PRELIMINARY Program - as of April 19th, 2025

Session	Title and Authors

Analytics 1 - Learning

Evaluating and Comparing Various Machine Learning-Driven Prediction Models of Ulnar Collateral Ligament Reconstruction, Rohan Raj Butani, Kedar Chintalapati, Anirudh Sridharan, Theodore Ioan Oltean and Arjunn Shastri

Machine Learning Prediction of Autism Spectrum Disorder Diagnosis Through Linking Mothers' and Children's Electronic Health Records, Yongqiu Li, Yu Huang, Shuang Yang, Elahe M. Shychuk, Elizabeth A. Shenkman, Jiang Bian, Amber M. Angell and Yi Guo

A Text-to-tabular Approach to Generate Synthetic Patient Data using LLMs, Margaux Törnqvist, Jean-Daniel Zucker, Tristan Fauvel, Nicolas Lambert, Mathilde Berthelot and Antoine Movschin

Addressing Small Sample Size and Improving Interpretability in Biomedical Applications with Adaptive Complexity Deep Neural Networks, William Baskett and Chi-Ren Shyu

AI-centric de-identification of protected health information in emergency call transcripts for knowledge extraction, Kokou Laris Edjinedja, Emilien Arnaud, Omar Elfahim, Oussama Barakat, Thibaut Desmettre and Stephan Robert-Nicoud

Empty, Empty

Analytics 2 - Predicting

Unveiling Novel Gene-Drug-Disease Interactions with GDD-BERT, Lorenzo Ruggeri, Eva Viesi, Andrea Betti and Rosalba Giugno

Enhancing Multi-Attribute Fairness in Healthcare Predictive Modeling, Xiaoyang Wang and Christopher Yang

Examining Imbalance Effects on Performance and Demographic Fairness of Clinical Language Models, Precious Jones, Weisi Liu, I-Chan Huang and Xiaolei Huang

Tracing Pain: Predictive Modeling for Migraine and Headache Triggers, Israa Alqassem, Piyush Borole, Ammar Shaker and Ajitha Rajan

Empty, Empty

Empty, Empty

Analytics 3 - Advanced techniques for disease detection

Cross-site model development and validation of the Shriners Gait Index, Shou-Jen Wang, Thasina Tabashum, Joseph Krzak, Karen Kruger, Adam Graf, Ross Chafetz, Jon Davids, Anita Bagley, Susan Sienko, Jeremy Bauer and Mark Albert

Survival Analysis with Adversarial Regularization, Michael Potter, Stefano Maxenti and Michael Everett

Comparing the Efficacy of a Large Language Model and RxNorm Mapping in Detecting Medication Dispensing Errors from Real-World Data, Yifan Zheng, Megan Whitaker, Jun Gong, Austin Geer and Corey Lester

Semi-Supervised Regression with Co-learning using Optimal Transport for Predicting Future Health Checkup Results, Yuki Kosaka, Keisuke Suzuki, Kosuke Nishihara, Mana Hashimoto, Fumiyuki Nihey and Kentaro Nakahara

Empty, Empty

Empty, Empty

Analytics 4 - Clinical data analytics 1

Analytics for the Location Planning of Attention-Deficit Hyperactivity Disorder Monitoring Capacity in Adolescents, Elin Williams, Elizabeth Williams, Daniel Gartner, Gemma Johns and Alka Ahuja

Creating a Dataset of Autistic Individuals to Recommend Evidence-Based Practices through Generative Artificial Intelligence, Jennifer Kouo, Jinjuan Feng and Enric Jiao

Real-time Automatic Detection of Definite-REM Sleep, Fumiya Sano, Taisuke Kokusho, Kazumasa Horie, Junya Furuki, Yoko Suzuki, Takashi Abe and Hiroyuki Kitagawa

Lab-AI: Using Retrieval Augmentation to Enhance Language Models for Personalized Lab Test Interpretation in Clinical Medicine, Xiaoyu Wang, Haoyong Ouyang, Balu Bhasuran, Xiao Luo, Karim Hanna, Mia Liza A. Lustria, Carl Yang and Zhe He

