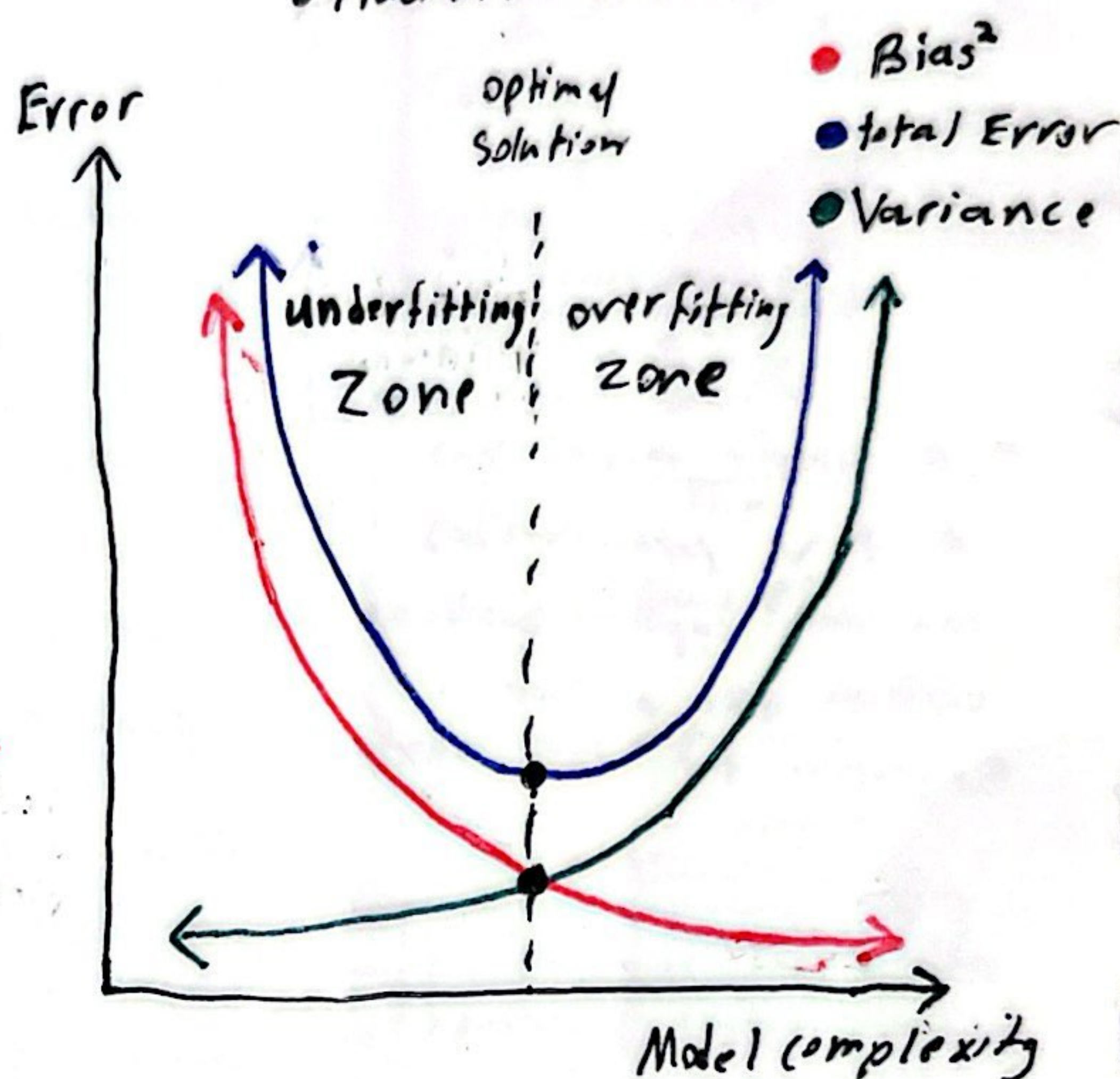


Bias Variance Tradeoff

- a concept in ML that describes the struggle of a model's ability to minimize bias and variance at the same time. Usually reducing one increases the other. as model complexity increases

Bias decreases as the model can capture more complex patterns. Variance increases as the model becomes more sensitive to changes in training data. Bias increases as model complexity decreases. Variance decreases as model becomes more stable, we want optimal solution: good at finding patterns and not fitting (learning) to noise.

Tradeoff chart



Noise

- refers to random variations and errors in data that don't represent true patterns in data, like random fluctuations in sensor reading for ex. or errors in data collection. we want to find the true patterns while ignoring noise. noise is what's left over after perfect fitting of the data with a perfect model capturing all the signal in data.

