

The 15th Workshop on Integrative Data Analysis in Systems Biology (IDASB 2024)
Workshop Chairs: Zhongming Zhao, Ming Xiao, Huiru (Jane) Zheng

Machine Learning and Artificial Intelligence in Bioinformatics and Medical Informatics (MABM2024)
Workshop Chairs: Haiying Wang, Hui Wang, Huiru (Jane) Zheng

Joint in-person session, Wednesday, December 4th, 2024, Holiday Inn in Lisbon

Room: To be confirmed

Chair: Prof. Huiru (Jane) Zheng, Dr. Haiying Wang

Time (Lisbon Time)	Title	Presenter/Author
10:20 – 10:30	Opening Remarks	
10:30 – 11:10	Invited Speaker: Multi-modal AI for Biomedicine	Dr. Yuan Luo, Northwestern University
11:10 – 11:30	B1545: AI-Enhanced Detection of Cellular Aggregate Biomarkers For Point-of-Care Using Digital Holographic Microscopy	Qianyu Chen, Matthew Edward Cove, Kerem Delikoyun, Klaus Diepold, Oliver Hayden, Win Sen Kuan, Wei Liu, John Soong
11:30 – 11:50	B1526: Harnessing Generative Pre-trained Transformer for Antimicrobial Peptide Generation and MIC Prediction with Contrastive Learning	Keer Hu, Xiao Yang, Liu Xiao, and ShaoHua Ma
11:50 – 12:10	B1218: Towards the Design, Quality Assessment and Explainability of Synthetic Tabular Data Generation Techniques for Metabolic Syndrome Diagnosis	Diana Manjarres, Begoña Ispizua, and Iratxe Niño
12:10 – 12:30	B1821: Gene function prediction using an AnnoTree-based genomic language model	Huagang Tan, Gabriel Moreno-Hagelsieb, and Andrew Doxey
12:30 – 14:00	Lunch Break	
14:00 – 14:20	S07208: Deep-Learning in Simultaneous DCE-DSC-MRI Perfusion Analysis	Radovan Jirik, Denisa Hyvlova, Ondrej Macicek, Jiri Vitous, and Zenon Starcuk
14:20 – 14:40	B288: Addressing Class Imbalance with Latent Diffusion-based Data Augmentation for Improving Disease Classification in Pediatric Chest X-rays	Sivaramakrishnan Rajaraman, Zhaohui Liang, Zhiyun Xue, and Sameer Antani
14:40 – 15:00	B739: Frequency-Guided Network for Low-contrast Staining-free Dental Plaque Segmentation	Yiming Jiang, Wenfeng Song, Shuai Li, Yuming Yang, Bin Xia, Aimin Hao, and Hong Qin
15:00 – 15:20	B774: GPR-SCSNet: Unequal-Length Time Series Normalization with Split-Channel Residual Convolution and Self-Attention for Brain Age Prediction	Fangling Sun, Chuang Liang, Tülay Adalı, Daoqiang Zhang, Rongtao Jiang, Vince Calhoun, and Shile Qi
15:20 – 15:40	B1252: Category-Aware Fusion Network for Multi-Modal Brain Tumor Segmentation	Mingjing Yang, Yuxin Lin, Yanbin Chen, and Lin Pan
15:40 – 16:00	B1599: Enhancing Dental Implant Risk Prediction with an Interpretable Multi-Instance Learning Model	Yuqian Liu, Almonzer Salah Nooraldaim, Zhengfa Xue, and Jiayin Wang
	Closing Remarks	

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Day2: Online (Video) Session,

The link to watch the presentation: To be confirmed

Paper ID	Title	Presenter/Author
S12201	Attention-stacking adaptive fuzzy neural networks for autism diagnosis	Shuzhan Zhang, Lei Xiao, Hui Huang, Zhongyi Hu
S12202	Artificial intelligence assisted recognition and diagnosis of Magnetically controlled capsule gastroscopy	Susu Chen, Chuyu Wei, Dongqi Li, Glen M Borchert, Zhong Yu, Jiawen Lin, Jingshan Huang
S12203	Adaptive Data Augmentation with NaturalSpeech3 for Far-field Speaker Verification	Li Zhang, Jiyao Liu, Lei Xie
S12204	Deep Transfer Learning for Kidney Disease Detection Using CT Scan Images	Shahid Mohammad Ganie, Pijush Kanti Dutta Pramanik, Zhongming Zhao
S12205	Bioinformatics Analysis Reveals Candidate Biomarkers Served As Dendritic Cell-based Lung Squamous Cell Carcinoma (LUSC) Treatment	Yu Wei, Yongsheng Bai
S12206	STARGATE: Spatial Transcriptomic Analysis with Recurrent and Graph Attention Techniques using Ensemble Learning	Ning Li, Jiayidaer Badai, Dengjie Chen, Ming Xiao, Le Zhang
B562	Relationship of body adipose tissue distribution with vitamin D and bone metabolism indices in patients with type 2 diabetes mellitus	Juan Zhao, Yaxin Guan, Fan Zuo, Xin Nian, Dongqi Li, Glen M. Borchert, Jingshan Huang, Bin Wu,
B761	Differential Expression of Adipocyte Transcripts in SAT and VAT between Normal Weight and Obese/Overweight Individuals	Chuanmin Bai, Rong Huang, Juan Zhao, Dongqi Li, Glen M. Borchert, Jingshan Huang, Bin Wu,
B1443	Research on the Emotional Impact of Restorative Environments Based on Facial Emotion Recognition Systems and Sora Model Virtual Reality Technology	Yujiao Li, Jie Yang, Ming Xiao
B1581	Extracting Structure Information from Narrative Medical Reports based on LLMs	Dehua Chen, Zijian Shen, Mei Wang, Na Dong, Qiao Pan, Jianwen Su
B1825	Integrative Analysis of Multi-Omics Data	Rency Varghese, Hoi Yan Katharine Chau, Radhika Unnikrishnan, Md Mamunur Rashid, Muhammad Salman Sajid, Habtom Ressonm

