Neurobiology

Functional integration is the study of how brain regions work together to process information and effect responses. Though functional integration frequently relies on anatomic knowledge of the connections between brain areas, the emphasis is on how large clusters of neurons - numbering in the thousands or millions - fire together under various stimuli. The large datasets required for such a whole-scale picture of brain function have motivated the development of several novel and general methods for the statistical analysis of interdependence, such as dynamic causal modelling and statistical linear parametric mapping. These datasets are typically gathered in human subjects by non-invasive methods such as EEG/MEG, fMRI, or PET.