

IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS

J-BHI Special Issue on “Explainable AI for Clinical and Population Health Informatics”

Advances in artificial intelligence tools and methods provide better insights, reduce waste and wait time, and increase speed, service efficiencies, level of accuracy, and productivity in health care and medicine. Moreover, new initiatives such as precision health and medicine emphasize the importance of focusing on individuals’ risk factors for disease prevention, early diagnosis, and intervention. Public health organizations and health care providers often make decisions on the effectiveness of interventions and policies on the basis of their function, time, budget, and human resource availability. Most of the times complex automatic decision support systems, and Black-Box machine learning-based artificial intelligence models lack proper explainability. Explainable Artificial Intelligence (XAI) addresses some of the restrictions of a Black-box AI system by explaining and interpreting their diagnosis, predictions, and recommended actions to stakeholders. It aims to create more understandable, interpretable, and reliable models, by improving the quality of predictions.

This special issue of the IEEE Journal of Biomedical and Health Informatics seeks original contributions presenting the latest achievements in XAI in healthcare and medicine by presenting significant results on theory, methods, systems, and applications of data mining, machine learning, databases, network theory, natural language processing, knowledge representation, artificial intelligence, semantic web, and big data analytics, focused on applications in public health and personalized medicine.

Topics of interest include, but are not limited to, the following:

- Knowledge Representation, Semantic Web, and Machine Learning
- Integrated Health Information Systems
- Patient Education and Patient-Focused Workflows and Human Centric Design
- Geographical Mapping and Visual Analytics for Health Data
- Social epidemiology, and Social Media Analytics
- Epidemic Intelligence, Predictive Modeling and Decision Support
- Biomedical Ontologies, Knowledge Graphs
- Temporal and Spatial Representation and Reasoning
- Case-based Reasoning in Healthcare
- Sentiment Analysis and Opinion Mining
- Computational Behavioral/Cognitive Modeling
- Health Intervention Design, Modeling and Evaluation
- Online Health Education, E-learning, and Mobile Health
- Internet of Things (IoT) in Health and Medicine
- Applications in Epidemiology and Surveillance (e.g. Bioterrorism, Participatory Surveillance, Syndromic Surveillance, Population Screening)

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Key Dates

Deadline for Submission: 24 Aug, 2020

First Reviews Due: 2 Oct, 2020

Revised Manuscript Due: 13 Nov, 2020

Final Decision: 15 Dec 2020

