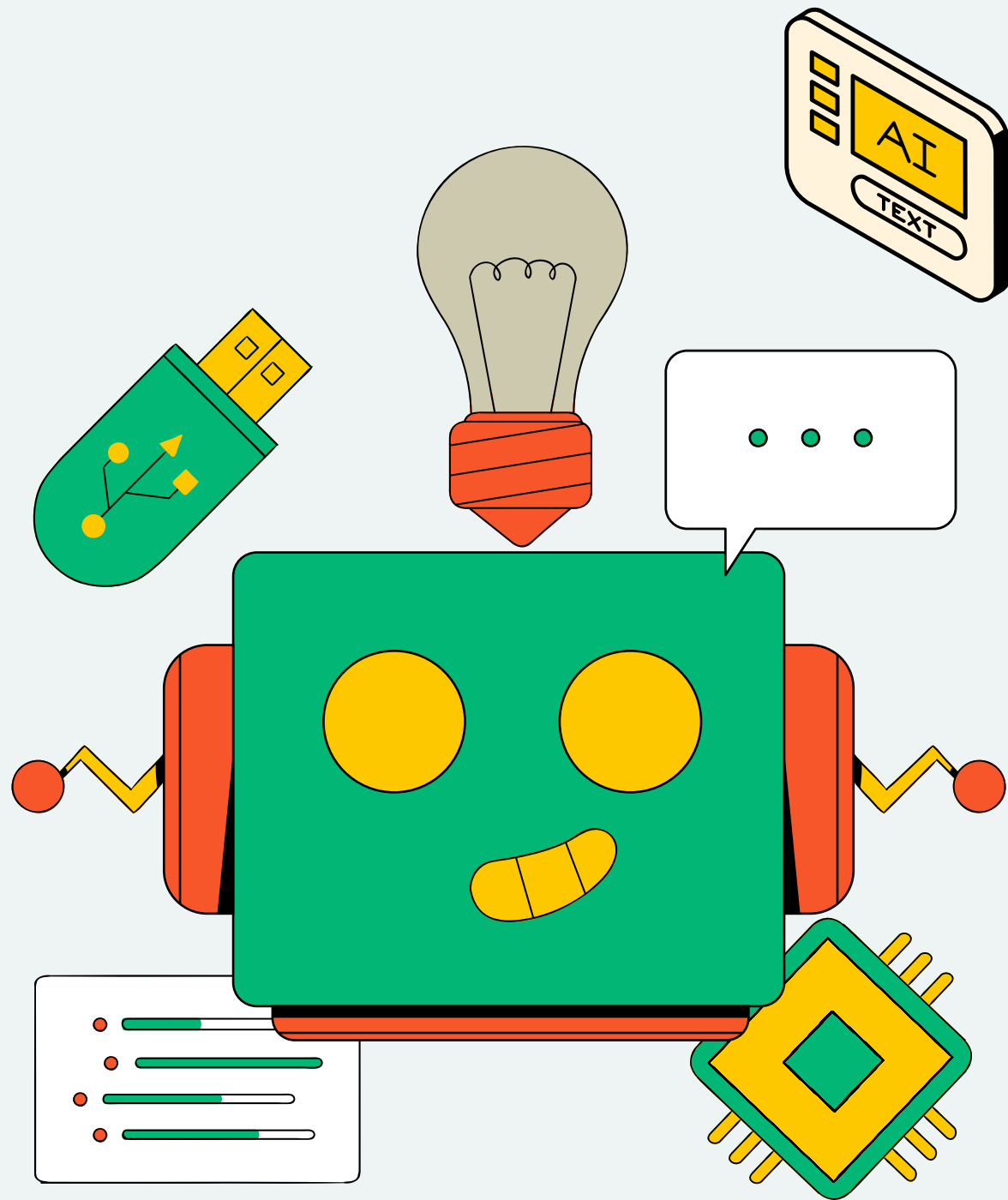




UNDERSTANDING THE
IMPACT ACROSS
DIFFERENT DOMAINS

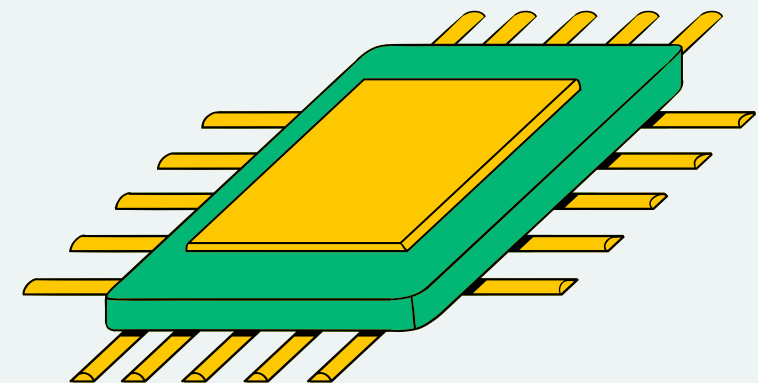


MACHINE LEARNING APPLICATIONS IN REAL WORLD SCENARIOS

PRESENTATION

PRESENTED BY:

RANDY A. MOJER JR.





