

Applied Geodata Science I

Session 11

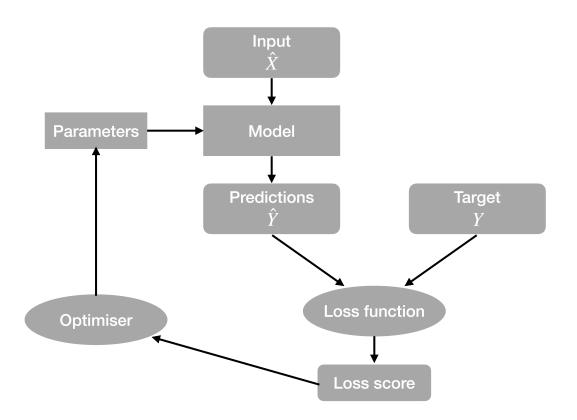
Prof. Dr. Benjamin Stocker Spring semester 2023





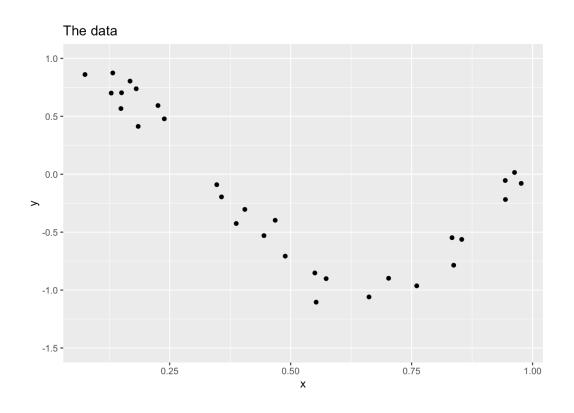
Supervised machine learning





Example data





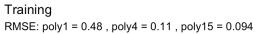
Model complexity

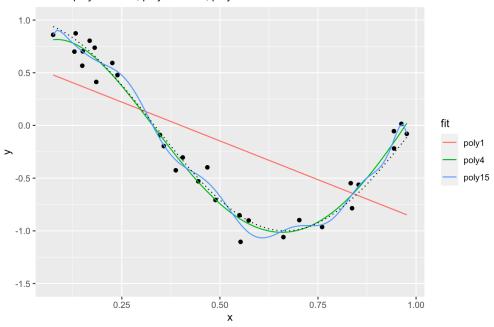


$$y=\sum_{n=0}^{N}a_{n}x^{n}$$

Training





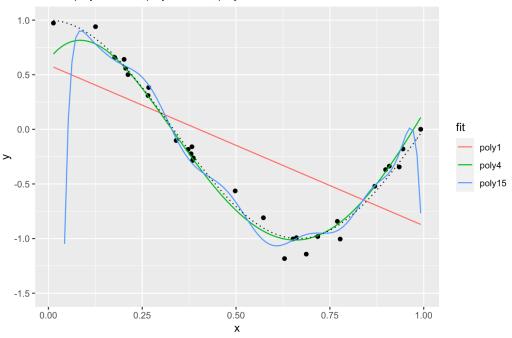


Validation



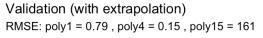


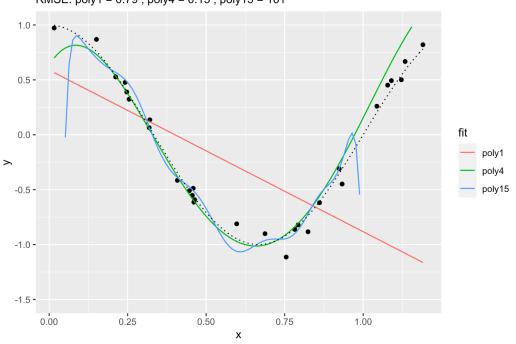
RMSE: poly1 = 0.45, poly4 = 0.11, poly15 = 2.8



Validation (with extrapolation)







Testing vs. validation set

Initial split

training set

testing set

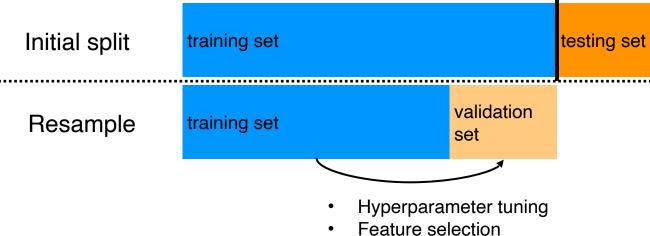
Testing vs. validation set

Initial split training set

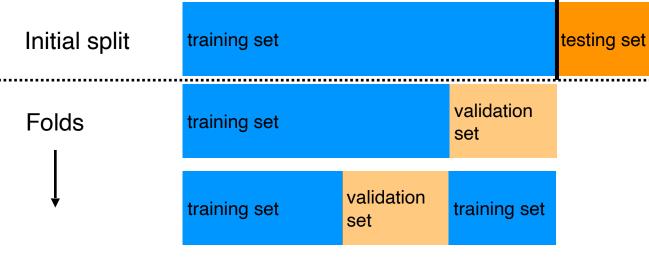
Resample training set validation set

testing set

Testing vs. validation set

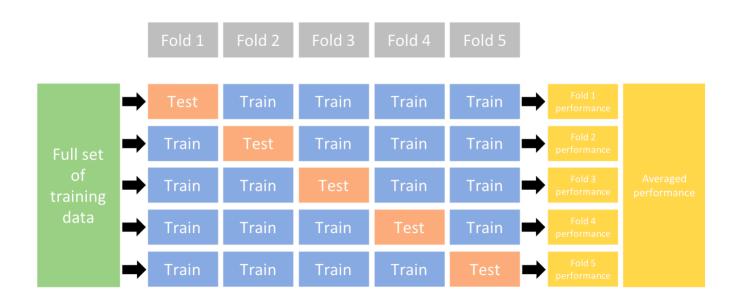


K-fold cross validation



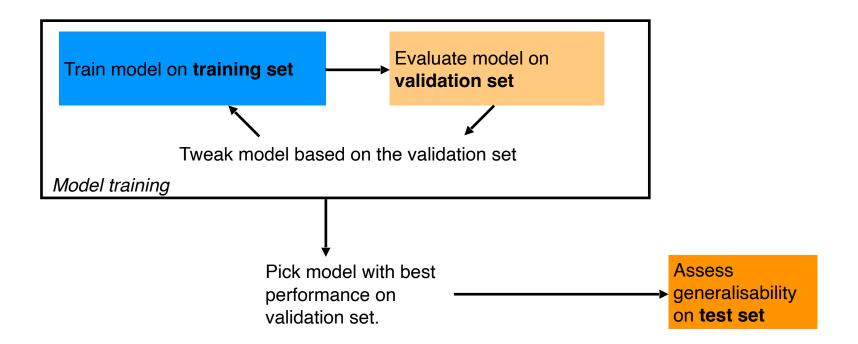
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Resampling



Boehmke & Greenwell (2019) Hands On Machine Learning in R

Workflow of model training and testing



Workflow of model training and testing