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S07207	DGEAHorNet: High-order Spatial Interaction Network with Dual Cross Global Efficient Attention for Skin Lesion Segmentation	Haixin Peng, Yanjun Peng, Xue Chen, and Zhenxiang Chen
S07209	CMCD-Net:Unsupervised domain adaptation with Contrastive learning for cross-modality and cross-disease brain lesion segmentation	Xue Chen and Yanjun Peng
S07210	Polygenic Risk Score Simulation: A case study of sudden cardiovascular diseases derived from literature insights	Jana Schwarzerova, Lenka Piherova, Petra Polakovicova, Simona Guziurova, Eva Kutilova, Martina Adamova, Alice Krebsova, Valentine Provaznik, Wolfram Weckwerth, and Radka Sitkova
S07212	A Two-Phase Pneumonia Detection and Subclassification Model Using Hybridized EfficientNet and Random Forest	Femi Ojo, Sowmya Guntupalli, and Olubunmi Adewunmi
S07213	DNMDA: Deep Non-negative Matrix Factorization with Multi-level Integration for MiRNA-Drug Interaction Prediction	Yujie Qi, Jiaxin Yang, Yu-An Huang, Zhu-Hong You, Zimai Zhang, Lun Hu, Xi Zhou, and Pengwei Hu
B376	MFTEP: A Multimodal Fusion Deep Learning Framework for T Cell Receptor–epitope Interaction Prediction	Haoyan Wang, Yifei Huang, and Tianyi Zang

