Deep Ensemble Learning of Sparse Regression Models for Brain Disease Diagnosis

Heung-Il Suk, Seong-Whan Lee, Dinggang Shen,
for the Alzheimer's Disease Neuroimaging Initiative

PII: S1361-8415(17)30016-6
DOI: 10.1016/j.media.2017.01.008
Reference: MEDIMA 1223

To appear in: *Medical Image Analysis*

Received date: 19 August 2016
Revised date: 14 January 2017
Accepted date: 23 January 2017

Please cite this article as: Heung-Il Suk, Seong-Whan Lee, Dinggang Shen, for the Alzheimer's Disease Neuroimaging Initiative, Deep Ensemble Learning of Sparse Regression Models for Brain Disease Diagnosis, *Medical Image Analysis* (2017), doi: 10.1016/j.media.2017.01.008

Highlights

- A novel framework that combines the two conceptually different methods of sparse regression and deep learning for Alzheimer's disease/mild cognitive impairment diagnosis and prognosis
- Use of the outputs from sparse regression models with different values of a regularization control parameter as target-level representations
- Rigorous experiments with MR images of 805 subjects in the ADNI cohort