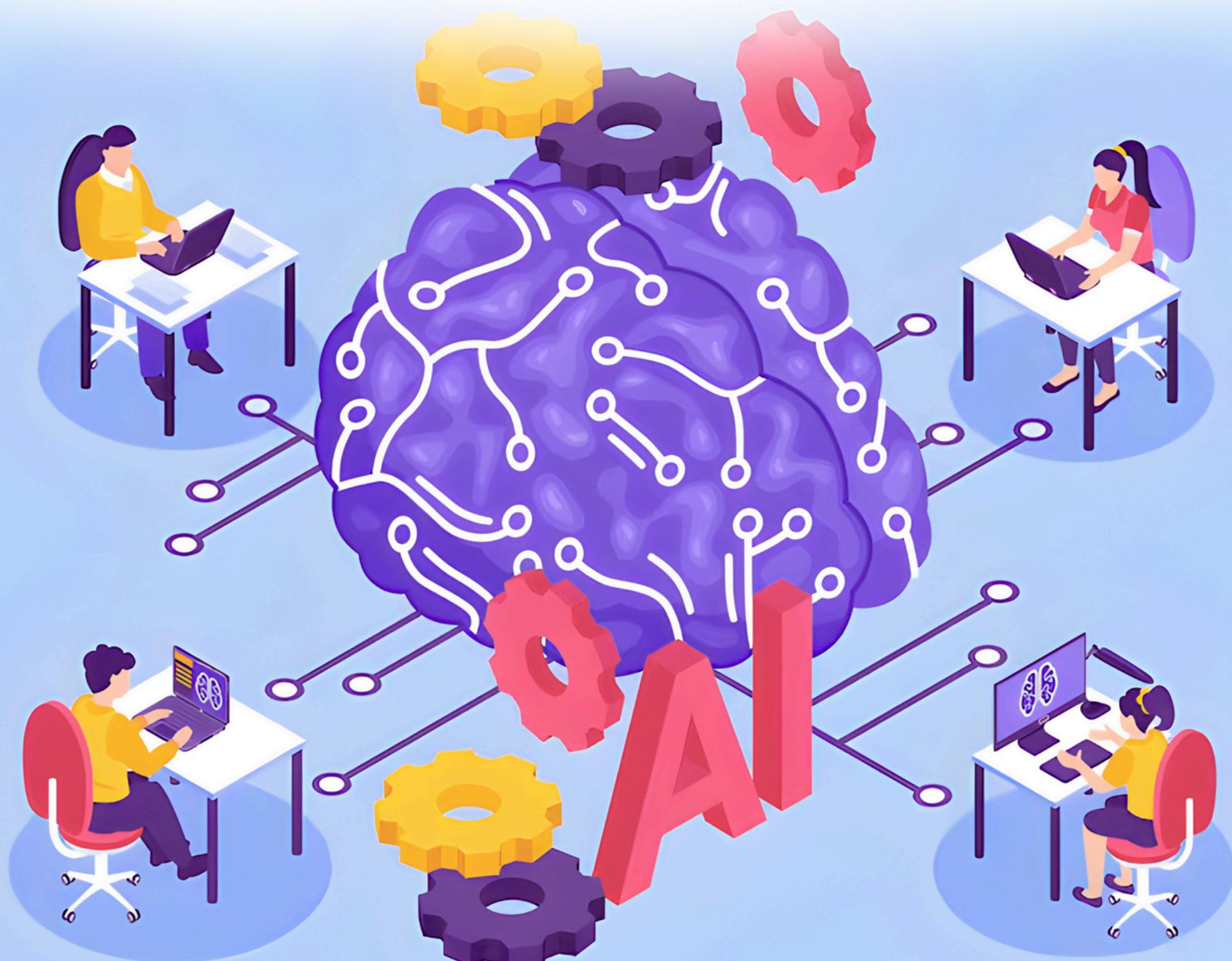




Greg Coquillo  
Product Leader

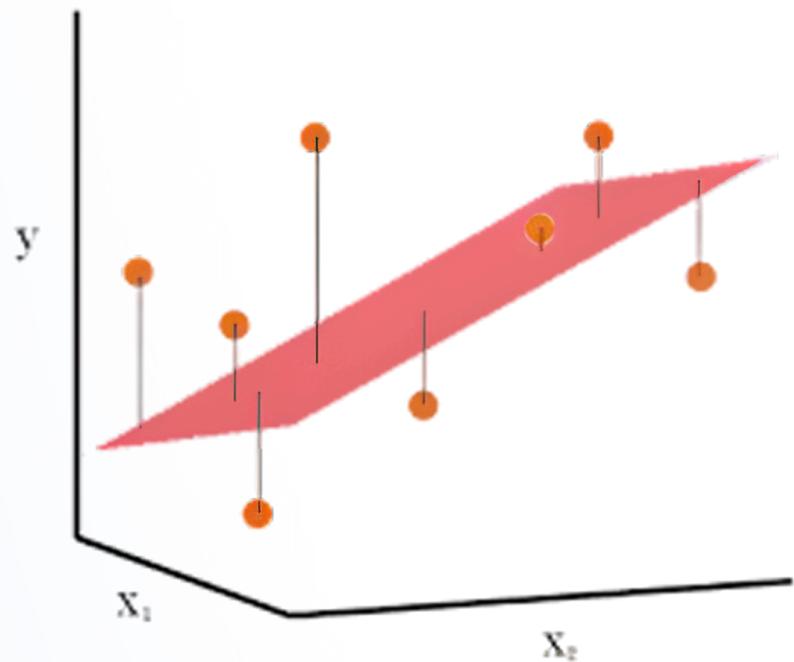
# MACHINE LEARNING MODELS SIMPLIFIED WHEN TO USE WHAT





**Greg Coquillo**  
Product Leader

# LINEAR REGRESSION



## What it does:

Predicts a continuous number by finding the best-fitting line through your data.

## Why it works well:

It captures straight-line relationships clearly, making predictions easy to interpret and explain.

