Aspect	Machine Learning	Artificial Intelligence
Definition	A subset of AI that focuses on algorithms that allow computers to learn from and make predictions or decisions based on data without explicit programming.	A broader field of computer science that aims to create intelligent machines capable of simulating human-like intelligence, including problem-solving, reasoning, learning, and decision-making.
Objective	To enable computers to learn from data and improve performance on specific tasks without human intervention.	To develop systems that can perform tasks typically requiring human intelligence, such as understanding natural language, recognizing objects, and making decisions.
Scope	Limited to specific tasks or domains where it is trained.	Encompasses a wide range of applications, including but not limited to machine learning.
Examples	– Predicting stock prices based on historical data. – Identifying spam emails in your inbox. – Recognizing handwritten digits.	– Natural language processing (e.g., chatbots, language translation). – Computer vision (e.g., image recognition, object detection). – Robotics and autonomous systems.
Dependency on Data	Highly dependent on labeled or unlabeled training data.	Relies on data, but not all AI systems require extensive training data like in machine learning. Some AI systems use rule-based approaches or symbolic reasoning.
Human Intervention	Requires human experts to curate and label data for training.	Can function with or without human intervention, depending on the level of sophistication and design. Some AI systems can adapt and learn from new data without constant human guidance.

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Adaptability	Can adapt and improve performance with new data.	AI systems can be designed to adapt and learn from new information, making them more flexible and capable of handling changing environments.
Types	Supervised learning, unsupervised learning, semi-supervised learning, reinforcement learning, etc.	AI includes machine learning techniques but also involves other approaches like expert systems, genetic algorithms, and knowledge representation and reasoning methods.
Relation to AI	A subset of AI that focuses on specific techniques and algorithms for data-driven learning.	An overarching field that encompasses machine learning as one of its many subfields. AI covers a broader range of methods and approaches beyond just data-driven learning.

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