

# Machine Learning: Introduction to Machine Learning and Statistics

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## 1. background

**1950s:** The concept of artificial intelligence was proposed.

**1980s:** The rise of machine learning research.

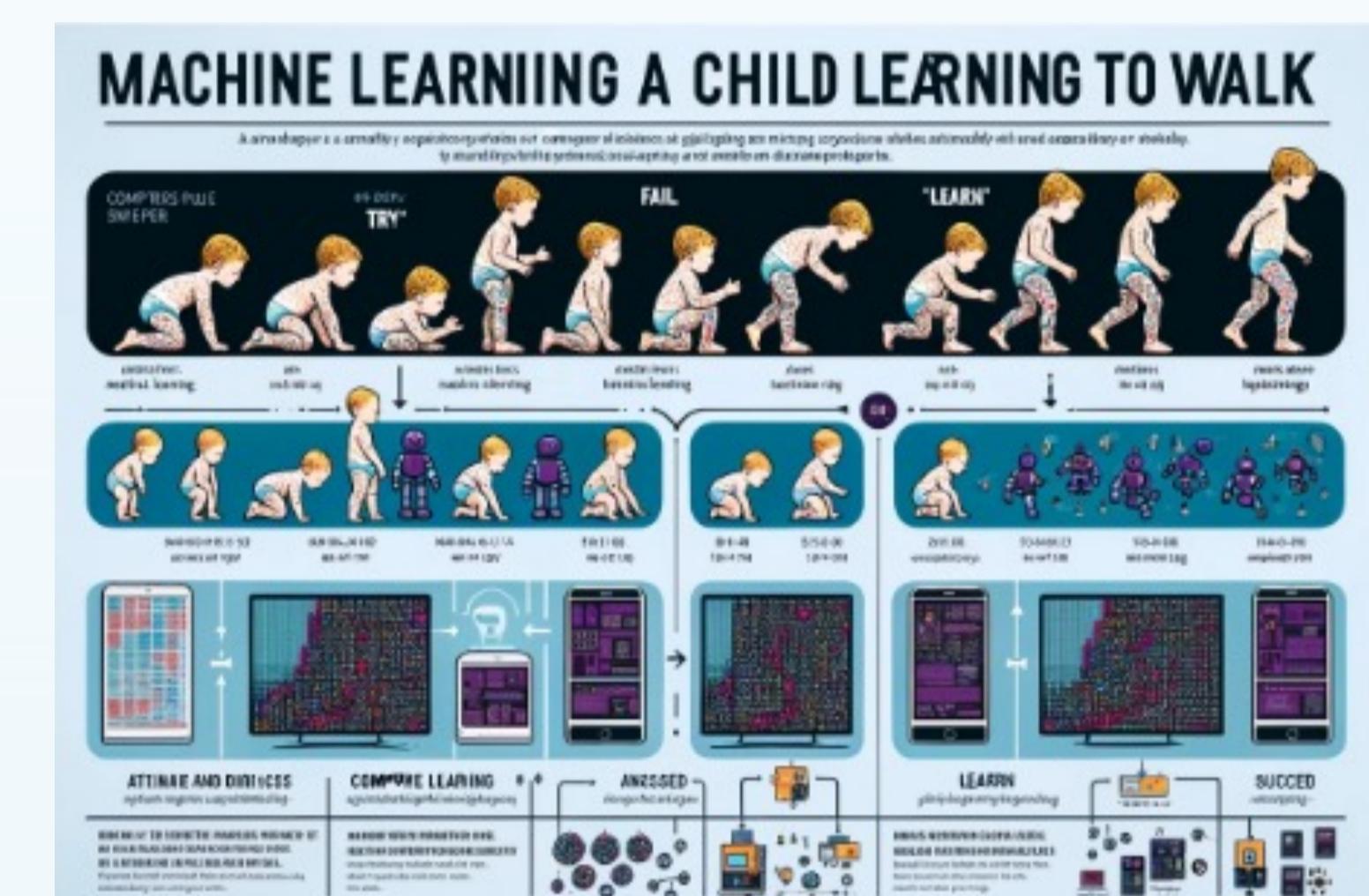
**2010s:** Deep learning technology innovation.

## For A-Level Students

## 2. What is machine learning ?

Have you ever watched a child learn how to walk?

