Special Session on Intelligent E-Health: Leveraging Data for Digital Health Transformation and eXplainability

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Description

The digital transformation of healthcare is creating unprecedented opportunities to revolutionize patient care through data-driven technologies. This special session, "Intelligent E-Health," focuses on harnessing the power of data to build transparent, trustworthy, and effective digital health solutions. We will explore how explainable artificial intelligence and advanced data science can transform clinical decision-making, enhance diagnostic accuracy, and optimize healthcare delivery while maintaining the highest standards of transparency and ethical practice. The session will also examine the growing role of Large Language Models in enhancing clinical workflows, from automated documentation to patient communication and medical knowledge management.

Particular emphasis will be placed on integrating multimodal medical data, such as imaging, agenomics, and real-time sensor streams, into unified analytical frameworks capable of supporting precision medicine at scale. Furthermore, we will discuss the emerging use of federated and privacy-preserving learning paradigms that enable secure model training across decentralized clinical institutions without compromising patient confidentiality.

The session will address the integration of diverse healthcare data sources, from electronic health records and genomic information to real-time wearable outputs, into interpretable and actionable clinical insights. Key themes include developing scalable frameworks for model explainability, implementing robust data engineering practices to support complex data types, and addressing the critical ethical and privacy considerations in AI-driven healthcare. We will examine how explainable AI techniques, including the strategic application of Large Language Models for tasks like clinical note generation and information retrieval, can be effectively applied across various domains. This encompasses clinical decision support systems, medical imaging, diagnostics, and personalized treatment planning, with a particular emphasis on creating systems that healthcare professionals can understand, trust, and effectively utilize in their daily practice.

This special session aims to bridge the gap between technological innovation and clinical practice by bringing together researchers, healthcare providers, data scientists, and industry leaders. Participants will share advances in explainable AI methodologies, discuss implementation challenges, and establish best practices for developing transparent, reliable digital health systems that improve patient outcomes, optimize healthcare processes, and ensure compliance with evolving regulatory standards.

Topics of Interest

- Data Science Techniques for Explainable Healthcare Models
- Interpretable Machine Learning for Clinical Decision Support
- Transparent AI in Medical Imaging and Diagnostics
- LLM Applications in Healthcare Documentation and Knowledge Systems

● Ethical and Privacy-Preserving Frameworks for Healthcare Data
● LLM and Multimodal AI for Clinical Reasoning and Diagnosis
● Integration of Explainable Models in Digital Health Workflows
● Human-Centered Design for Trustworthy Health AI
● Regulatory Compliance and Validation of Explainable AI Solutions
● Case Studies in Deploying Transparent AI for Clinical Applications
● Emerging Trends in Data-Driven Digital Health Transformation
● Federated and Privacy-Preserving Learning for Distributed Clinical Data
● Real-Time Clinical Decision Support Using Multimodal Streaming Data Analytics

IMPORTANT DATES

Full paper submission: 15th January, 2026
Notification of acceptance: 10th February, 2026
Camera ready and registration : 20th February, 2026

Raouia Mokni is an Assistant Professor of Computer Science at the Higher Institute of Management of Gabes (ISGG), University of Gabes, Tunisia. She holds a PhD in Computer Science from the University of Sfax, Tunisia, with a specialization in the application of Artificial Intelligence to data engineering.
Prior to her current position, she served as an Assistant at ISGIS Sfax and later as an Assistant Professor at the College of Computer Engineering and Science, Prince Sattam Bin Abdulaziz University (PSAU), Saudi Arabia. She has acted as Quality Coordinator for the MSc Data Science program and contributed to the NCAAA accreditation committee. Her academic portfolio includes leadership and participation in over six funded research projects, and she has authored more than 30 peer-reviewed scientific publications.
Her research interests span computer vision, data science and engineering, healthcare, artificial intelligence, natural language processing, biometrics, pattern recognition, and image processing.

