Title:

New Methods in Electrical Source Imaging Based on EEG and Post-Mortem Pathology Data

Abstract:

A central task for Neuroscience is to determine the location of electrical activity of neural origin inside the brain. Electrical signals can be recorded at a high resolution in time but low resolution in space, thus making it difficult to locate their source unambiguously.

Electrical Source Imaging (ESI) is a particular framework for locating neural electrical sources. ESI is an ill-posed problem (in the sense of Hadamard), an issue that is overcome by modeling additional assumptions about the electrical sources. For instance, minimal-norm estimators assume that the most plausible estimation is that with a lower norm. However, these estimators possess a low resolution in space.

In this work, we construct a novel ESI estimator incorporating anatomical binary data from post-mortem observations of pathological symptoms in order to improve its spatial resolution. This work may be extended to similar types of binary data derived from fMRI, NIRS, and CT, among others.

Teams Link (shortened):

<https://rb.gy/2exele>

Teams Link (original):

<https://teams.microsoft.com/l/meetup-join/19%3ameeting_Yjg5ODA0ZWMtNmE4OS00OGYyLWEyN2QtNzRlMzkyZjI4MWU5%40thread.v2/0?context=%7b%22Tid%22%3a%225cdc5b43-d7be-4caa-8173-729e3b0a62d9%22%2c%22Oid%22%3a%2247bb08e9-4e44-46db-909c-867e245c0847%22%7d>