عنوان مقاله:

Beyond Univariate Statistics : Harnessing Neuroinformatics and Data Mining for Comprehensive Brain Understanding

محل انتشار:

پنجمین کنفرانس بین المللی محاسبات نرم (سال: 1402)

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خلاصه مقاله:

The brain's intricate coordination requires integrating massive amounts of information from numerous disciplines. Modern methods include multielectrode arrays, calcium imaging, and optogenetics offer neuron-level data. In systems and circuit neuroscience, investigating huge populations of neurons is difficult. Experimental neurotechnology, optimal control, signal processing, network analysis, and dimensionality reduction may solve these problems. Univariate statistical technique in neuroscience research fails to show component interactions and their effects. This study uses support vector machines, principal component and factor analysis, cluster analysis, multiple linear regression, and random forest regression. The discipline of "connectomics" studies brain connections at big and small scales. This shows how neuroinformatics accelerates progress. NIF integrates neurological data, making database .integration easy. Data mining across many neuroscience data layers is also examined for pros and cons

کلمات کلیدی:

data mining،multivariate statistical analyses،neuroscience،therapeutic development،translational neuroscience