

Table 1: Overview of Machine Learning Categories

ML Category	Subcategory	Details
Supervised Learning	Classification	<ul style="list-style-type: none"> - Fraud detection - Image classification - Customer retention - Diagnostics - Email spam and malware filtering - Sentiment analysis
	Regression	<ul style="list-style-type: none"> - Forecasting (weather, stock prices) - Predictions (sales, revenue) - Process optimization - Real estate pricing - Energy demand modeling
Unsupervised Learning	Clustering	<ul style="list-style-type: none"> - Recommendation systems - Targeted marketing - Customer segmentation - Genetic clustering - Social network analysis
	Dimensionality Reduction	<ul style="list-style-type: none"> - Big data visualizations - Meaningful compression - Structure discovery - Feature elicitation - Noise reduction - Data preprocessing
Reinforcement Learning		<ul style="list-style-type: none"> - Real-time decisions - Game AI - Learning tasks - Skill acquisition - Robot navigation - Autonomous vehicles - Personalized recommendations
Deep Learning	Convolutional Neural Networks (CNNs)	<ul style="list-style-type: none"> - Image and video recognition - Image segmentation - Medical image analysis
	Recurrent Neural Networks (RNNs)	<ul style="list-style-type: none"> - Language modeling - Speech recognition - Time series prediction
	Generative Adversarial Networks (GANs)	<ul style="list-style-type: none"> - Image generation - Art creation - Data augmentation
	Transformer Models	<ul style="list-style-type: none"> - Natural language understanding - Machine translation - Text summarization