Learnability

A parametric model can be split into two parts: a static structure and a dynamic set of parameters. The former is determined by choice of a specific algorithm and is normally immutable (except in the cases when the model provides some re-modeling functionalities), while the latter is the objective of our optimization. Considering **n** unbounded parameters, they generate an **n**-dimensional space (imposing bounds results in a sub-space without relevant changes in our discussion) where each point, together with the immutable part of the estimator function, represents a learning hypothesis **H** (associated with a specific set of parameters):

$$H = \{\theta_1, \theta_2, \ldots, \theta_n\}$$

The goal of a parametric learning process is to find the best hypothesis whose corresponding prediction error is minimum and the residual generalization ability is enough to avoid overfitting. In the following figure, there's an example of a dataset whose points must be classified as red (**Class A**) or blue (**Class B**). Three hypotheses are shown: the first...

Previous Section (/book/big_data_and_business_intelligence/9781785889622/2/ch02lvl1s

Next Section (/book/big_data_and_business_intelligence/9781785889622/2/ch02lvl1sec1