

# MACHINE LEARNING BASICS

The trainer:  
Hadeel Abu rabea



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Exploring  
Data-Driven  
Intelligence

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Turning Data  
into Smart  
Insights

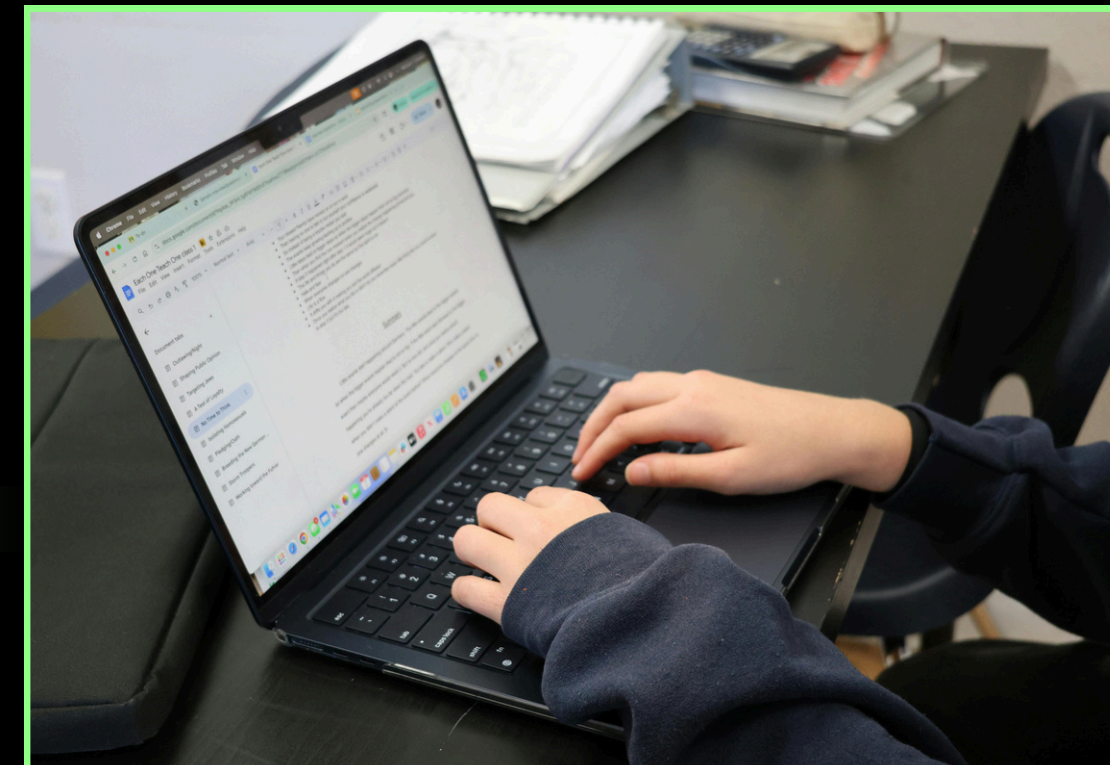
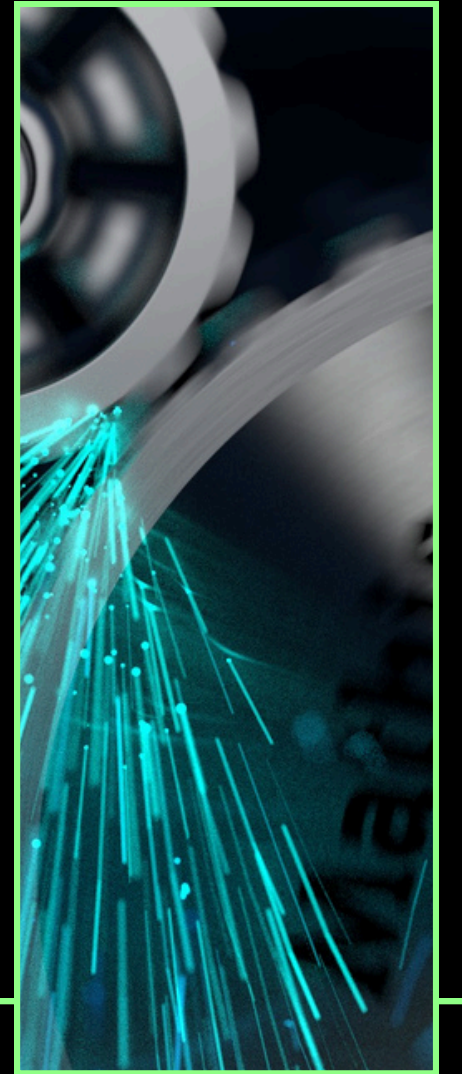
INNOVATION SYSTEMS

