Advanced Treatment Response Prediction using clinical parameters and advanced unsupervised machine learning: the contribution scattergram.

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Technology description

The early diagnosis of cancer is necessary to facilitate the clinical management of patients, and machine learning (ML) algorithms can identify and model the progression and treatment of cancerous conditions. As a result, there is a growing trend in the application of ML methods in cancer research, and considerable activity in the integration of different types of data for the treatment of breast cancer (Kourou et al.). However, there are few computer-aided diagnostic systems that integrate MRI and other imaging modalities to visualize the data. Therefore, researchers have developed ML systems, with varying degrees of supervision and data labeling, to capture relationships across different ontologies (images, clinical data, etc.). JHU inventors have developed a novel incremental nonlinear dimensionality reduction algorithm that maps each image to a point in a 2-D space to crease a scattergram. In a trial, the system was able to discern treatment response across multiple imaging modalities.

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