Evaluating socio-demographic risk factors of asthma control and effects of using a pilot asthma self-management mobile platform, Ruixuan Wang and Kevin C.H. Tsang

Analytics 5 - Clinical data analytics 2

Distilling Clinical Scores with Symbolic Machine Learning: Frailty Index, an HIV Cohort Case Study, Veronica Guidetti, Federico Motta, Jovana Milic, Davide Ferrari, Giovanni Guaraldi and Federica Mandreoli

Label-Efficient Self-Supervised Learning for Sleep Stage Classification Using Multi-Channel In-Home EEG Data, Vijdan Khalique, Zhengting Wang, Kazumasa Horie, Fusae Kawana, Toshio Kokubo, Masashi Yanagisawa and Hiroyuki Kitagawa

Effect of Environmental Personal Exposure on Amyotrophic Lateral Sclerosis Disease Progression, Pietro Bosoni, Irene Aiello, Umberto Manera, Marta Gromicho, Inês Alves, Barbara Di Camillo, Mamede de Carvalho, Adriano Chiò, Riccardo Bellazzi and Arianna Dagliati

Improving Clinical Report Classification with Sentence Boundary Detection, Livia Lilli, Stefano Patarnello, Nikola Dino Capocchiano, Carlotta Masciocchi and Mario Santoro

Empty, Empty

Analytics 6 - Privacy and learning

IPROPS- Iterative Prompt Refinement for Optimizing Privacy-Preserving Synthetic Data Generation, Nina Freise, Marius Heitlinger, Ruben Nuredini and Gerrit Meixner

Privacy Preservation Embedding-Based Clustering for Population Stratification Using Large Language Models, Reem Al-Saidi, Ziad Kobti and Thorsten Strufe

Active Learning for Medical Text Classification: Insights from Ophthalmology and Broader Medical Domains, Luay Abdeljaber, Naif Alatrush, Sultan Alsarra, Mahrusa Billah, Afraa Alshammari and Latifur Khan

Time-Series Patient-Reported Data and LSTM Predicting Hospital Utilisation and Quality of Life Changes During Chemotherapy, Zuzanna Wójcik, Vania Dimitrova, Lorraine Warrington, Galina Velikova, Kate Absolom and Samuel Relton

Causal machine learning to investigate the effectiveness of vancomycin as the empiric treatment choice in patients hospitalized with community acquired pneumonia, Fabrizio Pecoraro, Scott A. Cohen and Mattia Prosperi

Analytics 7 - Machine learning and classification

nnRAG – Incorporating Human-Feedback for Neural Network Driven Similarity Search: A Preliminary Feasibility Study, Siva Singireddi, Sarthak Pandey, Rohit Pardasani and Kiran V Raj

Temporal Characterization of Glycemic Risk Index Sequences through Random Walk Bayesian Clustering, Francesca Pescol, Pietro Bosoni, Stefania Ghilotti, Pasquale De Cata, Valentina Tibollo, Arianna Dagliati, Fulvia Ferrazzi, Lucia Sacchi and Riccardo Bellazzi

P2P-DML: Peer-to-Peer Distributed Machine Learning for Medical Deep Reinforcement Learning, Felix Walger, Miriam Chlumsky-Harttmann and Anke Schmeink

DKGM: A diffusion knowledge graph model for medication recommendation leveraging medical and drug information, Yang Zhao, Pei Wang and Xinghua Shi

Anatomically-constrained Near-eye Gaze Tracking and Movement Classification using Transformer, Yishan Zhong, Jingyan Xu, Benoit Marteau, Shaun Tan and May Wang

Analytics 8 - Heart and vital signs

Patient-Centric Hierarchical Federated Learning for Heart Rate Prediction, Debasish Ghose, Bithi Banik, Yuan Lin and Andrii Shalaginov

A comprehensive PPG-based dataset for HR/HRV studies, Jingye Xu, Yuntong Zhang, Wei Wang, Mimi Xie and Dakai Zhu

