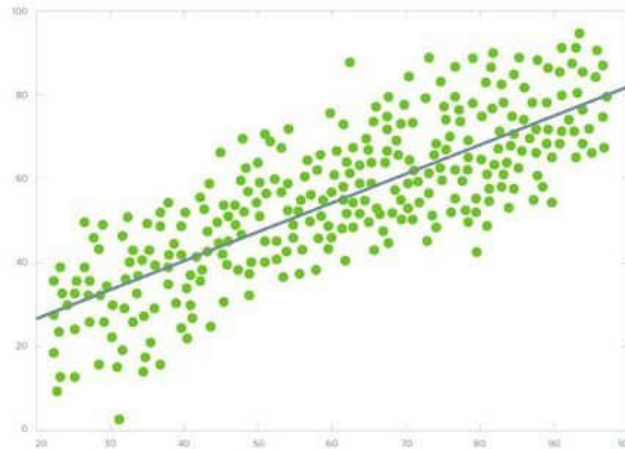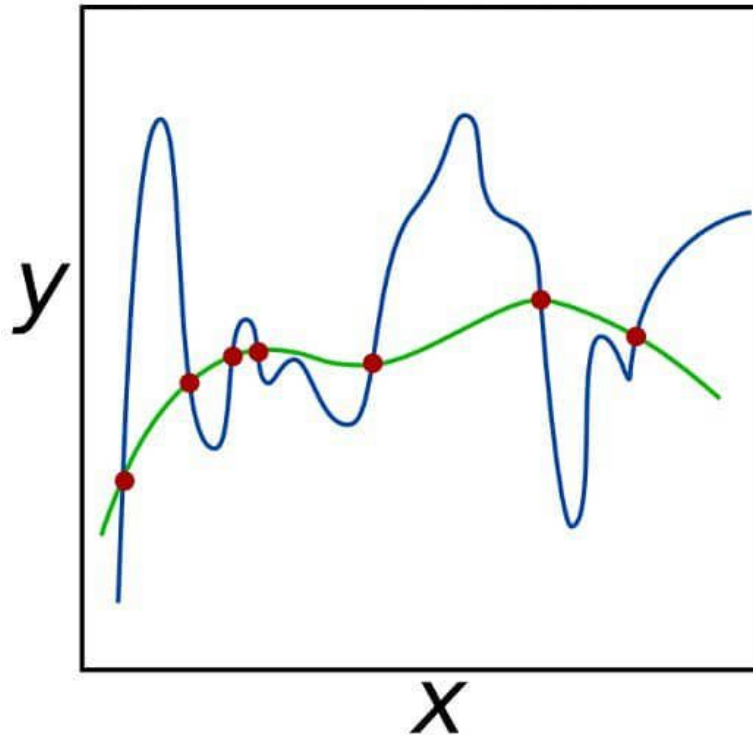# Machine learning Algorithms.

Regression Algorithms

- **Ordinary Least Squares Regression (OLSR)**
- **Linear Regression**
- **Logistic Regression**
- **Stepwise Regression**
- **Multivariate Adaptive Regression Splines (MARS)**
- **Locally Estimated Scatterplot Smoothing (LOESS)**
- **Polynomial regression**
- **Support vector Regression**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.

