

Sparse classification with MRI based markers for neuromuscular disease categorization

Supplementary Material

No Author Given

No Institute Given

Toward demonstrating the added value of the DTI features, we evaluated the discriminatory power of a classifier using only the structural features in the classification task of the two myopathies (FSH and DM1). We investigated the same supervised learning methods and in the same experimental scheme as before. The best performance was achieved by k -support regularized SVM, whose performance is shown in Fig. 1 and Table 1 in comparison with the best classifier using both structured and DTI features. Wilcoxon signed rank test also shows that this performance is statistically significantly worse than its previous performance using both structured and DTI features (p-value was $\ll 0.05$)

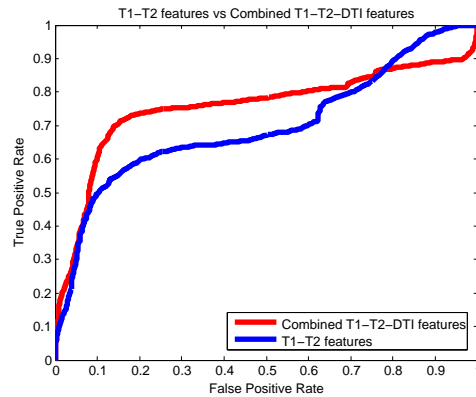


Fig. 1. Mean ROC curves over 1000 trials. In red is the best classifier (k -support regularized SVM) using features both structured and DTI features, while in blue the best classifier (k -support regularized SVM) using only structured features. Using T1 and T2 weighted features, with the combination of DTI features gives the best performance in discriminating the two neuromuscular diseases (Figure best viewed in color).

Table 1. Classification mean accuracy (in $\% \pm$ standard error) and the mean area under the curve of the best classifier using both structured and DTI features and the best classifier using only structured features over 1000 trials. Chance is 60%.

Features Used	Accuracy	Area Under the Curve
Combined T1, T2 and DTI features	77 ± 0.013	0.756
T1 and T2 features	73 ± 0.006	0.697