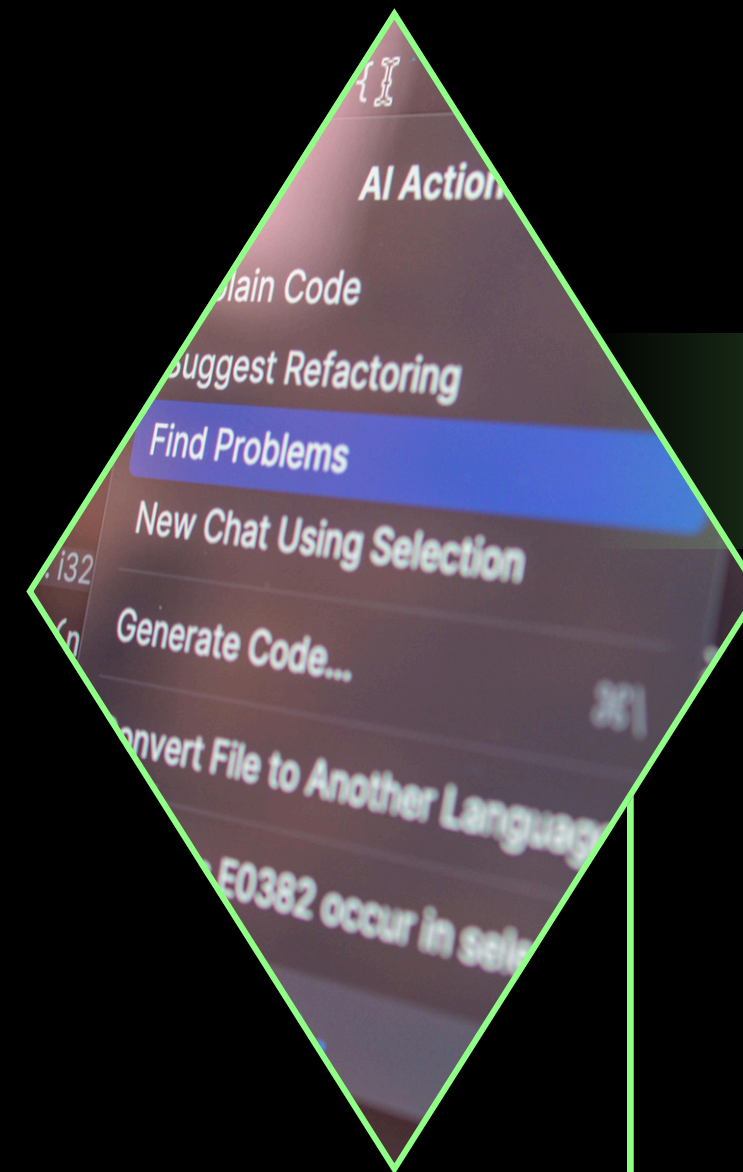
# DEFINITION

A branch of artificial intelligence

Systems learn from data, not hard-coded rules

Machine learning allows computers to improve automatically through experience.