Regularization Algorithms

- **Ridge Regression**
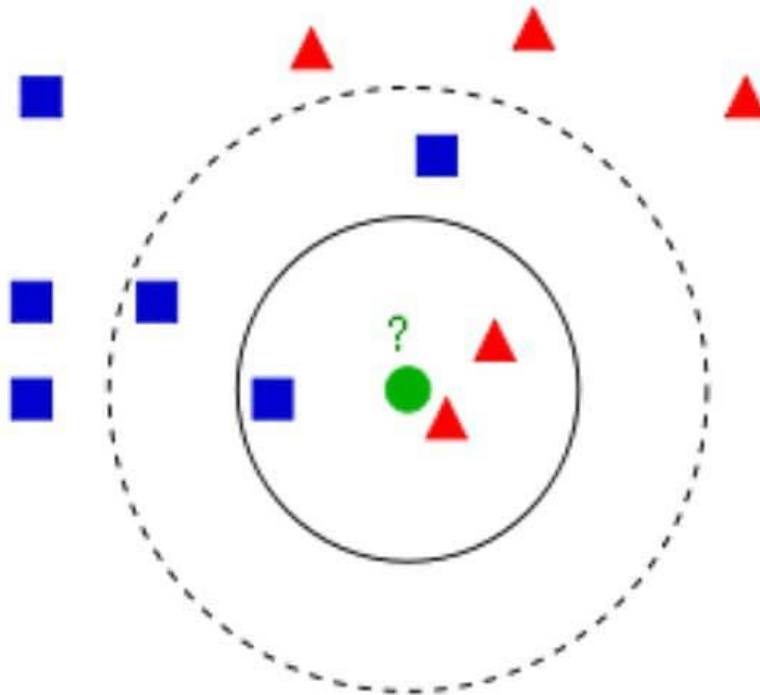- **Least Absolute Shrinkage and Selection Operator (LASSO)**
- **Elastic Net**
- **Least-Angle Regression (LARS)**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.
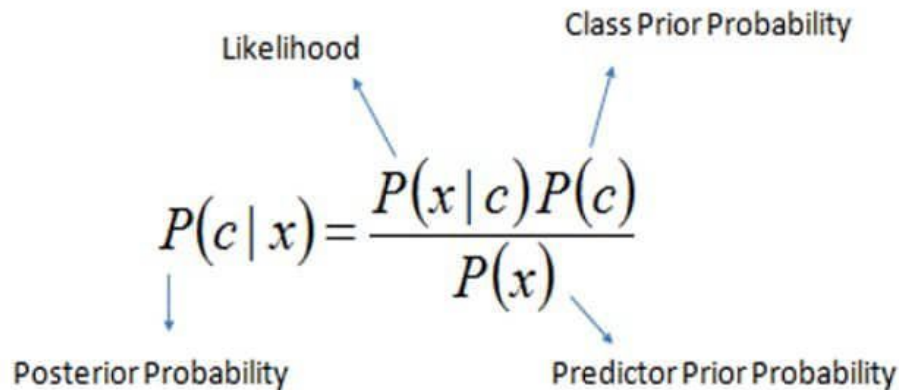
Instance-based Algorithms

- **k-Nearest Neighbor (kNN)**
- **Learning Vector Quantization (LVQ)**
- **Self-Organizing Map (SOM)**
- **Locally Weighted Learning (LWL)**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.

