

【セミナーのご案内】

Toward Probabilistic Diagnosis and Understanding of Depression Based on Functional MRI Data

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場所 : 基礎研究棟1階カンファレンスルーム

Abstract::

Depression is a highly complex disease for which diagnostic procedures are not well defined and currently depend on time consuming evaluation of self reports and interviews by experienced specialists. Enabling diagnosis of depression based on brain imaging data is therefore highly desirable. Advances in imaging as well as machine learning have propelled research in that direction, however, a common problem in applying machine learning algorithms is that the number of imaging data dimensions often greatly exceeds the number of available training samples. Furthermore, interpretability of the learned classifier with respect to brain function and anatomy is an important, but non-trivial issue. We propose the use of logistic regression with a least absolute shrinkage and selection operator (LASSO) to capture the most critical input features. In particular, we consider application of group LASSO to select brain areas relevant to diagnosis. An additional advantage of LASSO is its probabilistic output, which allows evaluation of diagnosis certainty.

I will show results obtained from semantic and phonological verbal fluency fMRI data where over 90% classification accuracy was achieved and contributions to the classification from certain brain areas clearly identified.



* 教員、大学院生等ご来聴をお待ちいたします。

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