## When to use it:

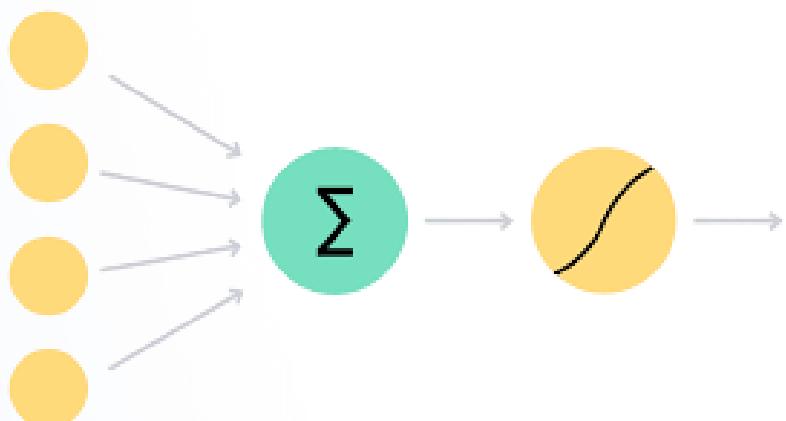
For forecasting trends – sales, revenue, market growth, temperature, property prices.





Greg Coquillo  
Product Leader

# LOGISTIC REGRESSION



## What it does:

Classifies outcomes into categories like Yes/No by estimating probabilities.

## Why it works well:

It's fast, stable, and interpretable – perfect when you want transparency in how decisions are made.

