412

ThickV-Stain: Unprocessed Thick Tissues Virtual Staining for Rapid Intraoperative Histology *Lulin Shi, Xingzhong Hou, Ivy H. M. Wong, Simon C. K. Chan, Zhenghui Chen, Claudia T. K. Lo, Terence T. W. Wong*, PMLR250:1434–1447, 2024 p 1434

Advancing Multiplex Immunofluorescence Imaging Cell Detection using Semi-Supervised Learning with Pseudo-Labeling *Yasin Shokrollahi, Karina Pinao Gonzales, Maria Esther Salvatierra, Simon P. Castillo, Tanishq Gautam, Pingjun Chen, B. Leticia Rodriguez, Sara Ranjbar, Patient Mosaic Team, Luisa Solis Soto, Yinyin Yuan, Xiaoxi Pan*, PMLR250:1448–1461, 2024
p 1448

SINR: Spline-enhanced implicit neural representation for multi-modal registration *Vasiliki Sideri-Lampretsa, Julian McGinnis, Huaqi Qiu, Magdalini Paschali, Walter Simson, Daniel Rueckert*, PMLR250:1462–1474, 2024
p 1462

[Citation needed] Data usage and citation practices in medical imaging conferences *Théo Sourget, Ahmet Akkoç, Stinna Winther, Christine Lyngbye Galsgaard, Amelia Jiménez-Sánchez, Dovile Juodelyte, Caroline Petitjean, Veronika Cheplygina*, PMLR250:1475–1496, 2024
p 1475

Analysis of Transformers for Medical Image Retrieval *Arvapalli Sai Susmitha, Vinay P. Namboodiri*, PMLR250:1497–1512, 2024
p 1497

Nuclei Segmentation in Histopathological Images with Enhanced U-Net3+ *Bishal Ranjan Swain, Kyung Joo Cheoi, Jaepil Ko*, PMLR250:1513–1530, 2024
p 1513

Weakly supervised deep learning model with size constraint for prostate cancer detection in multiparametric MRI and generalization to unseen domains *Robin Trombetta, Olivier Rouvière, Carole Lartizien*, PMLR250:1531–1552, 2024
p 1531

Disruptive Autoencoders: Leveraging Low-level features for 3D Medical Image Pre-training *Jeya Maria Jose Valanarasu, Yucheng Tang, Dong Yang, Ziyue Xu, Can Zhao, Wenqi Li, Vishal M. Patel, Bennett Allan Landman, Daguang Xu, Yufan He, Vishwesh Nath*, PMLR250:1553–1570, 2024
p 1553

VariViT: A Vision Transformer for Variable Image Sizes *Aswathi Varma, Suprosanna Shit, Chinmay Prabhakar, Daniel Scholz, Hongwei Bran Li, menze, Daniel Rueckert, Benedikt Wiestler*, PMLR250:1571–1583, 2024
p 1571

Shape of my heart: Cardiac models through learned signed distance functions *Jan Verhülsdonk, Thomas Grandits, Francisco Sahli Costabal, Thomas Pinetz, Rolf Krause, Angelo Auricchio, Gundolf Haase, Simone Pezzuto, Alexander Effland*, PMLR250:1584–1605, 2024
p 1584

Accelerating physics-informed neural fields for fast CT perfusion analysis in acute ischemic stroke *Lucas Vries, Rudolf Leonardus Mirjam Van Herten, Jan W. Hoving, Ivana Isgum, Bart Emmer, Charles B. Majoie, Henk Marquering, Stratis Gavves*, PMLR250:1606–1626, 2024
p 1606

Target and task specific source-free domain adaptive image segmentation *Vibashan VS, Jeya Maria Jose Valanarasu, Vishal M. Patel*, PMLR250:1627–1639, 2024
p 1627

Joint Motion Estimation with Geometric Deformation Correction for Fetal Echo Planar Images Via Deep Learning *Jian Wang, Razieh Faghihpour, Deniz Erdogmus, Ali Gholipour*, PMLR250:1640–1651, 2024 p 1640

OFELIA: Optical Flow-based Electrode LocalIzAtion *Xinyi Wang, Zikang Xu, Qingsong Yao, Yiyong Sun, S Kevin Zhou*, PMLR250:1652–1669, 2024 p 1652