Bayesian Algorithms

$$P(c\,|\,x) = \frac{P(x\,|\,c)P(c)}{P(x)}$$

Likelihood — $P(x\,|\,c)$

Class Prior Probability — $P(c)$

Posterior Probability — $P(c\,|\,x)$

Predictor Prior Probability — $P(x)$

$$P(c\,|\,X) = P(x_1\,|\,c) \times P(x_2\,|\,c) \times \cdots \times P(x_n\,|\,c) \times P(c)$$
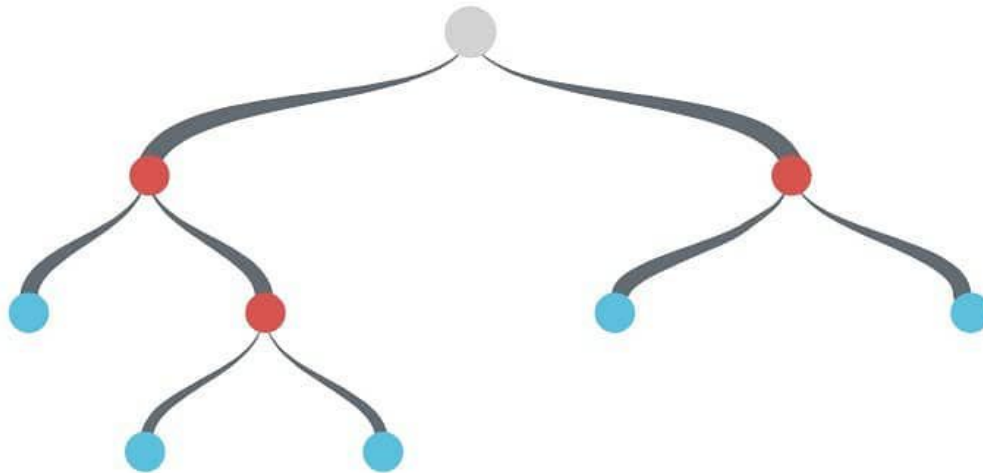
- **Naive Bayes**
- **Gaussian Naive Bayes**
- **Multinomial Naive Bayes**
- **Averaged One-Dependence Estimators (AODE)**
- **Bayesian Belief Network (BBN)**
- **Bayesian Network (BN)**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.

Decision Tree Algorithms

- **Classification and Regression Tree (CART)**
- **Iterative Dichotomiser 3 (ID3)**
- **C4.5 and C5.0 (different versions of a powerful approach)**
- **Chi-squared Automatic Interaction Detection (CHAID)**
- **Decision Stump**
- **M5**
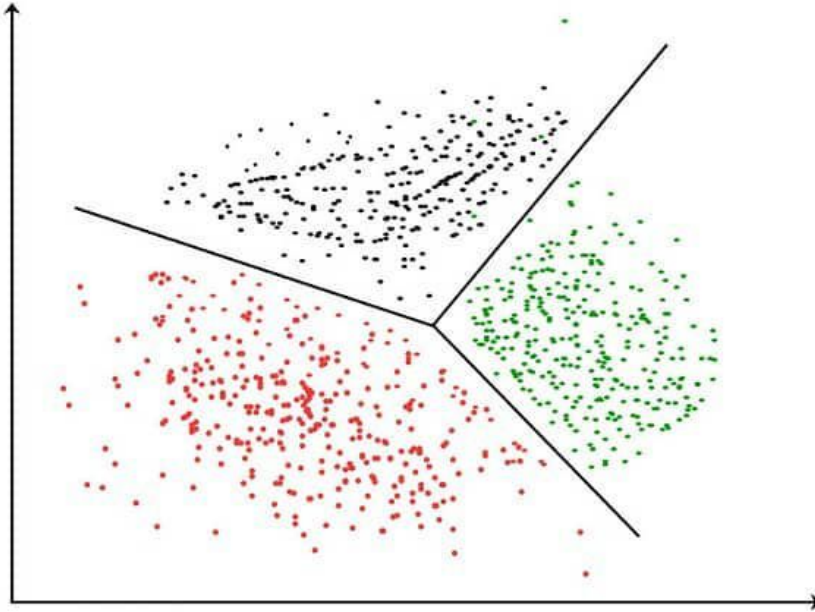- **Conditional Decision Trees**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.