## When to use it:

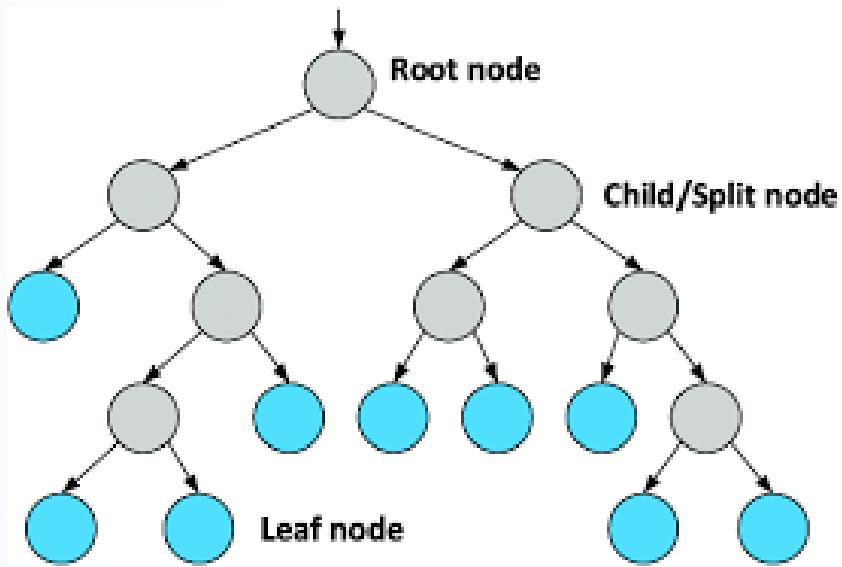
Churn prediction, email spam detection, credit approval – anything binary.





**Greg Coquillo**  
Product Leader

# DECISION TREES



## What it does:

Breaks decisions into simple “if-else” branches that resemble human thinking.

## Why it works well:

It handles non-linear patterns naturally and works even when the data isn't perfectly clean.

## When to use it:

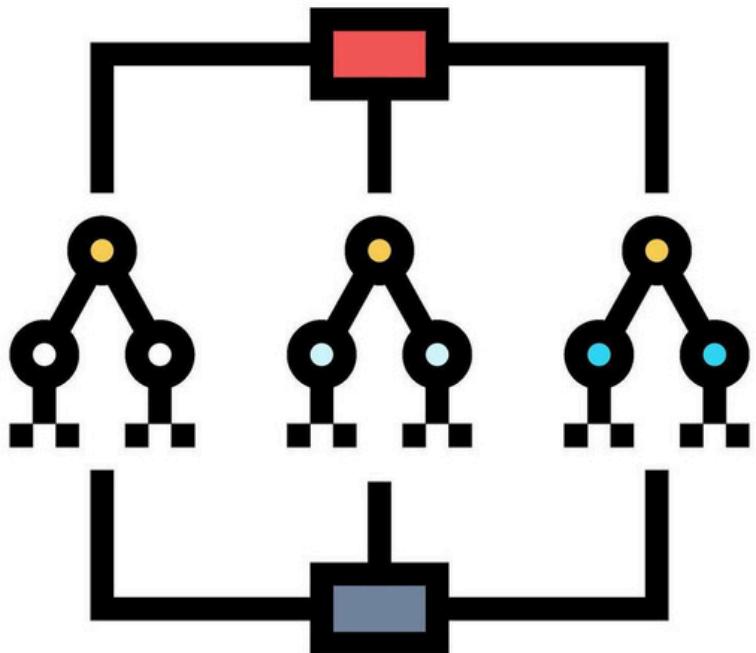
When you want a transparent model that stakeholders can visually understand.





**Greg Coquillo**  
Product Leader

# RANDOM FOREST



## What it does:

Builds many decision trees and combines their outputs for better accuracy.

## Why it works well:

It reduces overfitting by averaging multiple opinions – just like taking advice from many experts instead of one.

## When to use it:

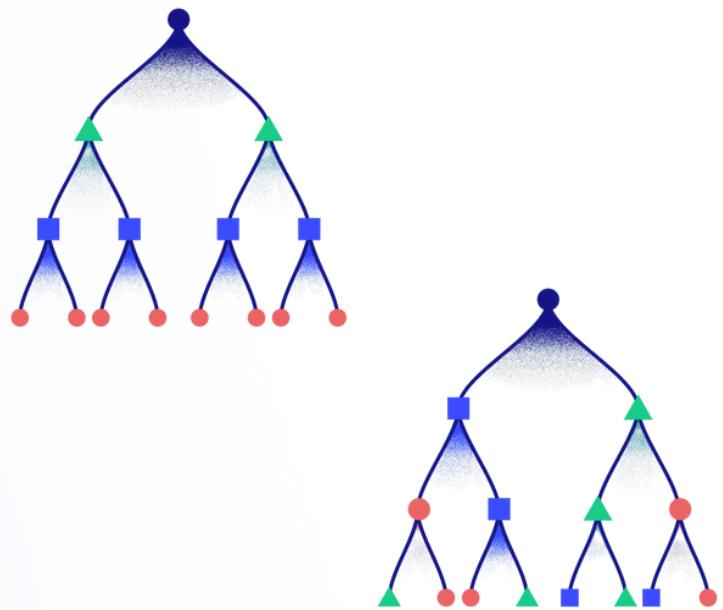
Great for noisy datasets, missing values, or complex patterns where single models fail.





