

A close-up, high-angle shot of a dark, rectangular microchip with the letters 'AI' glowing in bright blue on its top surface. The chip is mounted on a complex circuit board with numerous glowing orange and red traces and small components. The background is dark and out of focus, emphasizing the chip and its connections.

AI

# MACHINE LEARNING

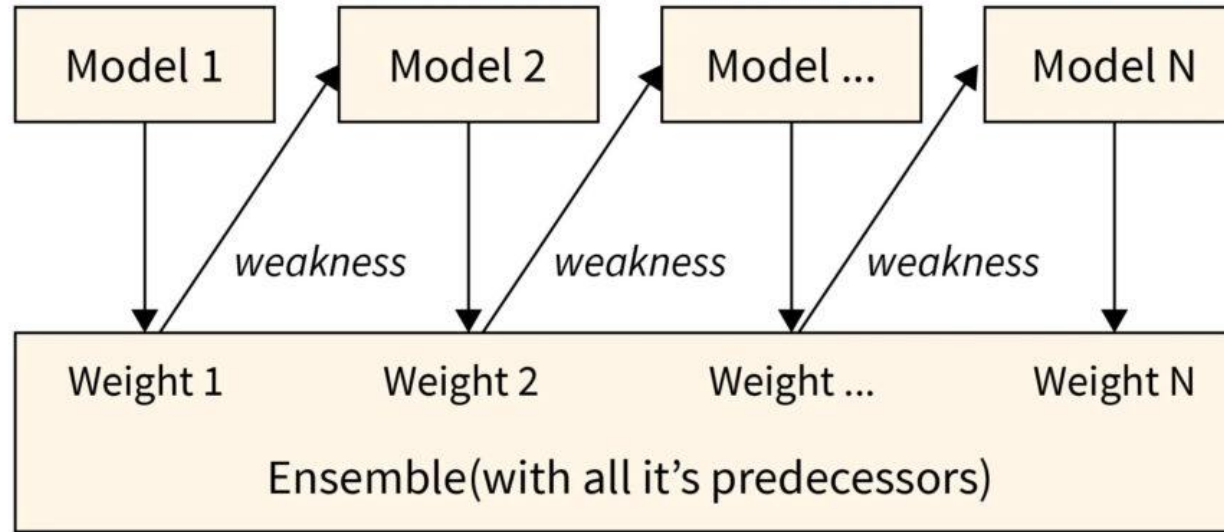
## ADA BOOST ALGORITHM

# What is Ada Boost Algorithm?

- AdaBoost (Adaptive Boosting) is an ensemble learning method
- All weak models are combined to create a strong model
- It trains by taking datapoints that were misclassified in previous round
- This adaptation makes it effective for classification tasks



Model 1,2,...,N are individual models (eg. decision tree)



The algorithm fetches input from the dataset and previously misclassified data to create a new model. This repeats to create n-number of models

# How Does Ada Boost Work?

- **Initialize Weight:** equal weights are assigned to all the data points
- **Train Weak Learner:** first weak learner datasets are trained
- **Calculate Errors:** based on the sample that weak learner misclassified
- **Adjust Weights:** increases the weight of misclassified sample
- **Iterate:** train new weak learner focusing misclassified samples
- **Final Model:** accuracy driven training creates strong model

# Advantages of Ada Boost

- Improved Accuracy
- Error Adaptability
- Easy to Implement
- Handles Imbalance Datasets

# Disadvantage of Ada Boost

- Sensitive to Noisy Data
- Intensive Computation
- Over fitting