Clustering Algorithms
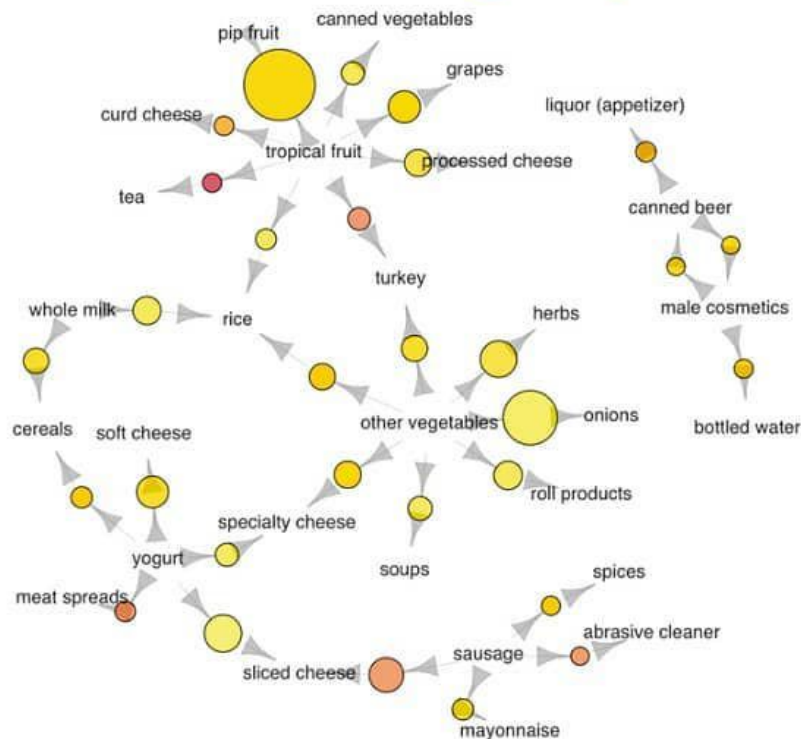

- k-Means
- k-Medians
- Expectation Maximisation (EM)
- Hierarchical Clustering
- DBSCAN

we will explain each algorithm in detail in upcoming posts

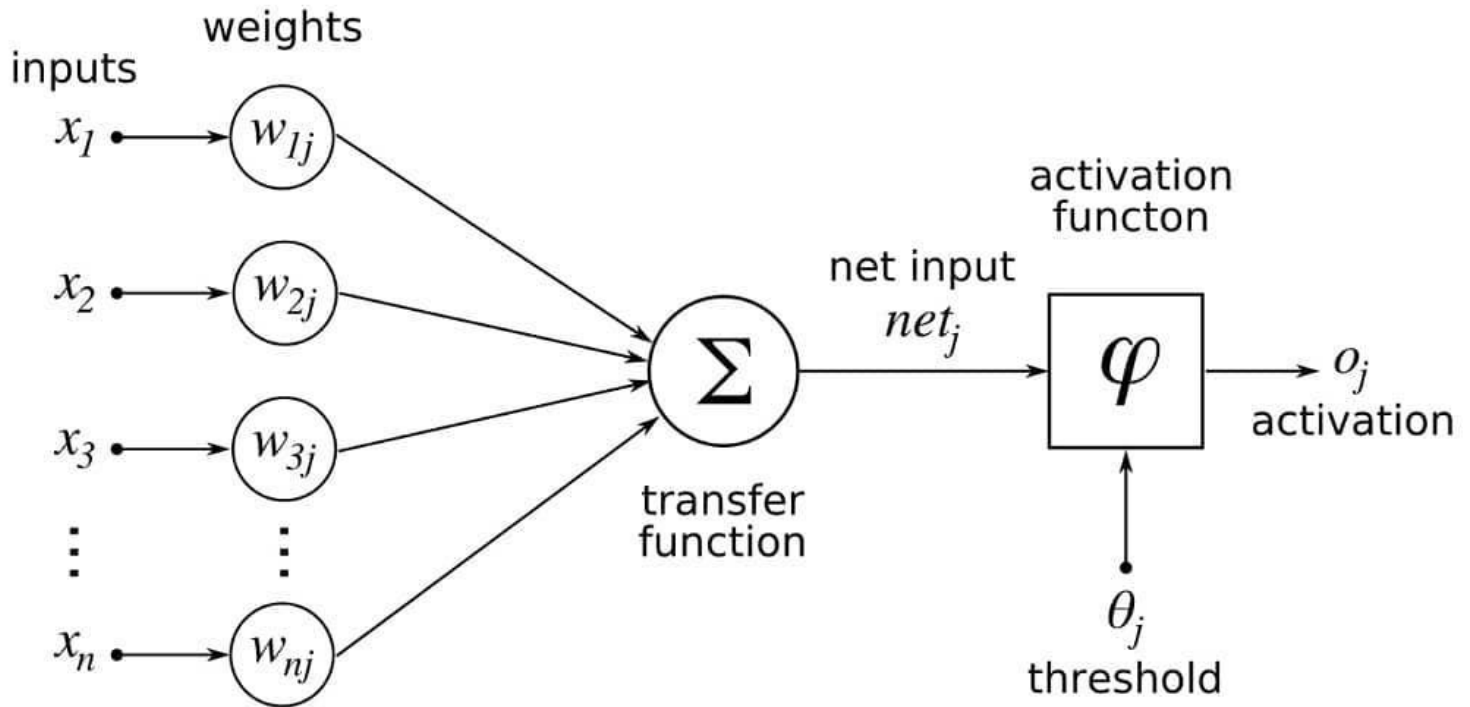# Machine learning Algorithms.