WHAT IS MACHINE LEARNING?

- A branch of artificial intelligence that enables systems to learn from data, identify patterns, and make decisions with minimal human intervention.

IMPORTANCE OF MACHINE LEARNING

- It is revolutionizing industries by enabling more efficient, accurate, and intelligent decision-making processes.

KEY DOMAINS WHERE MACHINE LEARNING IS APPLIED

- Healthcare
- Finance
- Marketing
- Others: Transportation, Entertainment, Retail, etc.



HEALTHCARE APPLICATION

Disease Diagnosis and Prediction

- Early detection and accurate diagnosis of diseases like cancer, diabetes, and cardiovascular conditions.

Challenges in Traditional Methods

- Manual analysis by doctors is time consuming and prone to errors.
- Limited ability to process large volumes of patient data.



MACHINE LEARNING IN HEALTHCARE

Type of Machine Learning Used: Supervised Learning

- Models are trained on labeled datasets (e.g., medical images with known diagnoses) to learn to identify diseases.

How It Works

- Algorithms analyze patient data (e.g., imaging, lab results) to detect patterns.
- Early warning systems for predicting disease onset.

Examples

- IBM Watson for Oncology: Recommends treatment options based on patient history and research data.
- Google's DeepMind: Detects eye diseases from retinal scans.



IMPACT OF MACHINE LEARNING IN HEALTHCARE

Improved Accuracy

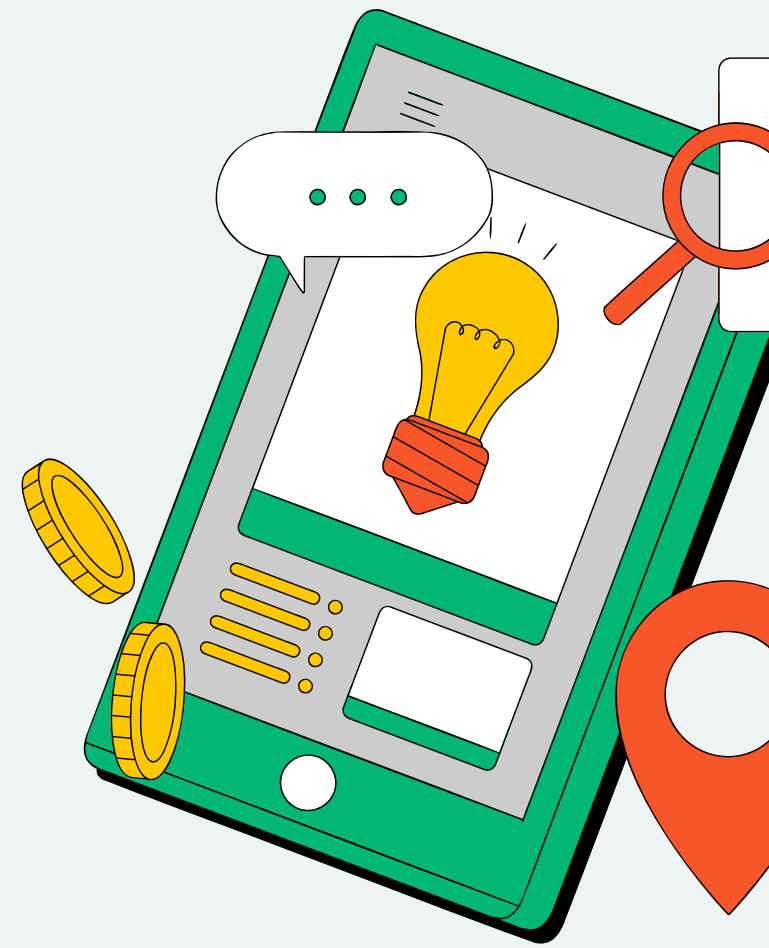
- ML models can diagnose diseases with higher precision than traditional methods.

Early Detection

- Enables earlier intervention, leading to better patient outcomes.

Cost Efficiency

- Reduces the need for unnecessary tests and treatments, lowering healthcare costs.