B392	WSC-Trans: A CNN-Transformer Structure-Based 3D Multi-Structural Automatic Segmentation Model for Temporal Bone CT	Xin Hua, Jixin Ma, Hongjian Yu, Zhijiang Du, Fanjun Zheng, Chen Zhang, Qiaohui Lu, and Hui Zhao
B629	Efficient Knowledge Graph Embedding Framework to Alleviate Data Sparsity for Polypharmacy Side Effects Prediction	Senbo Tu, Zhihao Yang, Lei Wang, Wei Liu, Yin Zhang, Ling Luo, Bo Xu, Jian Wang, Yumeng Yang, Zhehuan Zhao, and Hongfei Lin
B706	CIXG: A Comprehensive Approach to Driver Gene Identification and Causal Interpretation	Yawen Liu, Yiwen Chen, Shanling Nie, and Hai Yang
B767	Real-time R-peak detection for 5T MRI Gating based on Template Matching	Xuanyu Zhu, Jiameng Diao, Zuyu Du, Tangwei Cao, Peng Hu, and Lin Xu
B815	Multi Models Fusion for Predicting Stroke Recovery Based on EEG Features	Mingchen Cheng, Xueyi Ni, Zinan Yuan, Xiang Cheng, Zexuan Hao, Zhimin Shao, Yu Pan, and Weibei Dou
B961	Enhancing Spirometry Reference Values Prediction: Exploring Neural Networks as Alternatives to Established Statistical Models	Dima Rodriguez
B970	Early Detection of Depression in Women: AI and Bioinformatic Approach Offers Promising Future	Neda Firoz, Nivedita Yadav, Olga Beresteneva, and Sergey Aksyonov Vladimirovich
B1010	Feature Extraction by Image Transformations for Cell Image Classification	Stefan Röhl, Franziska Steinmetz, Philipp Paukner, Manuel Lengl, Simon Schumann, David Fresacher, Christian Klenk, Dominik Heim, Martin Knopp, Katja Peschke, Maximilian Reichert, Oliver Hayden, and Klaus Diepold
B1058	Learning Dynamic Brain Network Representation Based on Graph Mamba Architecture	Jingjie Wang, Jinwei Lang, Lizhuang Yang, and Hai Li
B1066	Contrastive Learning Enhanced Graph Relation Representation for Document-level Relation Extraction	Qizhu Dai, Jiang Zhong, Kuan Li, Rongzhen Li, Chen Wang, Lebin Lv, Wenjun Chen, and Xue Li
B1079	KF-TMIAF: An Efficient Key-Frames-Based Temporal Modeling of Images and AU Features structure for Masked Facial Expression Recognition	Huijie Gu, Hanpu Wang, Shiwei He, Mengyan Li, Jianmeng Zhou, and Tong Chen
B1110	HCMHS: High-Order SNP Interactions Detection Based on Hierarchical Clustering and Multi-Task Harmony Search Algorithm	Kaiwen Tan, Jin Tian, Yongbing Zhang, Zhenqiu Shu, and Zhengtao Yu
B1151	MNGCCL: Multi-neighborhood graph collaborative contrastive learning for drug-disease association prediction	Cheng-Long Mi, Jin-Xing Liu, Xu Wang, Jun-Liang Shang, Rong Zhu, Juan Wang, and Ling-Yun Dai
B1180	Deep Learning Models for Coronary Artery Disease Classification using Phonocardiograms	Chenhe Liu, Jiasheng Zhang, and Yibo Zhang
B1223	Analyzing Doxorubicin and Cardioprotective PLGA Nanoparticles on Murine Cardiomyocytes using Machine Learning Modeling to Mitigate Cardiotoxicity	Christina Lee, Jennifer McCreary, Howard Chen, Michelle Chen, and Jose Manjarres
B1346	CTGGAN: A modified generative adversarial network for imbalanced CTG signal classification during labor	Peilin Mai, Junyuan Feng, Luoyi Li, Qinqun Chen, Guiqing Liu, and Hang Wei
B1369	Evidence Sentence Augmented Sequence-to-Sequence Method for Document-level Relation Extraction	Qizhu Dai, Jiang Zhong, Kuan Li, Rongzhen Li, Chen Wang, Xuejiao Yang, Sen Yang, and Xue Li
B1431	Dynamic Prediction of Intraoperative Hypotension Based on Hemodynamic Monitoring Data with a Transformer-Based Deep Learning Model	Kai Yang, Mucheng Ren, Jun Xu, and Xian Zeng
B1448	DWTSRNet: Discrete Wavelet Transform Super Resolution Network for medical single image super-resolution	Pietro Cestola, Alice Othmani, Amine Lagzouli, Vittorio Sansalone, and Luciano Teresi
B1452	Prediction of Protein-Peptide Binding Residues via Pre-Trained Protein Language Model and Progressive Contrastive Representation Learning	Jianwei Li, Yonggang Lu, Xiangwen Wang, and Zhaobin Chang
B1497	ASC-3DSAM: Adjacent-Slice Correspondence-guided SAM for 3D Medical Image Segmentation	Huihuan Xu, Siqi Zhang, Jingkun Yue, Tong Tong, Xiaohong Liu, and Guangyu Wang

B1505	Identification of Microbial Species Using an Instance Segmentation Model	Carter Davis, Alexey Lange, Sadie Blaszczyk, Heidi Heldt, Nicole Vander Schaaf, and Jose Manjarres
B1537	Resolution Enhancement of Diffusion-Weighted Images via Unified x-q Space Learning	Jiquan Ma, Siqi Wang, Runlin Zhang, Jian Cao, and Geng Chen
B1622	MMPL-Seg: Prompt Learning with Missing Modalities for Medical Segmentation	Ruowen Qu, Wenxuan Wu, Yeyi Guan, and Lin Shu
B1626	Automatic detection of cognitive decline using Foundation Models: exploring the effect of data diversity	Bahman Mirheidari, Simon Bell, Kirsty Harkness, Daniel Blackburn, and Heidi Christensen
B1764	Natural Language Querying on Domain-Specific NoSQL Database with Large Language Models	Wenlong Zhang, Chengyang He, Guanqun Yang, Dipankar Bandyopadhyay, Tian Shi, and Ping Wang
B1791	Irregular Temporal Classification of Multidrug Resistance Development in Intensive Care Unit Patients	Paula Martín-Palomeque, Óscar Escudero-Arnanz, Joaquín Álvarez-Rodríguez, and Cristina Soguero-Ruiz
B1809	A machine-learning evaluation of biomarkers designed for the future of precision medicine	Sharlee Climer
B1822	Towards Efficient Methods in Medical Question Answering using Knowledge Graph Embeddings	Saptarshi Sengupta, Connor Heaton, Suhan Cui, Soumalya Sarkar, and Prasenjit Mitra
B1834	A Fused Transformer-based Model for Gene Expression Prediction using Histopathology Images	Masum Shah Junayed, Afsana Ahsan Jeny, Sheida Nabavi, and Ion Mandoiu
B1844	A Quantitative Approach for Evaluating Disease Focus and Interpretability of Deep Learning Models for Alzheimer's Disease Classification	Thomas Tam, Litian Liang, Ke Chen, Haohan Wang, and Wei Wu
B1862	VGG-ST: A VGG-Swin Transformer-Based Model for ROP Disease Diagnosis	Xinwei Luo, Songlin Zhao, Yong Chen, Gui-shuang Ying, and Lifang He