Association Rule Learning Algorithms

- **Apriori algorithm**
- **Eclat algorithm**
- **FP - Growth**

Machine learning Algorithms.

Artificial Neural Network Algorithms

- **Perceptron**
- **Back-Propagation**
- **Hopfield Network**
- **Radial Basis Function Network (RBFN)**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.
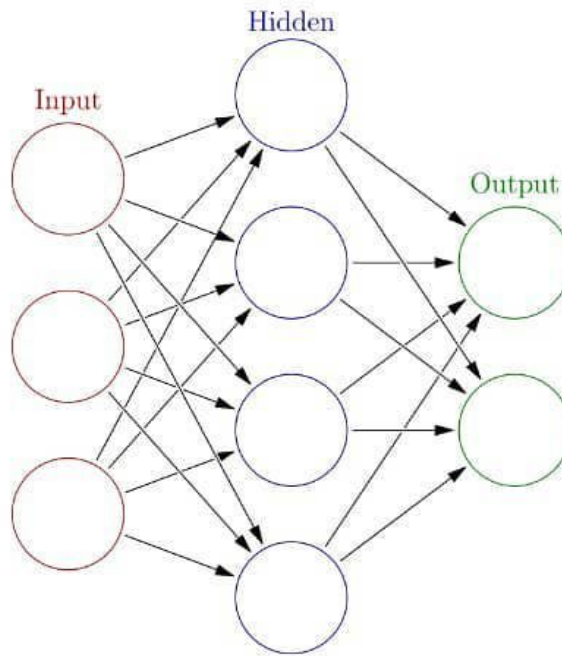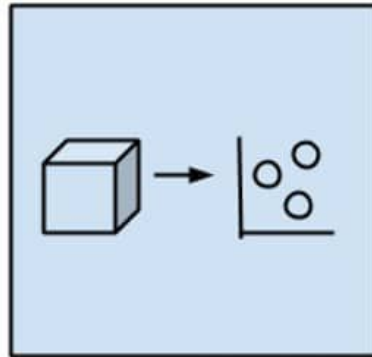
Deep Learning Algorithms

- **Perceptron**
- **Back-Propagation**
- **Hopfield Network**
- **Radial Basis Function Network (RBFN)**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.

