Supervised Learning

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1 Introduction

- Learning a function that maps an input to an output (=target).

- Learning is based on example input values with corresponding target values.

- Typical usage: train model on dataset with input + target values and then use the model to predict target values for new inputs.

- Two types: Classification and Regression

Terminology

- Model: parameterized function with specific parameter values

- Model class: the class of models in which we search for the model (e.g. neural network, SVM, etc)

- Parameters representation of concrete models inside the given model class

- Hyperparameters: paramters controlling the model complexity. Not learned. E.g. number of neurons in NN)

Generalization Error/Risk $R(g(.;w))$