University of Salzburg — Lecturer: Roland Kwitt

Machine Learning (911.236)

Exercise sheet E (May 16, 2018) — Prepare for presentation on **May 22, 2018**

Boosting

Exercise 1. 10 P.

Assume that the main weak learner assumption of AdaBoost holds. Let h_t be the base learner selected at the t-th round of boosting. Show that the base learner h_{t+1}, selected at the $(t+1)$-th round of boosting, must be different from h_t.

One strategy would be to show that selecting h_t in the $(t+1)$-th round of boosting leads to a violation of the weak learner assumption, i.e., that the weak learner does better than $1/2$ in terms of error. You will also need the AdaBoost expressions for Z_t and α_t.

Total #points: 10 P.