CodeLabs - Machine Learning

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Program

1. Regression with PyTorch and NN
2. Classification with PyTorch and NN
3. Cross-validation and Tuning with sklearn

BASICS

ML with PyTorch

- PyTorch has all the tools needed for setting up well-organized workflows for machine learning

  $\Rightarrow$ Please recall the tutorial example `pytorch_102`.

REGRESSION
and
CLASSIFICATION

Regression and Classification with PyTorch

- Linear regression tutorial with PyTorch, numpy and sklearn comparisons

  ⇒ `02Examples/linreg/torch_linreg_tutorial.ipynb`

- Simple NN classification with Pytorch

  ⇒ `02Examples/ml/torch_NN_class_simple.ipynb`

- NN regression on socio-economic housing data

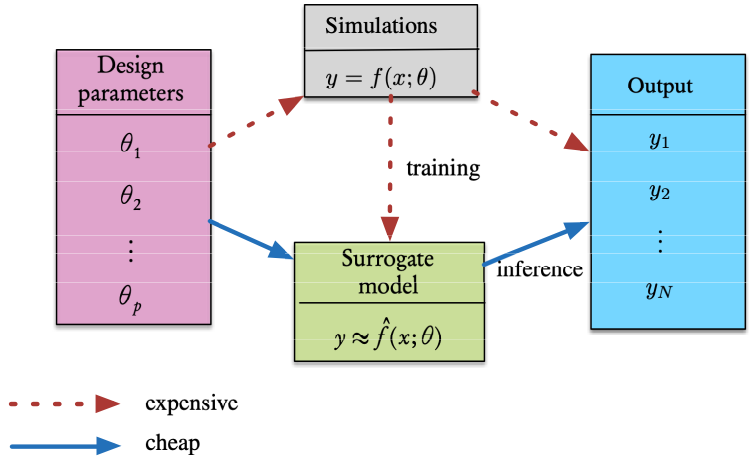
  ⇒ `02Examples/ml/pytorch_NN_reg.ipynb`

- NN classification on diabetes clinical data

  ⇒ `02Examples/ml/pytorch_NN_classif.ipynb`

Multiple, Nonlinear Regression and SUMO

- Please recall the Surrogate Modelling principle:



- Multiple linear regression for predicting concrete strength

  ⇒ `02Examples/SUMO/mlreg_concrete.ipynb`

- SVM regression for LIDAR data

  ⇒ `01basic-course/02Examples/svm_reg/svm_reg.Rmd`

- Nonlinear regression for cyclical/periodic data using feature engineering

  $\Rightarrow$ `02Examples/SUMO/cyclic_data.ipynb`

CROSS-VALIDATION

and

TUNING

CV and Tuning

- Precision-Recall curve for heart disease data

  $\Rightarrow$ `02Examples/ml/ML_prec_recall.ipynb`

- See also the numerous `Basic Course Examples`

References

1. Please consult the list provided on the website:
   CODE REFERENCES