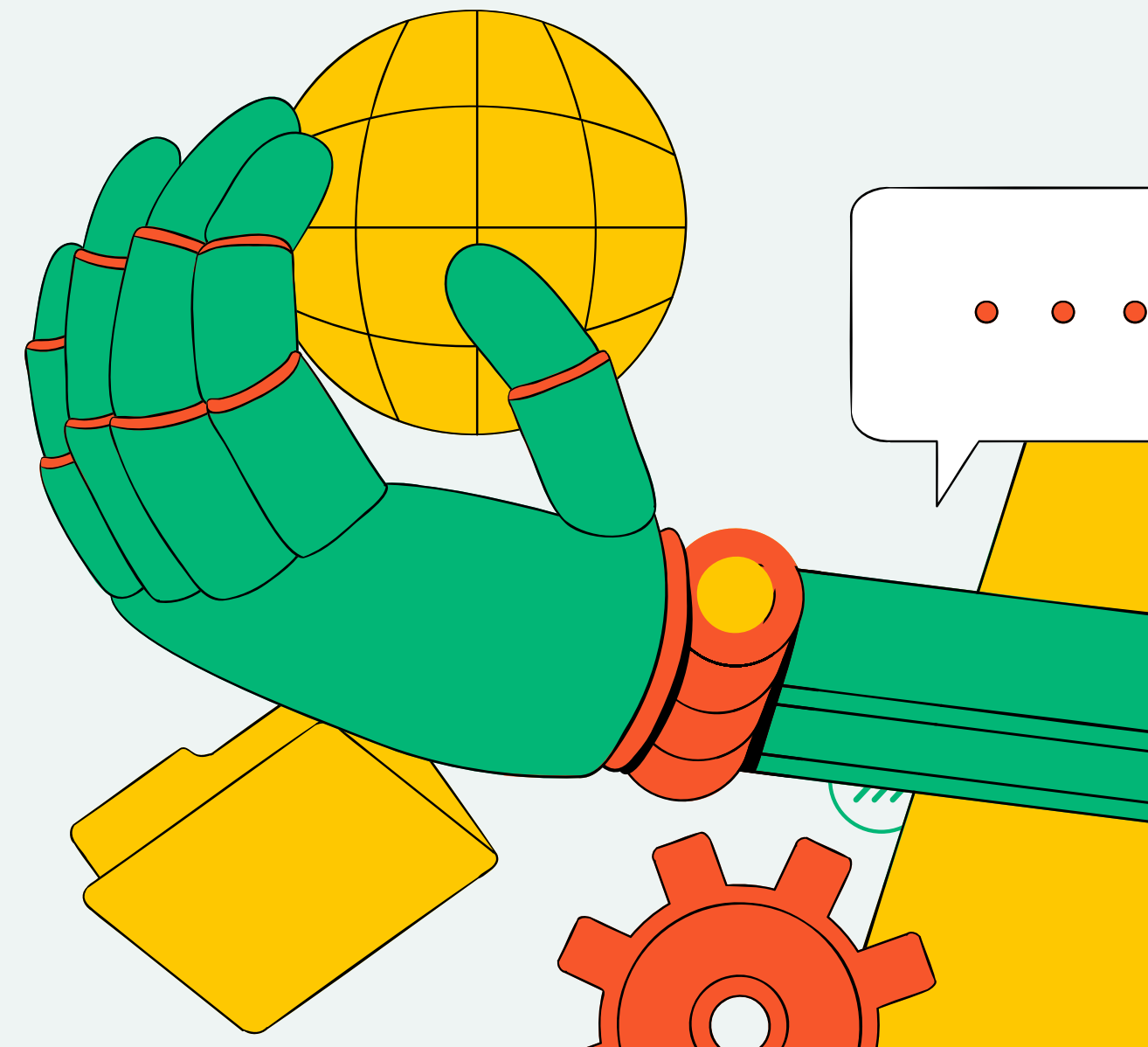
FINANCE APPLICATION

Fraud Detection

- Detecting and preventing fraudulent transactions in real-time to protect financial assets.

Challenges in Traditional Methods

- Rule-based systems are static and can't adapt to new types of fraud.
- High rates of false positives lead to customer dissatisfaction.



MACHINE LEARNING IN FINANCE

TYPES OF MACHINE LEARNING USED: SUPERVISED AND UNSUPERVISED LEARNING

- SUPERVISED: TRAINED ON LABELED DATA (E.G., KNOWN FRAUDULENT TRANSACTIONS).
- UNSUPERVISED: DETECTS ANOMALIES WITHOUT PRE-LABELED DATA.

HOW IT WORKS

- MODELS ANALYZE TRANSACTION PATTERNS TO IDENTIFY SUSPICIOUS ACTIVITIES.
- REAL-TIME MONITORING AND ALERT SYSTEMS FOR POTENTIAL FRAUD.

EXAMPLES

- PAYPAL: USES ML TO IDENTIFY AND BLOCK FRAUDULENT TRANSACTIONS.
- JPMORGAN CHASE: APPLIES ML TO DETECT MONEY LAUNDERING ACTIVITIES.