Greg Coquillo  
Product Leader

# GRADIENT BOOSTING (XGBOOST, LIGHTGBM)



## What it does:

Builds trees one at a time, with each new tree fixing the errors of the previous one.

## Why it works well:

It focuses on the mistakes, improving step-by-step leading to extremely strong performance.

## When to use it:

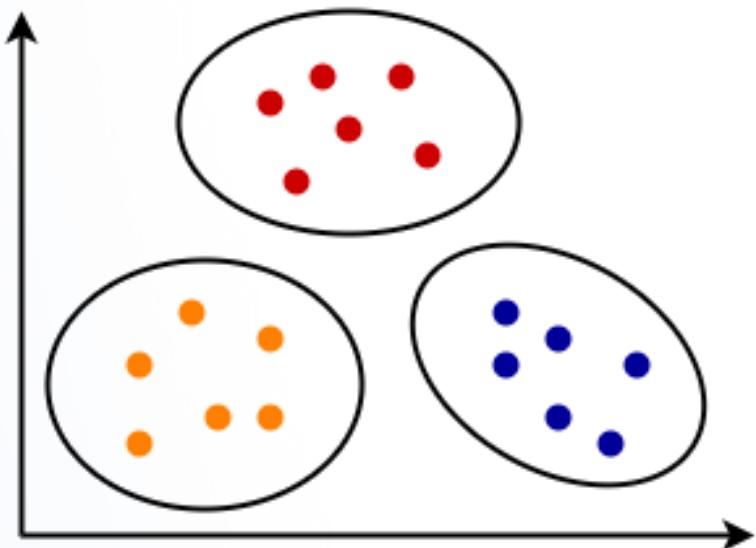
For high-accuracy tasks like competitions, risk scoring, fraud detection, or detailed forecasting.





**Greg Coquillo**  
Product Leader

# K-MEANS CLUSTERING



## What it does:

Groups similar data points into clusters without any labels.

## Why it works well:

It's fast and finds structure in unlabeled data, making hidden patterns easy to visualize.

## When to use it:

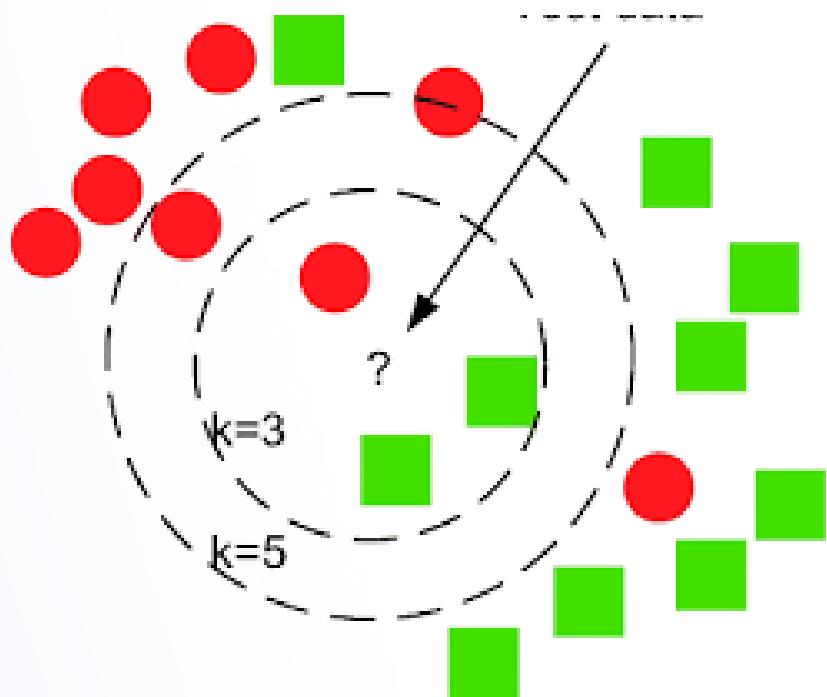
Customer segmentation, grouping behaviors, discovering natural patterns.





