Machine Learning Algorithms can be categorized into three main types: supervised learning, unsupervised learning, and reinforcement learning. Each type solves different kinds of problems.

Supervised Learning uses labeled data to train models. Common algorithms include linear regression for continuous predictions, logistic regression for binary classification, decision trees for interpretable models, and support vector machines for complex classification tasks.

Unsupervised Learning finds patterns in data without labeled examples. Clustering algorithms like K-means group similar data points. Principal Component Analysis (PCA) reduces dimensionality while preserving important information.

Reinforcement Learning teaches agents to make decisions through trial and error. The agent learns by receiving rewards or penalties for actions taken in an environment. It's used in game playing, robotics, and autonomous systems.

Model Evaluation is critical for assessing machine learning performance. Common metrics include accuracy, precision, recall, F1-score for classification, and mean squared error, R-squared for regression. Cross-validation helps ensure models generalize well.

Overfitting occurs when a model learns the training data too well and fails to generalize to new data. Techniques to prevent overfitting include regularization, cross-validation, early stopping, and using more training data.

Feature Engineering involves selecting, modifying, or creating new features from raw data to improve model performance. Good features can significantly impact the success of machine learning projects.