Effect of Sampling Rate on ECG Deep Learning Classifiers, Sristi Dakshit, Sagnik Dakshit and Balakrishnan Prabhakaran

A copula approach to modelling dependency patterns in routine vital sign observation timeliness, Rupert Ironside-Smith, Stuart Allen, Beryl Noë and Liam Turner

Covariates of individual patient vital sign observation timeliness in hospital wards, Rupert Ironside-Smith, Stuart Allen, Beryl Noë and Liam Turner

Analytics 9 - LLM techniques for clinical data

Enhancing Classification and Reasoning Abilities of Large Language Models for Predicting Affect from Ambulatory Data, Siddharth Kalyanasundaram, Coralie Phanord, Luka Ruzic, Roselinde Kaiser and Theodora Chaspari

A Novel Prompt Engineering Framework of Large Language Models for Detecting Gout Flares, Lingfei Qian, Qinhan Hu, Qianqian Xie, Eugenia Yupei Chock, Hua Xu and Na Hong

Do LLMs surpass encoders for biomedical NER?, Motasem Obeidat, Md Sultan Al Nahian and Ramakanth Kavuluru

Automated Reddit Data Annotation with Large Language Models, Sai Vuruma, Dezhi Wu, Saborny Sen Gupta, Lucas Aust, Valerie Lookingbill, Wyatt Bellamy, Yang Ren, Erin Kasson, Li-Shiun Chen, Patricia Cavazos-Rehg, Dian Hu, Hongfang Liu and Ming Huang

Systems 1 - Data and processing systems

Static and Dynamic Embedding Approaches to Identify Is-A Relations in SNOMED CT, Bofan He, Jerry Q. Cheng and Huanying Gu

Optimizing Contingency Management with Reinforcement Learning, Young-geun Kim, Mei-Chen Hu, Edward V. Nunes, Sean X. Luo and Ying Liu

Collaboration between Multiple Large Language Models for Medical Question Answering, Kexin Shang, Chia-Hsuan Chang and Christopher Yang

CardioTRAP: Design of a Retrieval Augmented System (RAG) for Clinical Data in Cardiology, Pietro Hiram Guzzi, Annamaria Defilippo, Nicola Procopio, Albino Trapuzzano, Giovanni Canino, Patrizia Vizza, Sabato Sorrentino, Ciro Indolfi and Pierangelo Veltri

Temporal Patterns of Electronic Health Record Use by Healthcare Teams: Associations with Patient Outcomes and Racial Variations, Yubo Feng and You Chen

Systems 2 - Image and video systems

Video-Based Human-Object Interaction Analysis for Patient Behavioral Monitoring, Mostafa Habibi, Zeinab Delaram, Mehrdad Nourani and Dennis Sullivan

TBPGen: Total Body Photography Generator and AI-Driven Detection of Multiple Skin Lesions, Ertugrul Sagdic and Sinan Kockara

CoRPA: Adversarial Image Generation for Chest X-rays Using Concept Vector Perturbations and Generative Models, Amy Rafferty, Rishi Ramaesh and Ajitha Rajan

Incremental Open Source Architecture Supporting a High Availability National PACS, Rui Jesus, Tibério Baptista, Eduardo Pinho, Luis Silva and Carlos Costa

Empty, Empty

Systems 3 - Genomics and personalized medicine

SurgiGard: Surgical Instrument Handover Graph-Based Supervision and Robust Detection, Katerina Katsarou, Amira Mouakher, David Przewozny, Detlef Runde, Paul Chojecki and Sebastian Bosse

Thought Graph: Balancing Specificity and Uncertainty in LLM-Based Gene Set Annotation, Kyle Cox, Chi-Yang Hsu, Jiawei Xu, Gang Qu, Yingtong Zhou, Zhen Tan, Mengzhou Hu, Tianlong Chen, Ziniu Hu, Zhongming Zhao and Ying Ding

Privacy-by-design GEN-RWD Sandbox for Distributed Multicentric Data Analysis in Healthcare: The Proxy Module, Leonardo Nucciarelli, Benedetta Gottardelli, Andrada Mihaela Tudor, Mauro Vallati, Erica Tavazzi, Stefania Orini, Roberto Gatta, Giovanni Arcuri and Andrea Damiani

