

Lecture 8

Nonparametric Regression

In this lecture we consider ways to improve on linear regression modeling.

Review of Simple Linear Regression

Having observed pairs of data $\{x_i, y_i\}_{i=1}^n$ we consider the *parametric* linear regression model:

$$y_i = \beta_0 + \beta_1 x_i + \epsilon_i \quad i = 1, \dots, n$$

We usually assume the *errors* ϵ_i are independent and identically distributed with zero mean and constant variance σ^2 .

Often the distribution of the errors is assumed to be Gaussian. All of these assumptions are strong and can be weakened in a non-parametric approach.