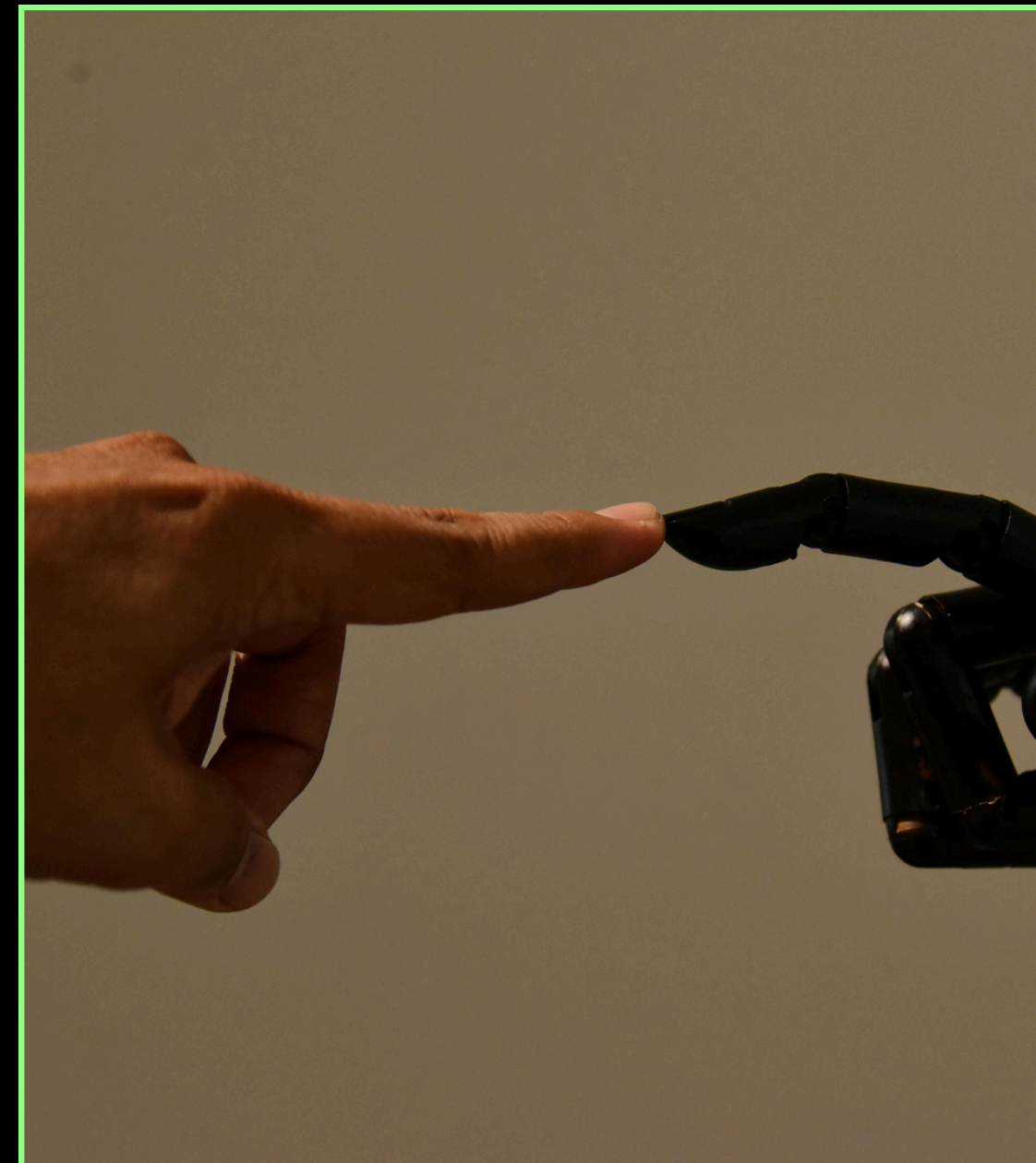


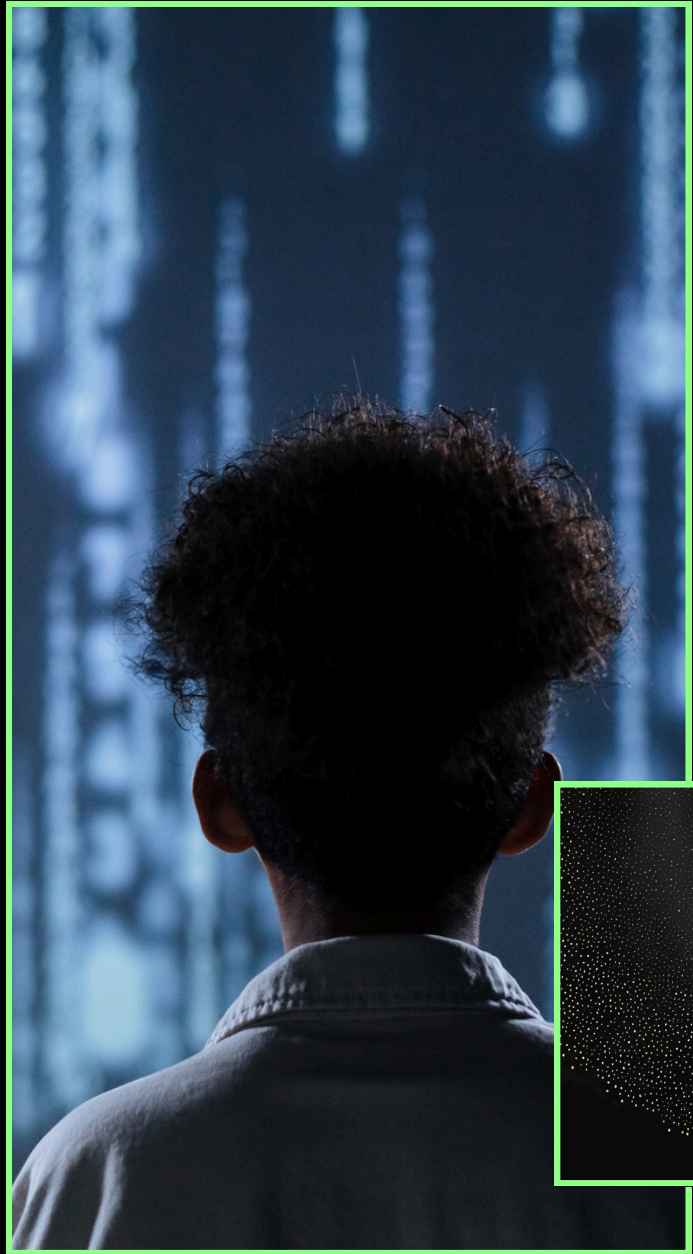
Input data → Training  
→ Model → Output

