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Machine Learning

ML Reading WK 6

2/15/23

* Answer each of the following:
* What are variance and covariance ?

Variance refers to how spread out the values are. Covariance refers to the dependence two variables have.

* make a table of what you would compute in MLP for AND, for example fill in this table:
* x0 x1 ... xn w0 w1 ... wn w dot x y delta w

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| X0 | X1 | W0 | W1 | W dot x | Y | delta |
| 1 | 1 | 0 | 1 | 1 | 1 | -1 |
| 1 | 0 | 0 | 1 | 0 | 0 | -1 |
| 0 | 1 | 1 | 0 | 0 | 0 | 1 |
| 0 | 0 | 1 | 1 | 0 | 0 | 0 |

* How is an RBF network different from an MLP network?

An RBF network uses a receptive field that contains all the data points. The RBF uses hidden nodes to match functions locally while the MLP network uses them to separate space using hyperplanes that are global. Nodes in an RBF will almost always activate but it is a matter of how much(based on how close they are to the input).

* What questions do you have about the reading?

I’m a little confused as to how eigenvalues are used then rotating a matrix? Is it possible to go over this?