IMPACT OF MACHINE LEARNING IN FINANCE

REDUCED FRAUD

- MACHINE LEARNING SYSTEMS CONTINUOUSLY ADAPT TO NEW FRAUD PATTERNS, REDUCING FINANCIAL LOSSES.

CUSTOMER TRUST

- LOWER FRAUD RATES INCREASE CUSTOMER CONFIDENCE IN FINANCIAL INSTITUTIONS.

OPERATIONAL EFFICIENCY

- AUTOMATION OF FRAUD DETECTION PROCESSES REDUCES THE NEED FOR MANUAL INTERVENTION.



MARKETING APPLICATION

CUSTOMER SEGMENTATION AND PERSONALIZATION

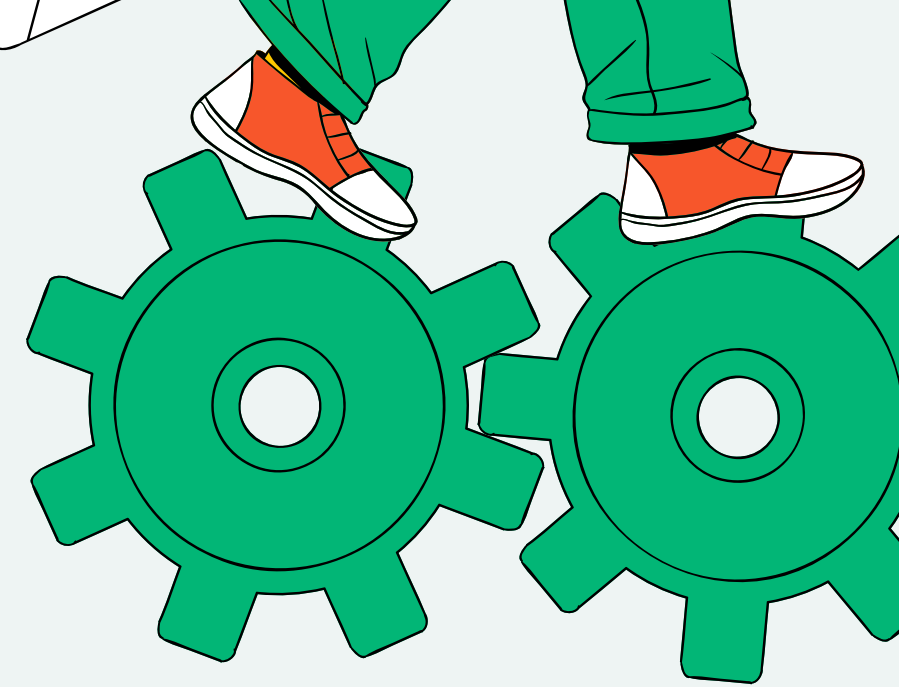
- IDENTIFYING CUSTOMER SEGMENTS AND DELIVERING PERSONALIZED MARKETING TO INCREASE ENGAGEMENT AND SALES.

CHALLENGES IN TRADITIONAL METHODS

- GENERALIZED MARKETING STRATEGIES OFTEN MISS THE MARK WITH DIVERSE CUSTOMER BASES.
- DIFFICULTY IN ANALYZING LARGE VOLUMES OF CUSTOMER DATA MANUALLY.



MACHINE LEARNING IN MARKETING



TYPE OF MACHINE LEARNING USED: UNSUPERVISED LEARNING

- CLUSTERING ALGORITHMS: GROUP CUSTOMERS BASED ON SIMILAR CHARACTERISTICS OR BEHAVIORS WITHOUT PREDEFINED LABELS.

HOW IT WORKS

- ANALYZES DATA FROM CUSTOMER INTERACTIONS (E.G., PURCHASE HISTORY, ONLINE BEHAVIOR) TO IDENTIFY SEGMENTS.
- TAILORS MARKETING CAMPAIGNS TO SPECIFIC SEGMENTS BASED ON PREFERENCES.

EXAMPLES

- AMAZON: USES ML FOR PRODUCT RECOMMENDATIONS BASED ON PAST PURCHASES.
- NETFLIX: PERSONALIZES CONTENT SUGGESTIONS FOR USERS BASED ON VIEWING HISTORY.



IMPACT OF MACHINE LEARNING IN MARKETING



ENHANCED CUSTOMER EXPERIENCE

Personalized marketing leads to higher engagement and customer satisfaction.

INCREASED REVENUE

Targeted campaigns result in higher conversion rates and sales.

DATA-DRIVEN DECISION MAKING

Marketers can make informed decisions based on insights from customer data.



CONCLUSION

MACHINE LEARNING IS TRANSFORMING HEALTHCARE, FINANCE, AND MARKETING BY SOLVING COMPLEX PROBLEMS WITH GREATER ACCURACY AND EFFICIENCY.

