Practice Problems

March 16th 2021

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1. ([Alp2014] Exercise 4.9 pp 90) Let us say, given the samples $X_i = \{x_i^t, r_i^t\}$, we define $g_i(x) = r_i^1$, namely, our estimate for any x is the r value of the first instance in the (unordered) dataset X_i . What can you say about its bias and variance, as compared with $g_i(x) = 2$ and $g_i(x) = \sum_r r_i^t/N$? What if the sample is ordered, so that $g_i(x) = \min_t r_i^t$?

2. Repeat the experiments in the bias and variance notebook using ridge regression. Use a fixed polynomial degree (e.g. 10) and vary the α parameter.

References

[Alp2014] Alpaydin, E. Introduction to Machine Learning, 3Ed. The MIT Press, 2014