Exercise: Choice of representations

(1/1 point)

We wish to estimate an unknown quantity Θ. Our measuring equipment produces an observation of the form $X = \Theta^3 + W$, where W is a noise term which is small relative to the range of Θ. Which type of linear estimator is preferable in such a situation?

- $\widehat{\Theta} = aX + b$
- $\widehat{\Theta} = aX^3 + b$
- $\widehat{\Theta} = aX^{1/3} + b$ ✔

Answer:
If the noise W were completely absent, we would estimate Θ by letting $\widehat{\Theta} = X^{1/3}$. In the presence of small noise, our estimator should again have a similar form, which argues in favor of the third option.

You have used 1 of 1 submissions


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