Patterns are learned from  
large datasets

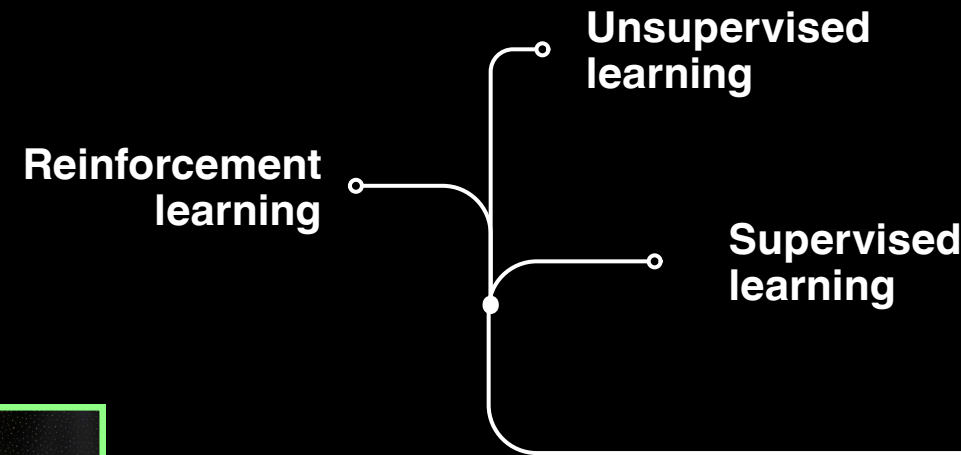
# HOW IT WORKS

- The system finds hidden patterns and uses them to make predictions.





## INNOVATION SYSTEMS



◆ Each type solves different problems depending on the data and goal.



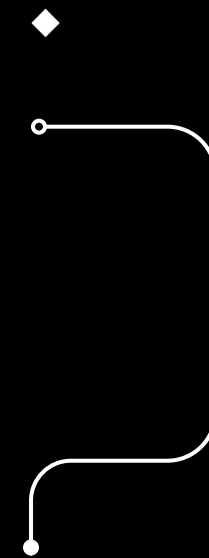
# TYPES OF MACHINE LEARNING



◆ The model learns from correct answers to predict future outcomes.



# ◆ SUPERVISED LEARNING ◆



- Uses labeled data
- Examples: classification, regression

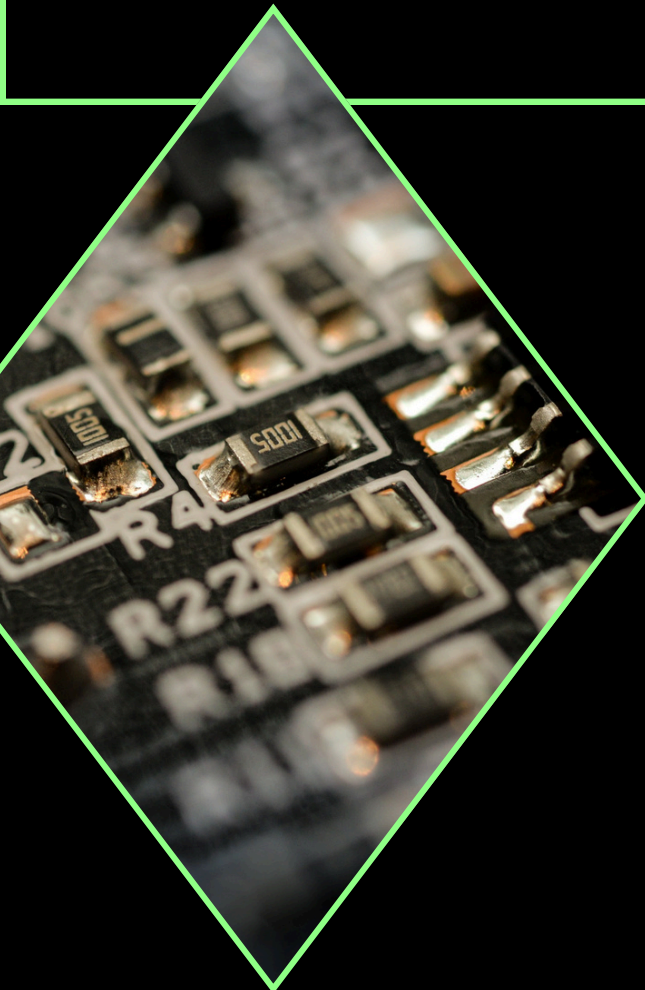








# BENEFITS & CHALLENGES



◆ **Powerful, but needs careful design and data quality.**

- Fast data processing
- Accurate predictions
- Requires large datasets
- Risk of bias in models

◆ **INNOVATION SYSTEMS**



# FUTURE OF MACHINE LEARNING



Machine learning will continue shaping technology and society.