Greg Coquillo  
Product Leader

# KNN (K-NEAREST NEIGHBORS)



## What it does:

Classifies items based on the closest existing examples in the dataset.

## Why it works well:

It relies on similarity, which is intuitive – “show me things like this one.”

## When to use it:

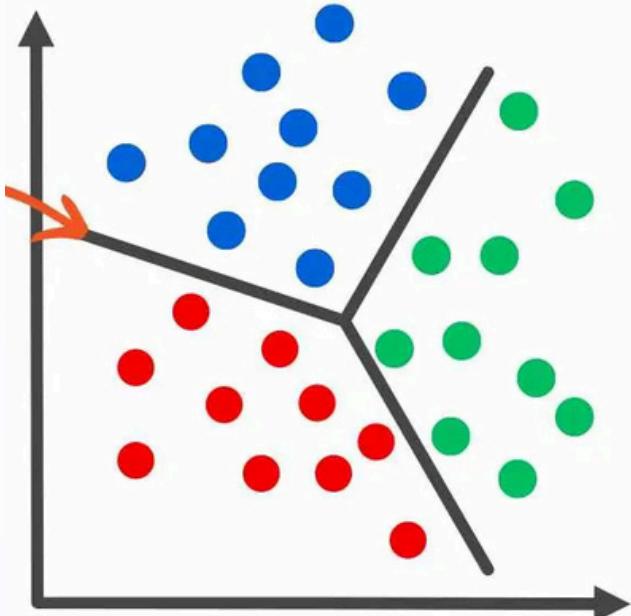
Simple classification problems with smaller datasets – like recommending similar products or categorizing images.





**Greg Coquillo**  
Product Leader

# SVM (SUPPORT VECTOR MACHINE)



## What it does:

Draws the strongest possible boundary that separates classes.

## Why it works well:

It maximizes the margin between classes, making decisions more robust and reliable.

## When to use it:

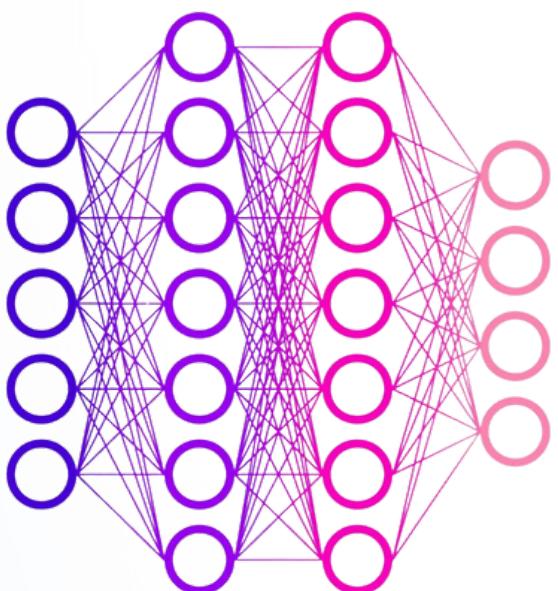
When classes overlap or need a very precise separation – text classification, image recognition, anomaly detection.





**Greg Coquillo**  
Product Leader

# NEURAL NETWORKS



## What it does:

Learn complex relationships through layers of interconnected neurons.

## Why it works well:

They can learn non-linear and deep patterns that simple models can't capture.

## When to use it:

Medium-to-large datasets recommendation systems, pattern recognition, forecasting, structured data tasks.





**Greg Coquillo**  
Product Leader

# DEEP LEARNING (CNNS, RNNs, TRANSFORMERS)



## What it does:

Handle advanced tasks involving images, audio, video, time-series, and natural language.

## Why it works well:

They extract hierarchical features understanding shapes in images, emotions in text, or context in sentences.

## When to use it:

Chatbots, computer vision, speech recognition, translation, content generation.





**Greg Coquillo**  
Product Leader