

The SPARE-AD score [*Spatial Pattern of Abnormalities for Recognition of Early AD* (Davatzikos, Xu et al. 2008)] was calculated for each individual, using a pattern classification method described in (Fan, Shen et al. 2007; Fan, Batmanghelich et al. 2008). The SPARE-AD score indicates the presence of an AD-like spatial pattern of brain atrophy, if positive, and otherwise if negative. It has utilized the MRI T1-weighted scans of 66 cognitively individuals (mean age \pm S.D., 75.18 \pm 5.39), and 56 AD patients (77.40 \pm 7.02), of the ADNI cohort, and has learned the spatial pattern of atrophy that best differentiates between these two groups. The derived classifier is then applied to new scans, the scans of the MCI individuals in this case. A score is produced, positive or negative as described above. Baseline SPARE-AD scores have been found to be highly predictive of subsequent cognitive decline (Fan, Batmanghelich et al. 2008) and to differentiate between MCI converters and non-converters (Misra, Fan et al. 2008, in press). SPARE-AD scores are therefore likely to be good imaging biomarkers of early AD. The longitudinal progression of the SPARE-AD scores is being continuously monitored and is periodically uploaded onto the ADNI web site. This work was supported in part by the Institute for the Study of Aging, and in part by R01AG14961 (PI: Christos Davatzikos, Ph.D.). Please contact Christos Davatzikos (Christos.Davatzikos@uphs.upenn.edu) for details. The software is available under <http://www.rad.upenn.edu/sbia>.

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