Skin Malignancy Classification Using Patients’ Skin Images and Meta-data: Multi-modal Fusion for Improving Fairness *KE WANG, Ningyuan Shan, Henry Gouk, Iris Szu-Szu Ho*, PMLR250:1670–1686, 2024 p 1670

Medical diffusion on a budget: Textual Inversion for medical image generation *Bram Wilde, Anindo Saha, Maarten Rooij, Henkjan Huisman, Geert Litjens*, PMLR250:1687–1706, 2024 p 1687

IST-editing: Infinite spatial transcriptomic editing in a generated gigapixel mouse pup *Jiqing Wu, Ingrid Berg, Viktor Koelzer*, PMLR250:1707–1724, 2024 p 1707

Leveraging Probabilistic Segmentation Models for Improved Glaucoma Diagnosis: A Clinical Pipeline Approach *Anna M. Wundram, Paul Fischer, Stephan Wunderlich, Hanna Faber, Lisa M. Koch, Philipp Berens, Christian F. Baumgartner*, PMLR250:1725–1740, 2024p 1725

Semi-Supervised Segmentation via Embedding Matching *xie, Nathalie Willems, Nikolas Lessmann, Tom Gibbons, Daniele De Massari*, PMLR250:1741–1753, 2024 p 1741

Deformation-aware GAN for Medical Image Synthesis with Substantially Misaligned Pairs *Bowen Xin, Tony Young, Claire Wainwright, Tamara Blake, Leo Lebrat, Thomas Gaass, Thomas Benkert, Alto Stemmer, David Coman, Jason Dowling*, PMLR250:1754–1770, 2024p 1754

Feasibility and benefits of joint learning from MRI databases with different brain diseases and modalities for segmentation *Wentian Xu, Matthew Moffat, Thalia Seale, Ziyun Liang, Felix Wagner, Daniel Whitehouse, David Menon, Virginia Newcombe, Natalie Voets, Abhirup Banerjee, Konstantinos Kamnitsas*, PMLR250:1771–1784, 2024 p 1771

Erase to Enhance: Data-Efficient Machine Unlearning in MRI Reconstruction *Yuyang Xue, Jingshuai Liu, Steven McDonagh, Sotirios A. Tsaftaris*, PMLR250:1785–1800, 2024 p 1785

Evaluating Age-Related Anatomical Consistency in Synthetic Brain MRI against Real-World Alzheimer’s Disease Data. *Hadya Yassin, Jana Fehr, Wei-Cheng Lai, Alina Krichevsky, Alexander Rakowski, Christoph Lippert*, PMLR250:1801–1822, 2024 p 1801

PAAN: Pyramid Attention Augmented Network for polyp segmentation *Sida Yi, Yuesheng Zhu, Guibo Luo*, PMLR250:1823–1840, 2024 p 1823

Style Randomization Improves the Robustness of Breast Density Estimation in MR Images *Goksenin Yuksel, Koen Eppenhof, Jaap Kroes, Marcel Worring*, PMLR250:1841–1850, 2024 p 1841

Boundary-aware Contrastive Learning for Semi-supervised Nuclei Instance Segmentation *Ye Zhang, Ziyue Wang, Yifeng Wang, Hao Bian, Linghan Cai, Hengrui Li, Lingbo Zhang, Yongbing Zhang*, PMLR250:1851–1861, 2024 p 1851

Towards a Collective Medical Imaging AI: Enabling Continual Learning from Peers *Guangyao Zheng, Vladimir Braverman, Jeffrey Leal, Steven Rowe, Doris Leung, Michael A. Jacobs, Vishwa Sanjay Parekh*, PMLR250:1862–1877, 2024 p 1862

Conditional Generation of 3D Brain Tumor Regions via VQGAN and Temporal-Agnostic Masked Transformer *Meng Zhou, Farzad Khalvati*, PMLR250:1878–1897, 2024 p 1878

DDA: Dimensionality Driven Augmentation Search for Contrastive Learning in Laparoscopic Surgery *Yuning Zhou, Henry Badgery, Matthew Read, James Bailey, Catherine Davey*, PMLR250:1898–1926, 2024 p 1898

Predicting Atrial Fibrillation Treatment Outcome with Siamese Multi-modal Fusion and Cardiac Digital Twins *Alexander M. Zolotarev, Abbas Khan Rayabat Khan, Gregory Slabaugh, Caroline Roney*, PMLR250:1927–1938, 2024 p 1927

