The 21st IEEE International Conference on Machine Learning and Applications (IEEE ICMLA 2022)

Special Session on: **Machine Learning in Health**

December 12-15, 2022, The Bahamas, Caribbean
https://www.icmla-conference.org/icmla22/

Background and Aims

Machine learning and artificial intelligence are changing the landscape of healthcare and modern personalized precision medicine. The increasing availability of health data, including patient medical records also obtained by wearable sensors, medical imaging, health insurance claims, surveillance, together with the rapid progress of machine learning algorithms and analysis techniques, are gradually enabling doctors for better diagnosis, improve disease surveillance, facilitating early disease detection, uncovering novel treatments and drug-interaction, detect false alarms and over-diagnosis, and creating an era of truly personalized medicine.

A great challenge is build better modeling tools for integrating human expertise and machine learning techniques to exploit big data in healthcare, and formulate hypothesis about how the human organisms act in heath and illness.

Scope/Topics

The main areas of machine learning and AI applications in healthcare are: personalized precision medicine, analysis and interpretation of radiology images, automated diagnosis, prescription preparation, clinical workflow monitoring, patient monitoring and care, discovery of new drugs, predicting the impact of gene edits, treatment protocol development, early diagnoses of diseases. In this context, modern machine learning techniques can play a crucial role to deal with such amount of heterogeneous, multi-scale and multi-modal data. Some examples of techniques that are gaining attention in this domain include deep learning, domain adaptation, semi-supervised approach, time series analysis and active learning. Even though the use of machine learning and the development of ad-hoc techniques are gaining increasing popularity in the health domain, we can witness that a significant lack of interaction between domain experts and machine learning researchers still exists. The special session provides a venue for the community to promote collaborations and present and exchanges ideas, practices and advances specific to machine learning use in the particularly challenging area of health. The goal is to bring people in the field cross-cutting information management and medical informatics to discuss innovative data management and analytics technologies highlighting end-to-end applications, systems, and methods to address problems in healthcare, public health, and everyday wellness, with clinical, physiological, imaging, behavioral, environmental, and omic data, and data from social media

and the Web.

The special session solicits empirical, experimental, methodological, and theoretical research reporting original and unpublished results on topics in the realm of healthcare and health informatics along with applications to real life situations. This can mean new models, new datasets, new algorithms, or new applications.

Topics of interest include, but are not limited to:
- Personal health virtual assistant
- Early disease diagnosis and treatment prediction
- Clinical decision support in disease diagnosis and treatment
- Analysis and interpretation of radiology images
- Application of deep learning methods to health data
- Spatio-temporal prediction of pandemics
- Modeling the health status and well-being of individuals
- Real-time syndromic surveillance and early detection of emerging disease
- Drug adversial reaction
- Drug abuse and alcoholism incidence monitoring
- Medical imaging analysis and diagnosis assistance
- mHealth, eHealth, and Wearable Health
- Blockchain for healthcare
- Social media data analys and mining for public health
- Novel methods and frameworks for mining and integrating big health data
- Semantics and interoperability for healthcare data
- Clinical natural language processing and text mining
- Predictive modelling for diagnosis and treatment
- Data privacy and security for healthcare data
- Medical fraud detection
- Data analytics for pervasive computing for medical care.

Submission Guidelines and Instructions

Papers submitted for review should conform to IEEE specifications. Manuscript templates can be downloaded from IEEE website[1]. The maximum length of papers is 8 pages. All the papers will go through the double-blind peer-review process. Authors' names and affiliations should not appear in the submitted paper. The authors' prior work should be cited in the third person. Authors should also avoid revealing their identities and/or institutions in the text, figures, links, etc.

Paper Publication

Accepted papers will be published in the IEEE ICMLA 2022 conference proceedings (published by IEEE). A selected number of accepted papers will be invited for possible inclusion, in an expanded and revised form, in some journal special issues.

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[1] www.ieee.org/conferences_events/conferences/publishing/templates.html

Important Dates:

- Submission Deadline: September 9, 2022

- Notification of Acceptance: October 7, 2022

- Camera-ready papers & Pre-Registration: October 14, 2022

Special Session Organizers/Chairs:

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