Bias Variance Trade Off

Why we need to know about Bias / Variance Trade off?

→ To avoid overfitting & underfitting conditions.

→ To have consistencies in prediction.

Bias is an inclination towards (or away from) one way of thinking, often based on how you were raised.

For ex: In one of the most high profile trials of 20th century O.J. Simpson was acquitted of murder. Many people remain biased against him years later, treating him like a convicted killer anyway.

Variance (it is basically a measure of spread of variables from it's mean).

$$S^2 = \frac{\sum (x_i - \bar{x})^2}{N}$$

N = no. of observations

S^2 → variance

S → SD

It is calculated as: Average squared deviation of each number from the mean of a data set.

For ex: for numbers 1, 2, 3 mean is 2 & Variance is 0.667.

$$V = [(1-2)^2 + (2-2)^2 + (3-2)^2]/3$$

$$= 1 + 0 + 1 = 2/3 = 0.66.$$