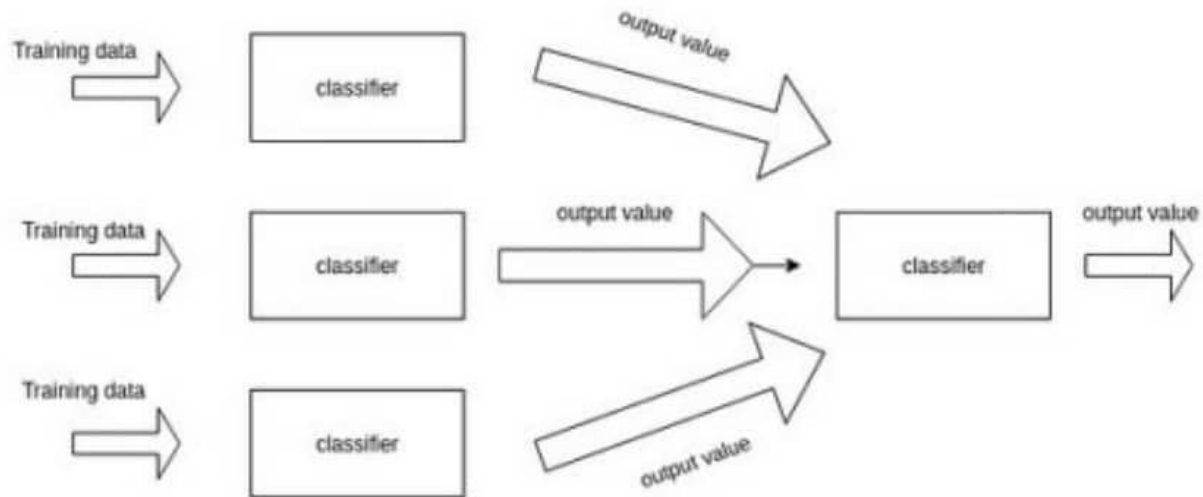## Dimensionality Reduction Algorithms

Dimensional Reduction
Algorithms

- **Principal Component Analysis (PCA)**
- **Principal Component Regression (PCR)**
- **Partial Least Squares Regression (PLSR)**
- **Sammon Mapping**
- **Multidimensional Scaling (MDS)**
- **Projection Pursuit**
- **Linear Discriminant Analysis (LDA)**
- **Mixture Discriminant Analysis (MDA)**
- **Quadratic Discriminant Analysis (QDA)**
- **Flexible Discriminant Analysis (FDA)**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.
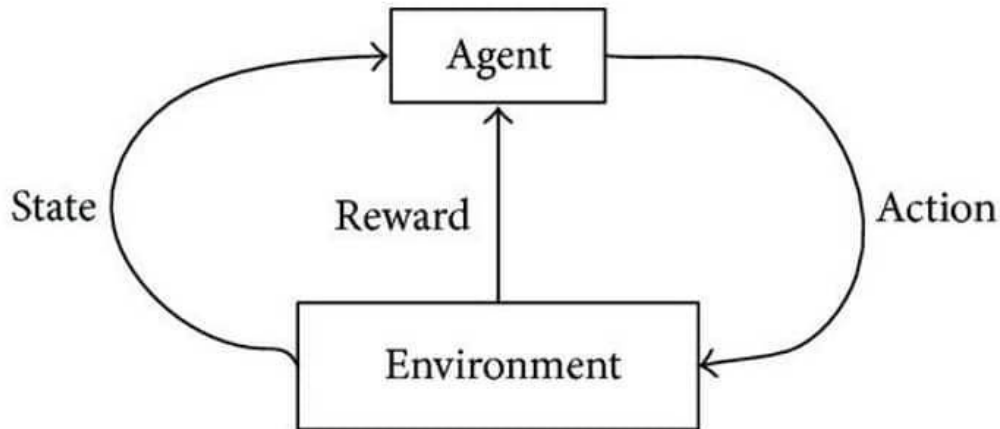
Ensemble Algorithms