A cardiovascular modeling framework for enabling personalized healthcare : A Digital Twin Approach, Adithya Balasubramanyam, Rhian Manwani, Diya Kalyanpur, Preethi Basavaraju, Sanjay Varma and Prasad B Honnavalli

Modelling A Digital Twin of The Human Gut Microbiome Towards Precision Medication: A Data Driven Approach, Adithya Balasubramanyam, Ujwal Dinesh Jain, Yashas Balasubramani, Harikeshav Shekar, Nikitha Yangala and Prasad B Honnavalli

Systems 4 - Data analysis

Developing Switching Mechanism to Address Challenging Subjects in Sleep Stage Scoring, Ryuhei Kawabata, Kazumasa Horie, Philippe Lalanda and Hiroyuki Kitagawa

BEAT - An Agile Design Framework for Telemedicine in Hypertension, Matteo Mantovani, Denise Cosolo, Francesco Pio Anzillotti, Cristiano Fava, Pietro Minuz and Carlo Combi

Development Process of an Interdisciplinary Framework to Approach Data and Information Problems in Healthcare – Preliminary Results, Elisabeth Veronica Mess, Andreas Halbritter, Viktor
Werlitz, Julia Krumme, Dominik Merli, Frank Kramer and
Alexandra Teynor

MLM4SynMed: Masked Language Modelling for Synthetic Free-text Medical Records Generation, Samuel Belkadi, Libo Ren, Nicolo Micheletti, Lifeng Han and Goran Nenadic

Human Factors 1 - Usability and user experience

Optimizing Pediatric Emergency Care Experience for Patients with Autism Spectrum Disorder, Ziying Tang, Jinjuan Feng and Jennifer Kouo

Assessing AI Explainability: A Usability Study Using a Novel Framework Involving Clinicians, Mohammad Golam Kibria, Javed Mostafa and Lauren Kucirka

Exploring the Benefits of a Multi-Technology Exergaming Platform for Physical and Emotional Well-Being in Older Adults, Christos Goumopoulos

Leveraging Expert Input for Robust and Explainable AI-Assisted Lung Cancer Detection in Chest X-rays, Amy Rafferty, Rishi Ramaesh and Ajitha Rajan

Human Factors 2 - Surveillance systems

What to consider when developing a new molecular HIV surveillance tool: Perspectives of key stakeholders working in HIV prevention and treatment, Shantrel S Canidate, Hannah R Gracy, Sean McIntosh, Yiyang Liu, Rebecca Fisk-Hoffman, Shannan Rich, Carla Mavian, Robert L Cook, Mattia Prosperi and Marco Salemi

A Gamified Approach for Alcohol Use Disorder Therapy in Virtual Reality: A Randomized Controlled Trial, Veronika Landhäußer, Alexander Bazhanov, Bernd Lenz, Kornelius Kammler-Sücker, Robert Prager Loos, Agnieszka Chojnowska and Gerrit Meixner

Integrating Smart Health Home™ Technologies into Healthcare: A Comprehensive Umbrella Review of Usage, Effectiveness, and Future Directions, Jing Wang, Yijiong Yang, Buna Bhandari, Dan Song, Chengdong Li and Lisa Hightow-Weidman

Empty, Empty

Industry - Track

WearableMil: An End-to-End Framework for Military Activity Recognition and Performance Monitoring, Barak Gahtan, Shany Funk, Einat Kodesh, Itay Ketko, Tsvi Kuflik and Alex M. Bronstein

An Assessment of Clinician Workflow and Financial Value Derived from Workstation Single Sign-On in the United Kingdom and Ireland, George A Gellert

Automated Posture Assessment for Non-specific Low Back Pain from 2D Images, Keisuke Suzuki, Shuhei Noyori, Yuki Kosaka, Takuya Ibara, Koji Fujita and Akimoto Nimura

