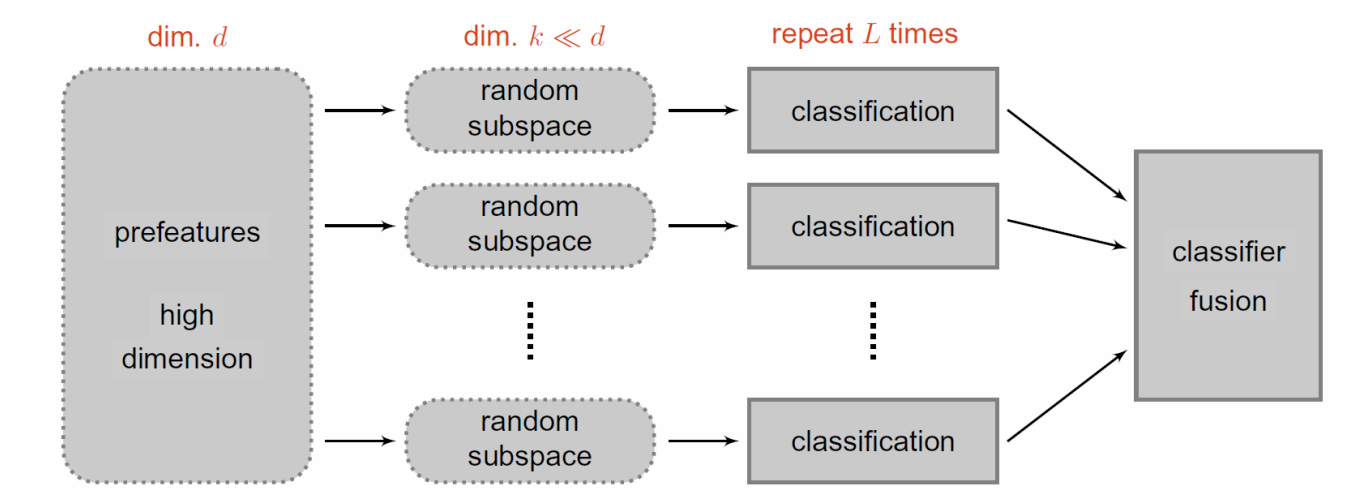
Assignment 2: Steganalysis based on fusing classifiers built on random subspaces

Step 1 – Form high-dimensional prefeatures
capture as many dependencies among cover elements as possible
don't be restricted by a dimensionality
emphasize diversity of individual features
Step 2 – Classify in high dimensions using an ensemble approach



Particularities of implementation

- `Random subspace = random selection (without repetition)`
  The complexity does not depend on the dimensionality d
- `Individual classifiers (base learners)`

– Need to be sufficiently diverse (need to make different errors)
– Weak and unstable classifiers preferable
– Fisher Linear Discriminants (FLDs) was used

- `Fusion = majority voting scheme (sum(decision(i))>threshold)`

Task 1. Impact of the size of training set

To investigate the impact of the size of training set on the quality of steganalysis

1.1. Plot ROCs for different values of parameter size_training (tutorial.m, line 80)

Task 2. Impact of cover data distortions

To investigate the impact of cover data distortions on on the quality of steganalysis

2.1. Plot ROCs for different level of the noise added to the training set of cover data (tutorial.m, line 88)