- **Bootstrapped Aggregation (Bagging)**
- **Random Forest (Bagging)**
- **Stacked Generalization (blending)**
- **Gradient Boosting Machines (GBM)**
- **Gradient Boosted Regression Trees (GBRT)**
- **AdaBoost (Boosting)**
- **XGBoost (Boosting)**
- **CATBoost (Boosting)**
- **LightGBM (Boosting)**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.
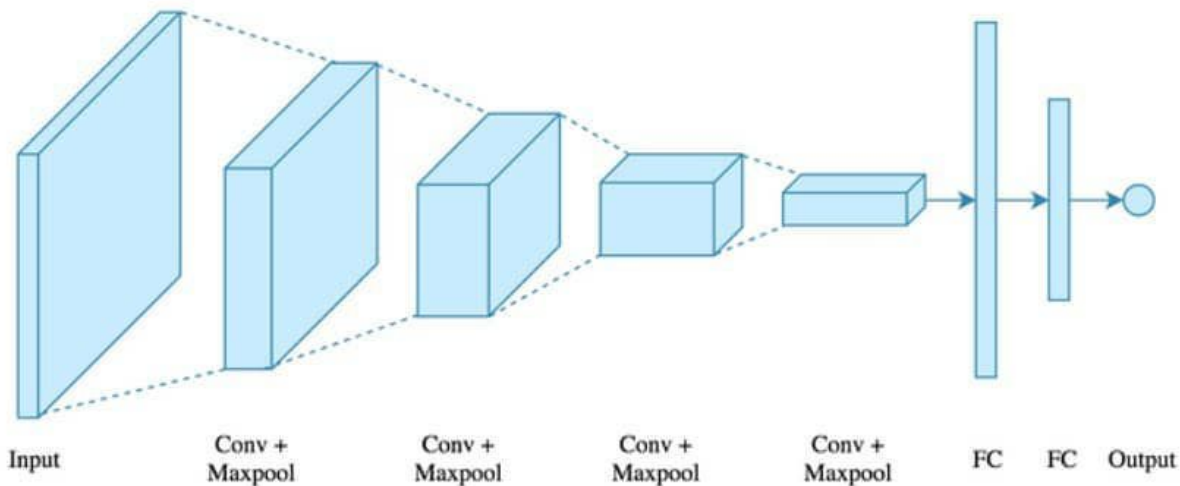
Reinforcement learning algorithms

- **Q-learning**
- **State-Action-Reward-State-Action (SARSA)**
- **A3C**
- **Deep Q Network (DQN)**
- **Deep Deterministic Policy Gradient (DDPG)**
- **Actor-Critic Algorithm**
- **Natural Policy Gradient**
- **DAgger (Dataset Aggregation)**
- **Monte Carlo Tree Search (MCTS)**
- **Guided Policy Search (GPS)**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.

convolutional neural network algorithms

| Input | Conv + Maxpool | Conv + Maxpool | Conv + Maxpool | Conv + Maxpool | FC | FC | Output |

- **Deep CNN**
- **LeNet**
- **AlexNet**
- **VGGNet**
- **Residual Net**
- **Inception Net**
- **R-CNN**
- **Fast R-CNN**
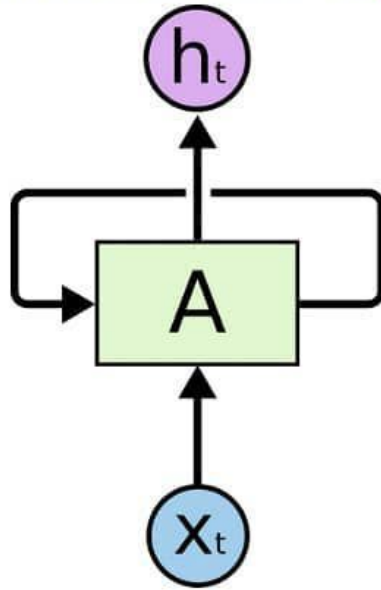- **Faster R-CNN**
- **YOLO**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.
Recurrent neural network algorithms

- **Deep RNN**
- **LSM**
- **GRU**
- **LSTM**
- **BI - RNN**
- **Attention models**
- **Word Embeddings**

we will explain each algorithm in detail in upcoming posts

Machine learning Algorithms.

Feature Selection algorithms

- **Filter Methods**
- **Wrapper Methods**
- **Embedded Methods**

we will explain each algorithm in detail in upcoming posts