Privacy in Italian Clinical Reports: A NLP-Based Anonymization Approach, Giovanni Paolo Tobia, Stefano Patarnello, Carlotta Masciocchi, Camilla Nero, Marco Carlo Passarotti, Giovanni Moretti, Antonio Marchetti, Giovanni Arcuri and Livia Lilli

Through the Looking-Glass: The Current AI Landscape in German Hospitals from a Cybersecurity Perspective, Patrizia Heinl, Andrea-Julia Reichl-Streich and Hans-Joachim Hof

NSCLC histological subtype classification from CT scans using generalist 3D medical foundation models, Fatih Aksu, Fabrizia Gelardi, Arturo Chiti and Paolo Soda

Doctoral Consortium - Doctoral consortium

Interpretable Cancer Staging Using Knowledge Elicitation in Large Language Models, Yeawon Lee and Christopher Yang

Gradient-Based Reconciliation of Fairness and Performance in Healthcare AI, Xiaoyang Wang

Artificial Intelligence-Based Risk Prediction of Coronary Ostial Obstruction After Transcatheter Aortic Valve Replacement in Bicuspid Population, Tingting Yang

On the application of biomedical tools for the clinical study data management, Giuseppe Pezzi

Healthcare data interoperability with Large Language Models, Alvaro Riquelme Tornel

Bioengineering for a motion device: application to racewalkers and rehabilitation patients, Danilo Arnone

Value-Based Healthcare and Technology Management: the strategy of A.S.S.T. Spedali Civili di Brescia to improve quality in clinical engineering services, Diego Pagnoncelli

Posters and demo - Rapid fire presentation

A Proposal for Automatic Bounding Box Annotation for Object Detection Tasks, Francesco Mercaldo, Mario Cesarelli, Fabio Martinelli and Antonella

FLIP: A tool for Explainable Federated Learning for Image Processing, Giovanni Ciaramella, Fabio Martinelli, Francesco Mercaldo and Antonella Santone

TALLM: A framework for Text Analysis using Large Language Model, Luca Petrillo, Fabio Martinelli, Antonella Santone and Francesco Mercaldo

Joint Angle Detection through Human Pose Estimation: A Proposal, Ludovica Ciardiello, Fabio Martinelli, Mario Cesarelli, Antonella Santone and Francesco Mercaldo

JAVIS: A Comprehensive AI System Designed for Innovation and Research in Healthcare, Javier Aguirre and Won Chul Cha

Usability-driven design of medical device APPs for telemonitoring of chronic patients, Silvia Cannone, Noemi Giordano, Marco Knaflitz and Gabriella Balestra

A Preliminary Usability Evaluation Study of a Co-Designed Patient Portal for Enhancing Stroke Survivors' Self-Management, Zhiqiang Huo, Timothy Neate, Fara Hamidi, David Wyatt, Sophie Rowland-Coomber, Martin Chapman, Charles Wolfe, Iain J. Marshall and Vasa Curcin

A novel solution for the integration and management of clinical data in surgery procedure, Aldo Chianello, Aurora Delfino, Danilo Lofaro, Pietro Hiram Guzzi, Pierangelo Veltri, Michele Di Dio and Patrizia Vizza

Intelligent Perfect Pose and Health Analysis in Sports and Fitness, Mark Garcia, Omar Cruz, David Lam, Jasper Liu, Kenji Longid, Heng Wu and Minh Nhat Doan

Optimizing Image Preprocessing for Deep Learning-Based Aortic Root Segmentation in TAVR Assessment, Tingting Yang, Guangyu Zhu and Jian Yang

De-identifying Clinical Texts using Biomed-Clinical BERTs and Comprehensive Risk Assessment, Lifeng Han, Angel Paul, Dhivin Shaji, Goran Nenadic, Warren Del-Pinto and Suzan Verberne

Benchmarking Feature Extractors for Prostate Cancer Detection Using Graph Attention Networks: A Focus on Foundation Models, Hafsa Akebli, Vincenzo Della Mea and Kevin Roitero

Implementation of a Modular MIoT Platform for Real-Time Vital Sign Monitoring, Yuan Lin, Debasish Ghose, Jonas Arnesen and August Elvevold

