# Competition report #2

## SGN-41007 Pattern recognition and Machine Learning

## Group 43

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Petri Lehtinen was also part of this group but did not participate. He informed the rest of the group early that he will not complete this course and it was fine with the rest of us.

In the second part of the competition our task was to get over 70% accuracy on the public leaderboard. To achieve this we tried different classifiers and different ways to split the data downloaded from Kaggle. We tried to use all of the data without modifying it, taking means from each channel and taking means and stds from each channel. We also tried to insert the mean and std values at the end of each channel while still saving all the data. With our local test bench we found out that taking only means and stds from each channel was the best choice.

Based on our local test results we chose the final classifier to be ExtraTreesClassifier with 3000 trees. With this classifier and using only means and stds from each channel we got slightly over 70% accuracy in Kaggle.

We also tried building our own neural network with different configurations. With our local test bench we were able to reach stable 0.50-0.55 validation accuracy. Different layers we tried: Dense, LSTM, Conv1D, MaxPooling and Flatten. We tried different parameters, activations and regularizations for the layers. For the compilation of the network we tried different losses and optimizers. Submission file made with best (based on local testing) neural network got us about 69% accuracy in Kaggle.