- Smarter AI assistants
- Automation across industries
- Better decision-making systems



INNOVATION SYSTEMS

# THANK YOU

◆ Data is the new fuel

◆ Machine learning turns it into intelligence.

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INNOVATION SYSTEMS

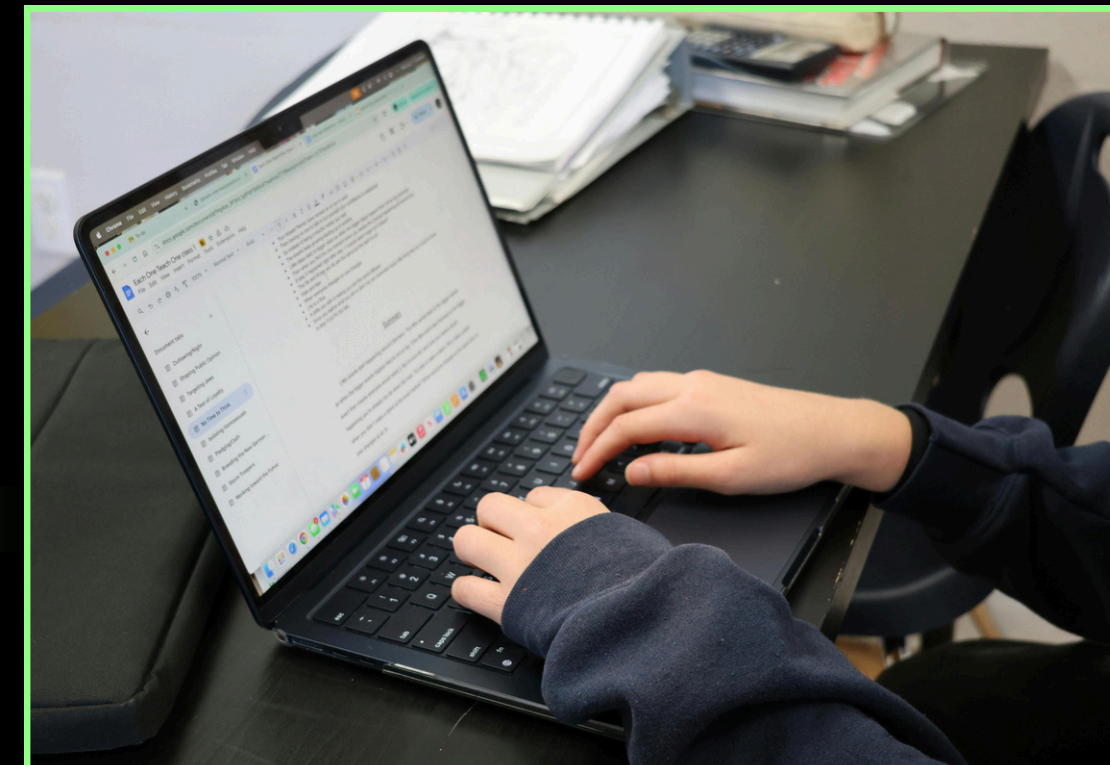
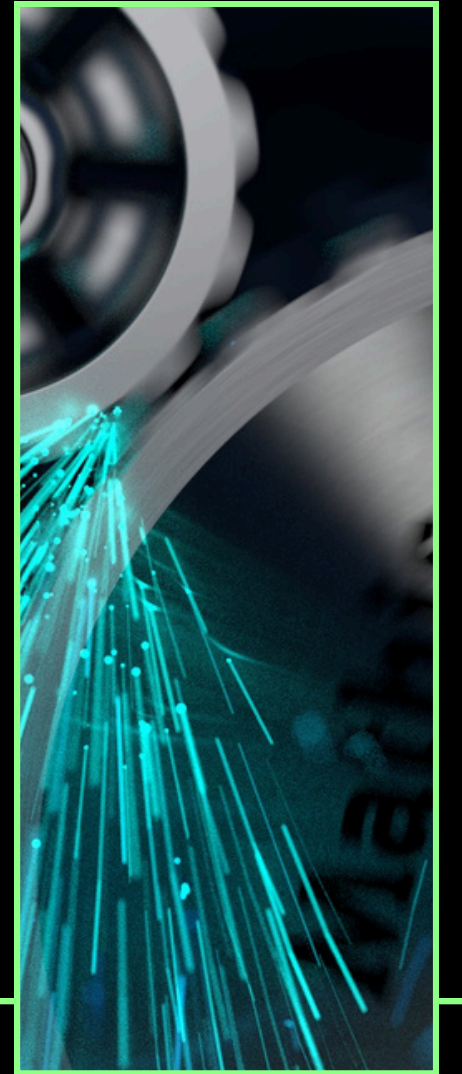