M. Tanveer is Professor and Ramanujan Fellow at the Department of Mathematics of the Indian Institute of Technology Indore. Prior to that, he worked as a Postdoctoral Research Fellow at the Rolls-Royce@NTU Corporate Lab of the Nanyang Technological University, Singapore. He received the Ph.D degree in Computer Science from the Jawaharlal Nehru University, New Delhi, India. His research interests include support vector machines, optimization, machine learning, deep learning, applications to Alzheimer's disease and dementia. He has published over 160 refereed journal papers of international repute. His publications have over 10700+ citations with h index 50 (Google Scholar, September 2025). Recently, he has been listed in the world's top 2% scientists in the study carried out by Stanford University, USA. He has served on review boards for more than 100 scientific journals and served for scientific committees of various national and international conferences. He is the recipient of the INNS Aharon Katzir Young Investigator Award for 2024, IIT Indore Best Research Paper Award for 2023, Asia Pacific Neural Network Society Young Researcher Award for 2022, 29th ICONIP Best Research Paper Award for 2022. He is/was the Associate/Action Editor of IEEE Transactions on Neural Networks and Learning Systems (2022 - 2024), Pattern Recognition, Elsevier (2021 -), Neural Networks, Elsevier (2022 -), Engineering Applications of Artificial Intelligence, Elsevier (2022 -), Neurocomputing, Elsevier (2022 -), Cognitive Computation, Springer (2022 -), Applied Soft Computing, Elsevier (2022 -). He is/was Guest Editor in Special Issues of several journals including IEEE Transactions on Fuzzy Systems, ACM Transactions of Multimedia (TOMM), Applied Soft Computing, Elsevier, IEEE Journal of Biomedical Health and Informatics, IEEE Transactions on Emerging Topics in Computational Intelligence and Annals of Operations Research, Springer. He has also co-edited one book in

Springer on machine intelligence and signal analysis. He has organized many international/ national conferences/ symposiums/ workshops as General Chair/ Organizing Chair/ Coordinator, and delivered talks as Keynote/Plenary/invited speaker in many international conferences and Symposiums. He has organized several special sessions in top-ranked conferences including WCCI, IJCNN, IEEE SMC, IEEE SSCI, ICONIP. Amongst other distinguished, international conference chairing roles, he is the General Chair for 29th International Conference on Neural Information Processing (ICONIP2022) (the world's largest and top technical event in Computational Intelligence). Tanveer is currently the Principal Investigator (PI) or Co-PI of 12 major research projects funded by Government of India including Department of Science and Technology (DST), Science & Engineering Research Board (SERB) and Council of Scientific & Industrial Research (CSIR), MHRD-SPARC, ICMR. He is an Elected Board of Governors of Asian Pacific Neural Network Society (APNNS) and Elected INSA Associate Fellow. He was recently honoured with the prestigious INSA Distinguished Lecture Award for 2024.

Boudour Ammar is currently the chair of IEEE Computational Intelligence Tunisia chapter and an associate professor with the Department of Department of management IT at Higher Business School of Sfax (ESCS), University of Sfax, Tunisia. She has the PhD in Computer Science in 2014 and Habilitation to Direct Research (HDR) in 2023 from the National Engineering School of Sfax (ENIS) with the Research Group in Intelligent Machines (REGIM), University of Sfax and she is involved in the supervision of PhD students. In recent years, Dr. Boudour published many highly cited research papers in IEEE Transaction of neural Networks and Learning systems, IEEE Transactions on Affective Computing, Neural Processing Letters, Applied Soft Computing, Neurocomputing, Cybernetics & systems and cognitive computation, Engineering applications of Artificial Intelligence journals. She also published papers in conferences such as International Joint Conference on Neural Networks (IJCNN), International Conference on Neural Information Processing. Her research interests include iBrain (Machine learning, Brain Computing Interaction, Recurrent neural Network) and i-health (Autonomous Robots, Intelligent Control, medical applications, EEG and ECG signals). Boudour was the head of the Career Center and Certification Skills 4C-ENIS in 2018-2019 and she has been trusted with different duties: a technical chair, a Technical Program Chair member, and a reviewer for many leading international scientific committee conferences and journals. She participated in the organization of many events: conferences (AMCAI, ITSIS, ICAIGE) and workshops (IDSS, GAITA).

Amal Jlassi, PhD is a specialist in Artificial Intelligence with extensive expertise in deep learning, medical image processing, smart agriculture, and natural language processing. She serves as the Scientific and Strategic Director at UIK and is an Nvidia Ambassador, actively promoting AI education and innovation.