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Macine Learning Concepts

Approaches
- Learning classifier systems
- Rule-based machine learning
- Genetic algorithms
- Sparse dictionary learning
- Similariy and metric learning
- Representation learning
- Reinforcement learning
- Bayesian networks
- Clustering
- Support vector machines
- Inductive logic programming
- Deep learning
- Artificial neural networks
- Decision tree learning
- Association rule learning

Motivation
- Prediction
- Inference

Performance Analysis
- Goodness of Fit = R^2
- Bias-Variance Tradeoff
- ROC Curve - Receiver Operating Characteritics
- Confusion Matrix
- Accuracy
- Recall
- Precision
- f1 Score
- Harmonic Mean of Precision and Recall
- Mean Squared Error (MSE)
- Error Rate

Tuning
- Bagging
- Underfitting
- Early Stopping
- Cross-validation
- Hyperparameters
- Overfitting
- Bootstrap

Taxonomy

Selection Criteria

Types
- Regression
- Classifiaction
- Clustering
- Density Estimation
- Dimensionality Reduction

Libraries
- Python
  - Microsoft Cognitive Toolkit
  - Torch
  - Keras
  - MXNet
  - Scikit-learn
  - Numpy
  - Pandas
  - Tensorflow

Categories
- Supervised
- Unsupervised
- Reinforcement Learning

Kind
- Parametric
- Non-Parametric