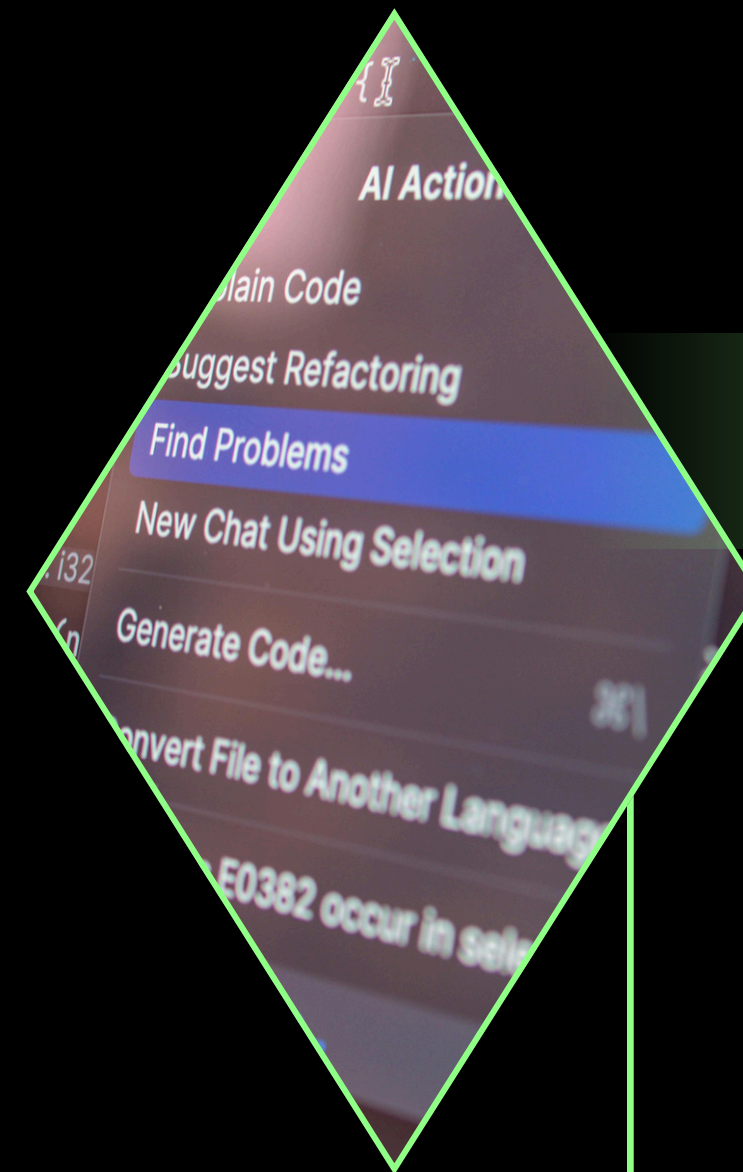
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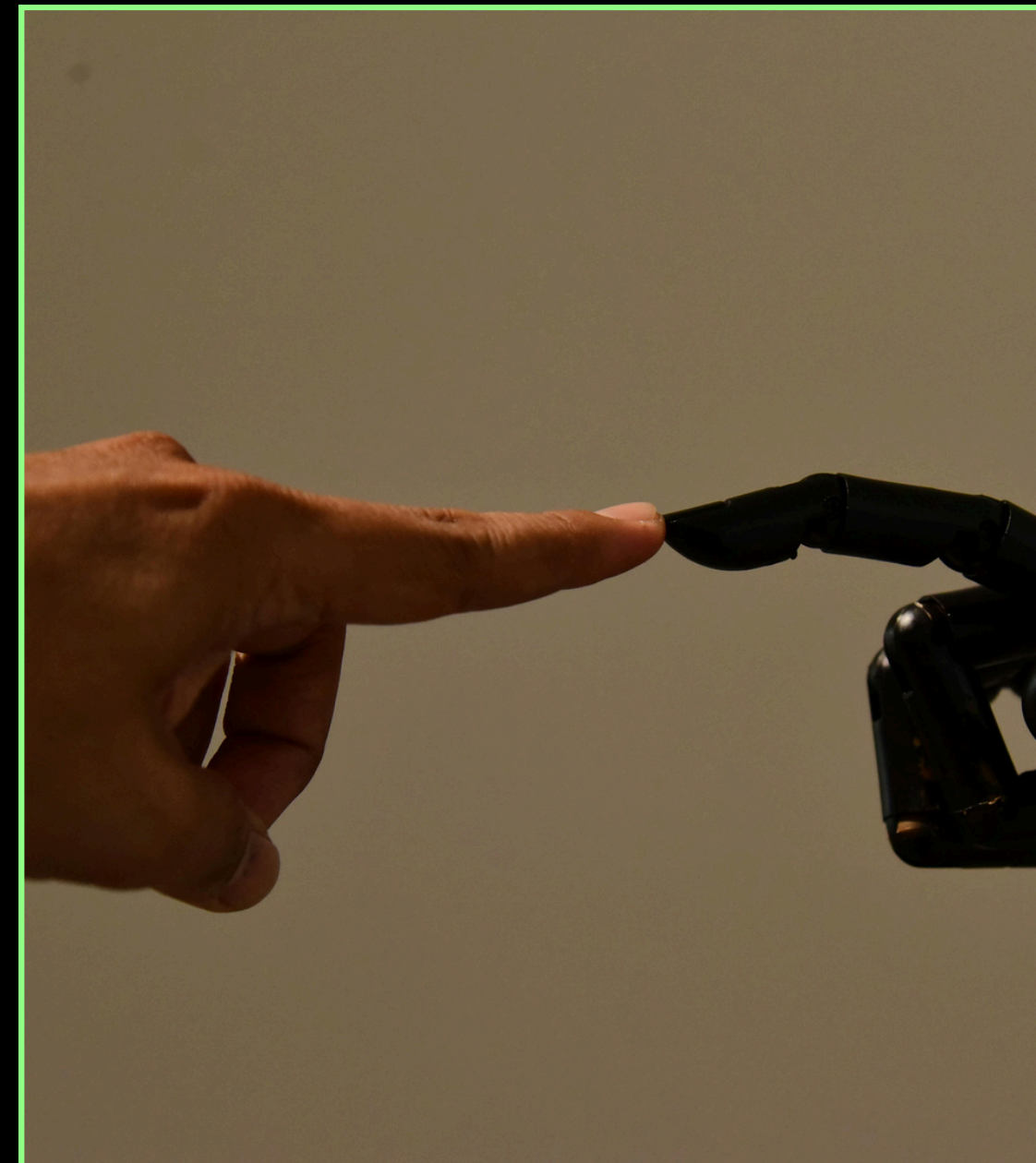


