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Computational Intelligence in Healthcare

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Edited by

Giovanna Castellano

Gabriella Casalino



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The number of patient health data has been estimated to have reached 2314 exabytes by 2020. Traditional data analysis techniques are unsuitable to extract useful information from such a vast quantity of data. Thus, intelligent data analysis methods combining human expertise and computational models for accurate and in-depth data analysis are necessary. The technological revolution and medical advances made by combining vast quantities of available data, cloud computing services, and AI-based solutions can provide expert insight and analysis on a mass scale and at a relatively low cost. Computational intelligence (CI) methods, such as fuzzy models, artificial neural networks, evolutionary algorithms, and probabilistic methods, have recently emerged as promising tools for the development and application of intelligent systems in healthcare practice. CI-based systems can learn from data and evolve according to changes in the environments by taking into account the uncertainty characterizing health data, including omics data, clinical data, sensor, and imaging data. The use of CI in healthcare can improve the processing of such data to develop intelligent solutions for prevention, diagnosis, treatment, and follow-up, as well as for the analysis of administrative processes.

The present Special Issue on computational intelligence for healthcare is intended to show the potential and the practical impacts of CI techniques in challenging healthcare applications.



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