They will initially stagger to their feet and then fall. Then they try again until they stabilize and start walking. Machine learning is very similar to this little child learning to walk. It's just done by a computer algorithm. By analyzing and utilizing data, computer systems can automatically learn and improve.



## 3. methods

Machine learning algorithms can be classified according to types of problems, model and the way they learn.

### Problem Types:

Includes classification (assigning data to predefined categories) and regression (predicting a continuous value).

### Model Types:

Batch Learning: model learns from entire dataset at once.

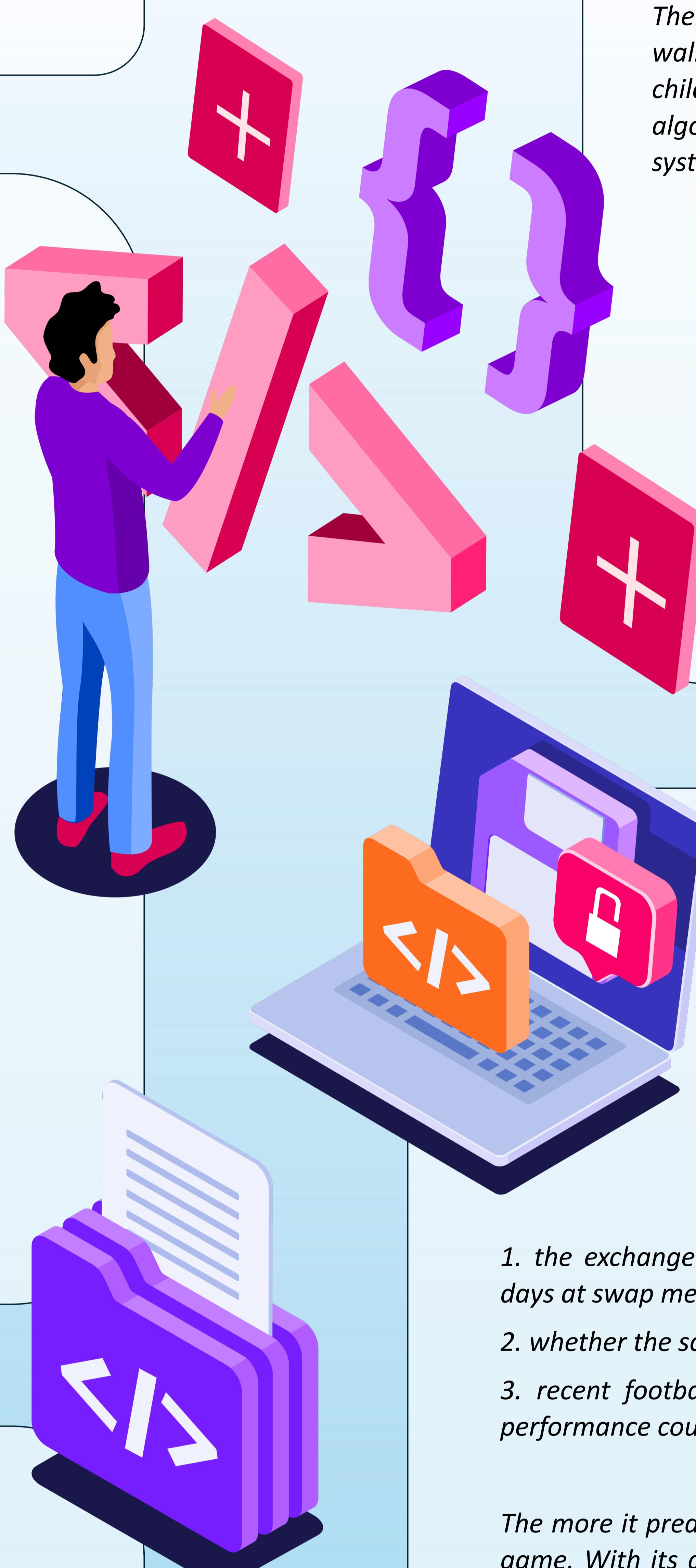
Online Learning: model continuously updates as new data arrives.

Mini-Batch Learning: model iterates over small subsets of data.

### Learning Approaches:

Supervised Learning: model learns from labeled data for predictions.