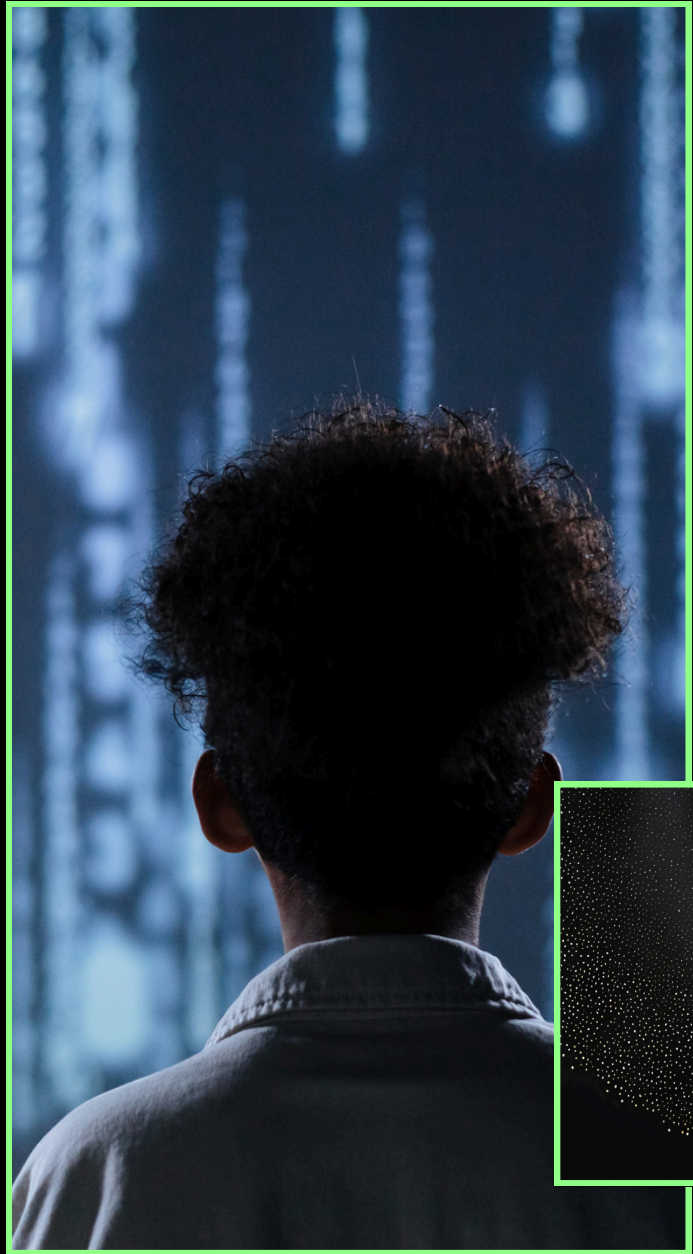
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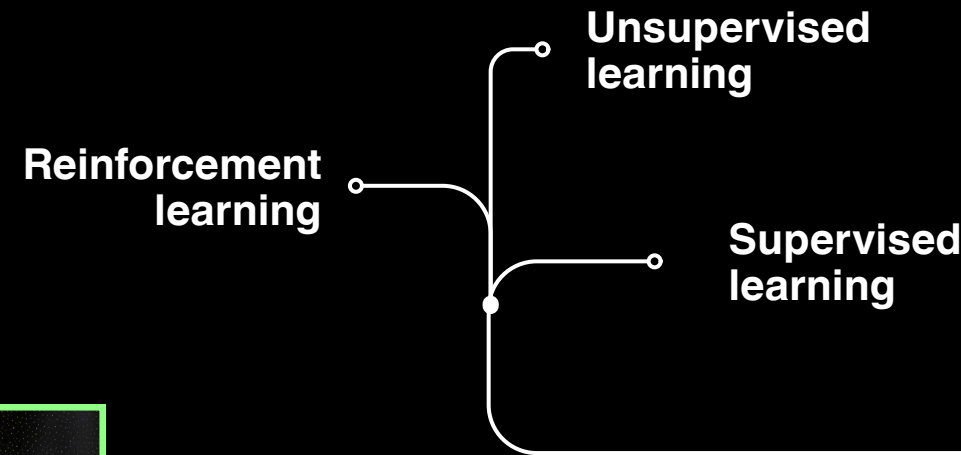
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