

# Probabilistic View of Linear Regression

Tirtharaj Dash

Dept. of CS & IS and APPCAIR  
BITS Pilani, Goa Campus

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$$\underline{X} = (x_1, x_2, \dots, x_d), \quad Y$$

independent variables      dependent variable

Goal: Relate  $Y$  to a linear predictor function of  $\underline{X}$

for any given  $i^{\text{th}}$  data point:

$$\hat{y}(i) = \beta_0 + \beta_1 x_1 + \dots + \beta_d x_d$$

Linear in Parameters:  $\underline{\beta} = (\beta_0, \beta_1, \dots, \beta_d)$