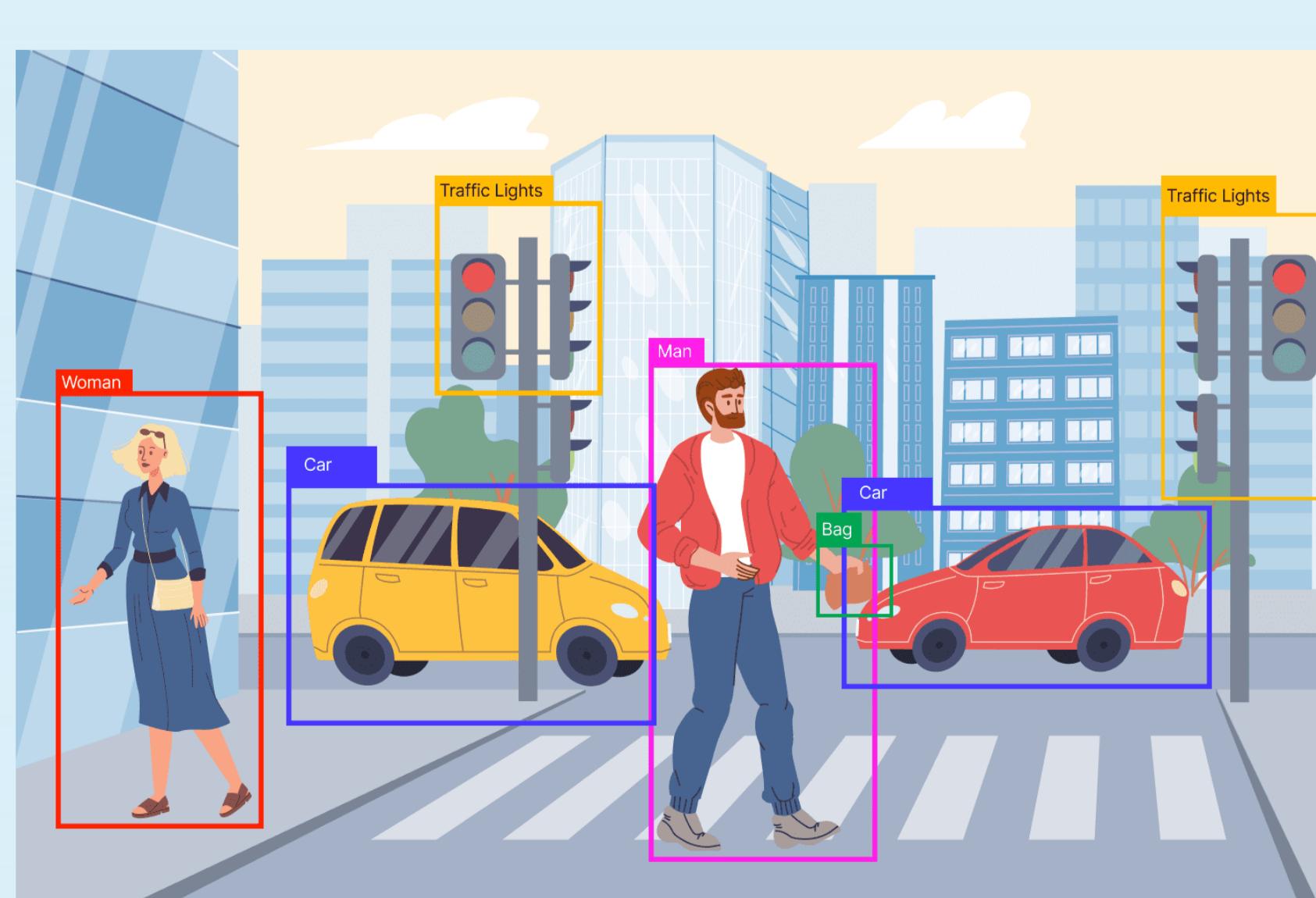
Unsupervised Learning: The model discovers patterns in unlabeled data.



## 5. High-level technology

### Computer Vision

Machine learning has revolutionized computer vision. **Object detection** is a crucial application in computer vision, and the You Only Look Once (YOLO) algorithm is a notable example. YOLO is an efficient system for real-time object detection. It uses neural network to extract features and understand complex scenes.



## 6. Summary

Machine learning is both a fascinating and useful technique that not only allows us to predict future trends or classifications using a variety of data from our daily lives, but also enhances academic skills and future job prospects.

**Join us now !**

