- Basic concepts
- Definition.
- How to limit overfitting

Basic Concepts

Generalization of Machine Learning:

- Try to predict the future event (output) Y from the present events (input) X.
- General model : Y = f(X).
- Need to find function f from training data set Y and X, respectively.

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Basic Concepts

Three posibilities of function *f*:

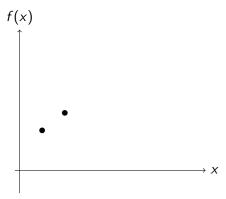
- Good fit
- Under-fitting
- Over-fitting

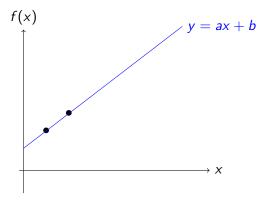
Basic Concepts

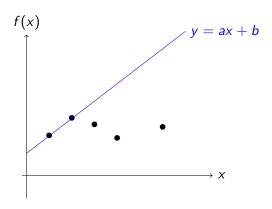
Three posibilities of function *f*:

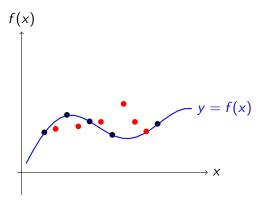
- Good fit
- Under-fitting
- Over-fitting : Studying likes a parrot

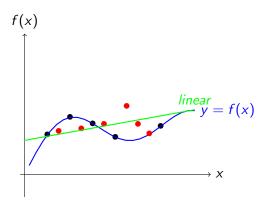












How to limit overfitting

Reduce the network's capacity remove layers or reduce the number of elements in the hidden layers.

How to limit overfitting

Reduce the network's capacity remove layers or reduce the number of elements in the hidden layers.

Apply regularization add a cost to the loss function for large weights.

How to limit overfitting

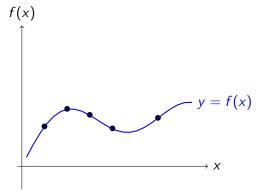
Cross-validation

Reduce the network's capacity Remove layers or reduce the number of elements in the hidden layers.

How to limit overfitting

Cross-validation

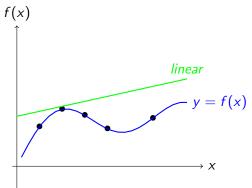
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How to limit overfitting

Cross-validation

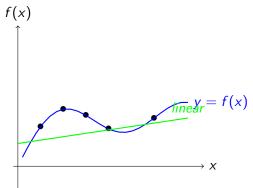
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How to limit overfitting

Cross-validation

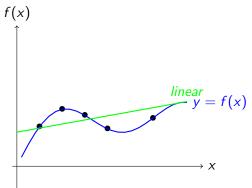
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