

IEEE JOURNAL OF BIOMEDICAL AND HEALTH INFORMATICS

J-BHI Special Issue on “Impact of Machine Learning on Personalized Medicine in Public Health”

The integration of advanced analytics and healthcare has opened new horizons in adapting medical measures to individual patients revolutionizing the field of personalized medicine. Normally, machine learning algorithms have the capacity to analyse vast amounts of diverse patient data. These data may include genetic information, clinical records, lifestyle factors and other essential data. Using the algorithms healthcare professionals can extract invaluable insights and patterns from the data providing customized solutions based on individual characteristics and needs. Machine learning also plays an important role in precision diagnostics and treatment recommendations. It has the capabilities to analyse patient characteristics, genetic factors, and treatment responses and predict drug reactions, adverse events and optimal dosage levels. This enables healthcare providers to suggest medicines with minimized side effects by improving more therapeutic outcomes. Moreover, the application of machine learning in public health will provide more accurate prediction in infectious disease surveillance and outbreak. Further, machine learning algorithms can also detect early warning signs of disease outbreaks by analysing multiple data sources such as social media feeds, climate data and geographical information. This will enable public health officials to carry out timely interventions thereby mitigating the impact of infectious diseases on population health. From disease prediction to outbreak surveillance, machine learning has the capacity to reshape the landscape of public health, enabling evidence-based decision-making and ultimately improving health outcomes for individuals and communities. This special issue aims to attract original research papers from professionals in this domain area to provide insights that can shape the future of personalized medicine and improve public health outcomes.

Potential topics include, but are not limited to:

- Machine learning approaches for optimizing precision medicine treatment plans
- Genomic data analysis and machine learning for drug response prediction
- Machine learning in identifying genetic markers for targeted therapies
- Applications of machine learning in predicting treatment outcomes and adverse reactions
- Enhancing interpretability and transparency of machine learning models in healthcare
- Overcoming bias and improving fairness in machine learning-based personalized medicine
- Ethical considerations and privacy protections in the era of machine learning and personalized medicine
- Data sharing and governance frameworks for effective collaboration in public health
- Machine learning for early detection and intervention in infectious disease outbreaks
- Automation of public health surveillance systems using machine learning
- Machine learning-enabled decision support systems for healthcare providers
- Real-time monitoring and prediction of public health indicators using machine learning
- Machine learning for optimizing clinical trial design and patient selection in drug development.

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Key Dates

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