Addressing Current Unmet Clinical Needs by Co-Designing a Novel Web Interface for Decision Support in Pediatric Type 1 Diabetes, Luca Cossu, Giacomo Cappon, Elisa Pellizzari, Annalisa Deodati, Riccardo Schiaffini, Stefano Cianfarani, Giovanni Sparacino and Andrea Facchinetti

Representation Is All We Need: Performance and Fairness of Google X-ray Foundation Model Representations – A Preliminary Study, Gebreyowhans Hailekiros Bahre, Hassan Hamidi, Andrew Sellergren, Leo Anthony Celi, Francesco Calimeri and Laleh Seyyed-Kalantari

On the Role of Negative Feedback in Physiological Systems, Rita Granata, Anna Procopio, Annarita Tedesco, Giuseppe Cesarelli, Carlo Ricciardi, Francesca Angelone, Alfonso Maria Ponsiglione, Alessio Merola, Carlo Cosentino, Maria Romano and Francesco Amato

Intelligent Perfect Pose and Health Analysis in Sports and Fitness, Mark Garcia, Jasper Liu, Omar Cruz, Minh Nhat Doan, David Lam, Kenji Longid and Heng Wu

Prediction of Secondary Myeloid Neoplasms in Aplastic Anemia at Diagnosis and Six Months Follow-up, Mutlu Mete, Ahmet Toprak, Julia Shi, Carmelo Gurnari, Jaroslaw Maciejewski and Taha Bat

Deprescribing numerical methods and structured ways to think about ethics of health technologies, Michael O'Connor

Tutorial 1 - EMF (180min)
  Epidemic Modelling Frameworks for Studying Infectious Disease Dynamics, Daniele Baccega, Marco Beccuti, Simone Pernice and Irene Terrone

Tutorial 2 - LLM (270min)
  Large Language Models in Healthcare: Prompt Engineering Competition, Primoz Kocbek, Lucija Gosak and Gregor Stiglic

Tutorial 3 - DP (90min)
  Digital Phenotyping: Making Sense of Longitudinal Health Data, Aarti Sathyanarayana

Workshop 1 - The 2nd Workshop on Data Privacy and Data Analysis in Healthcare System
  Multidimensional Analysis of Specific Language Impairment Using Unsupervised Learning Through PCA and Clustering, Niruthiha Selvanayagam
  Privacy-Preserving Analysis of Wearable Device Data for Monitoring Health Risks, Yue Xu, Sirihaasa Nallamothu, Cory Culbertson and Haohan Wang
  A Real-Time COPD Exacerbation Detection Algorithm Using multi-morbid symptom diaries: Insights from a Multi-Site Study, Agni Delvinioti, Danae Lekka, Giulio Pagliari, Efstathios Kanavos, Jakob Fabian Lehmann, Rain Jõgi, Marjolein G. J. Brusse-Keizer, Anke Lenferink, Konstantina Kostopoulou, Alice Luraschi, Monique Tabak and Sofoklis Kyriazakos
  An Explainable AI Approach for Periodontitis Severity Classification from Intraoral Images, Francesca Angelone, Alessandra Franco, Noemi Pisani, Rita Granata, Luca Lavorgna, Mario Sansone, Francesco Amato and Alfonso Maria Ponsiglione
  Scalogram Image-Based Texture Features for Robust Epileptic Seizure Detection Under Noisy Conditions, Adithya Rajnarayanan and Ritika Jain
  Correlation and Causal Analysis of Occupational Health Data in the Maritime Domain, Patrizia Quaranta, Roberto Pietrantuono and Giuseppe Cascone

Keynotes -
  The AI-Driven Hospital of the Future, Pierre Baldi
  Personalized Clinical Guideline-based Decision Support Based on Domain Knowledge and Machine Learning, Mor Peleg
  Challenges and Opportunities in AI-Driven Healthcare, May Wang
  Computational analysis of interactomes: Challenges, solutions, and opportunities, Tamer Kavechi

Printed on 19-Apr-2025