International Conference on Data-Processing and Networking (ICDPN-2024)

Date: 25th-26th October, 2024

ORGANISED BY : Institute of Technology and Business in České Budějovice, Near Prague, Czech Republic, Europe (Venue).

********** CALL FOR PAPERS **********

SPECIAL SESSION ON

Explainable AI and large-scale data analytics models for healthcare engineering

SESSION ORGANIZERS:

Dr. Karthika Subbaraj
Associate Professor,
Department of Information Technology
Sri Sivasubramaniya Nadar College of Engineering,
Kalavakkam, Chennai, India.
E-Mail: skarthikadb@gmail.com, skarthika@ssn.edu.in

Dr. Balamurugan Balasamy
Associate Dean- Students, Shiv
Nadar University,
Delhi-NCR Campus, Noida, India
E-Mail: kadavulai@gmail.com

EDITORIAL BOARD:

SESSION DESCRIPTION:

The special session on "Explainable AI and large-scale data analytics models for healthcare engineering" seeks to examine the complex nature of AI models that can create a barrier to trust and acceptance from both medical professionals and patients though it presents exciting possibilities for improving medical diagnosis, treatment, and patient outcomes. With a strong emphasis of XAI in healthcare engineering, this session will highlight how AI can be integrated into various healthcare disciplines while ensuring transparency and building trust. The session will also allow academic and industry researchers, developers, and practitioners to address difficulties, share ideas, and debate future research paths, boosting collaboration and networking on how XAI ensures that AI decisions are not just accurate but also understandable. The session comprises of following segments:

- Two Keynote Speech: Insights from leading experts in AI, data analytics, and healthcare engineering.
- Research Presentations: Oral and poster presentations of cutting-edge research.
- Providing Panel Discussions segment and Networking Opportunities

RECOMMENDED TOPICS:

Topics to be discussed in this special session include (but are not limited to) the following:

Healthcare engineering and role of AI in medical data analysis

Traditional Healthcare Engineering Approaches
Integration of AI in Healthcare Engineering
Importance of Interpretability and Explainability in Healthcare AI
Challenges and Opportunities in Explainable AI for Healthcare

Explainable Artificial Intelligence (XAI): Principles and Applications

Need for Explainability in Healthcare AI
Core Concepts of XAI: Interpretability vs. Explainability
Categories of XAI Methods: Model-Agnostic vs. Model-Specific
XAI in Healthcare Engineering

Large-Scale Data Analytics for Healthcare: Methods and Challenges

Types of Healthcare Data and Data Management
Big Data Analytics Techniques in Healthcare Research
Challenges and Ethical Considerations in Large-Scale Healthcare Data Analysis

Machine Learning Fundamentals for Explainable Healthcare Models

Supervised Learning Algorithms for Medical Diagnosis
Unsupervised Learning Techniques for Patient Stratification
Model Evaluation Metrics for Healthcare Predictive Modeling

Explainable Rule-Based Learning for Healthcare Knowledge Discovery

Decision Tree Algorithms and Rule Induction Techniques
Rule-Based Model Explainability: Transparency and Interpretability
Explainable Rule-Based Models in Healthcare

Explainable Deep Learning Architectures for Medical Image Analysis

Deep Convolutional Neural Networks (CNNs) for Medical Image Recognition
Explainable Techniques for Deep Learning Models: Saliency Maps and LIME
Explainable Deep Learning in Medical Imaging

Explainable Natural Language Processing (NLP) for Clinical Text Analysis

Recurrent Neural Networks (RNNs) and Text Representation
Explainable NLP Techniques for Clinical Notes and Electronic Health Records
Explainable NLP in Clinical Decision Support Systems

Counterfactual Reasoning for Causal Inference in Healthcare

Counterfactual Analysis and Causal Relationships
Explainable Machine Learning with Counterfactuals: What-If Scenarios
Counterfactual Reasoning for Personalized Healthcare

Explainable Reinforcement Learning for Healthcare Resource Optimization

Reinforcement Learning Principles and Reward Functions in Healthcare
Explainable Reinforcement Learning Techniques: Interpretable Policies
Explainable Reinforcement Learning in Treatment Planning and Resource Allocation

Explainable AI for Clinical Decision Support Systems (CDSS): Improving Trust and Collaboration

Explainable AI in CDSS: Rationale Behind Recommendations
User-Centric Explainability for Clinicians and Patients
Ethical Considerations in Explainable AI-powered CDSS

Explainable AI for Personalized Medicine and Precision Healthcare

Explainable Models for Patient Stratification and Risk Prediction
Explainable AI for Tailored Treatment Plans and Drug Discovery
Addressing Bias and Fairness in Explainable AI for Personalized Healthcare

Evaluation Frameworks for Explainable AI Models in Healthcare

Metrics for Explainability, Fidelity, and Performance
User Studies and Human-in-the-Loop Evaluation of Explainable AI
Establishing Explainability Benchmarks for Healthcare Applications
Explainable AI for Mental Health Assessment and Intervention

Future Directions and Challenges in Explainable AI for Healthcare Engineering

Causal Explainable AI
Societal and Ethical Considerations
Standardizing Explainable AI Methods and Tools for Broader Adoption in Healthcare Engineering

Explainable AI for Healthcare Robotics and Surgical Assistance

Real-time Decision-making and Explainability in Dynamic Surgical Environments
Explainable AI Techniques for Robotic Surgery
Explainable Object Recognition and Scene Understanding for Surgical Robots
Ethical Considerations in Explainable AI for Surgical Robotics

SUBMISSION PROCEDURE:

Researchers and practitioners are invited to submit papers for this special theme session on ***Explainable AI and large-scale data analytics models for healthcare engineering on or before* 30th July 2024**. All submissions must be original and may not be under review by another publication. INTERESTED AUTHORS SHOULD CONSULT THE CONFERENCE'S GUIDELINES FOR MANUSCRIPT SUBMISSIONS at **https://www.icdpn-conf.com/Downloads**. All submitted papers will be reviewed on a double-blind, peer review basis.

NOTE: While submitting paper in this special session, please specify Session name as **"Explainable AI and large-scale data analytics models for healthcare engineering"** at the top (above paper title) of the first page of your paper.

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