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Presents

Bioinformatics in Medical Imaging

by

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Bioinformatics is an exciting research field combining advanced computational technologies with biomedical applications. Medical imaging represents one of the most promising avenues for bioinformatics research, applications of which can assist in a wide variety of challenges facing the medical community. Bioinformatics technologies can assist in the early detection and diagnosis of a variety of medical conditions such as cancer, autism, schizophrenia, stroke and more. Bioinformatics technologies can also assist in monitoring a disorder's development, assessing treatment response and can help identify abnormal physiology associated with a condition, information that can help physicians better understand their patient and can help inspire new therapies. Bioinformatics technologies can be used to model neurodevelopment which can identify subjects with developmental delay, improve our understanding of healthy brain development and help better characterize neurodevelopmental disorders as deviations from expected growth trajectories. This presentation will discuss novel developments in pattern recognition technology research and the promising results of their application in breast cancer, stroke and neurodevelopmental imaging of the brain. These pattern recognition developments include novel formulations of statistical machine learning technology, data mining applications, the extraction of novel measurements (or biomarkers) from medical imaging examinations and methods for effectively evaluating the performance of these technologies.