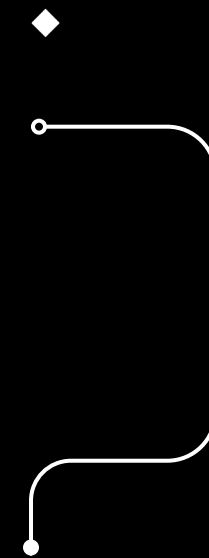
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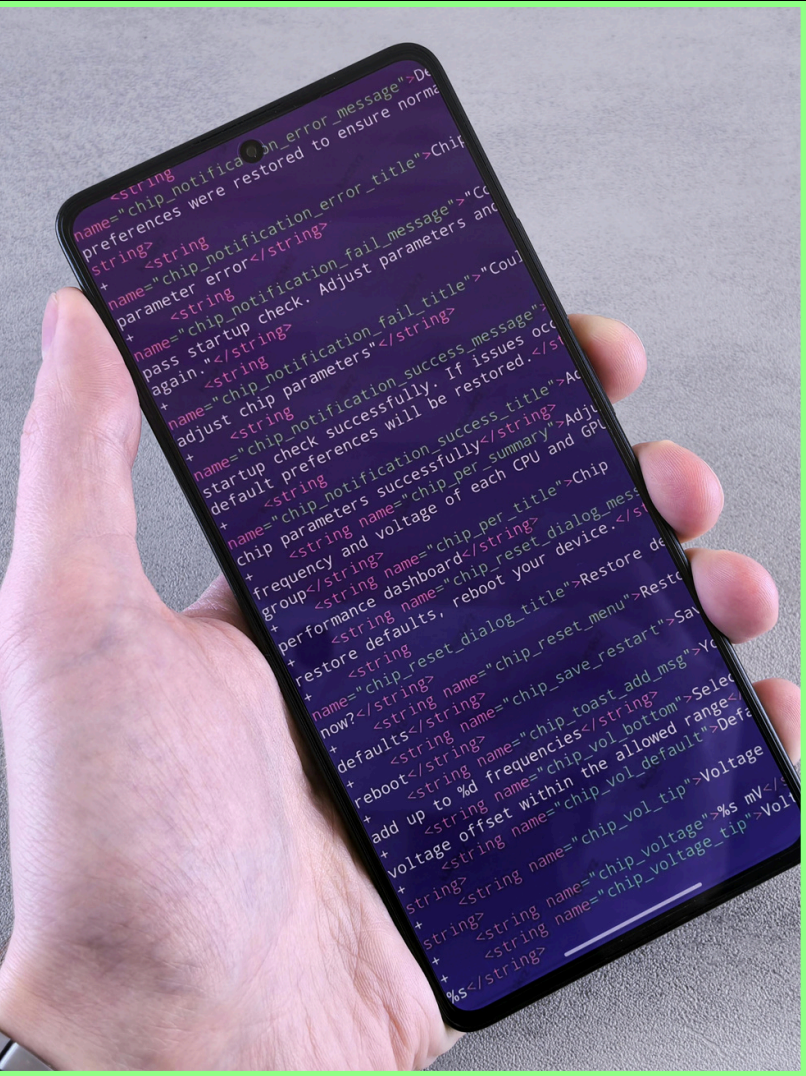
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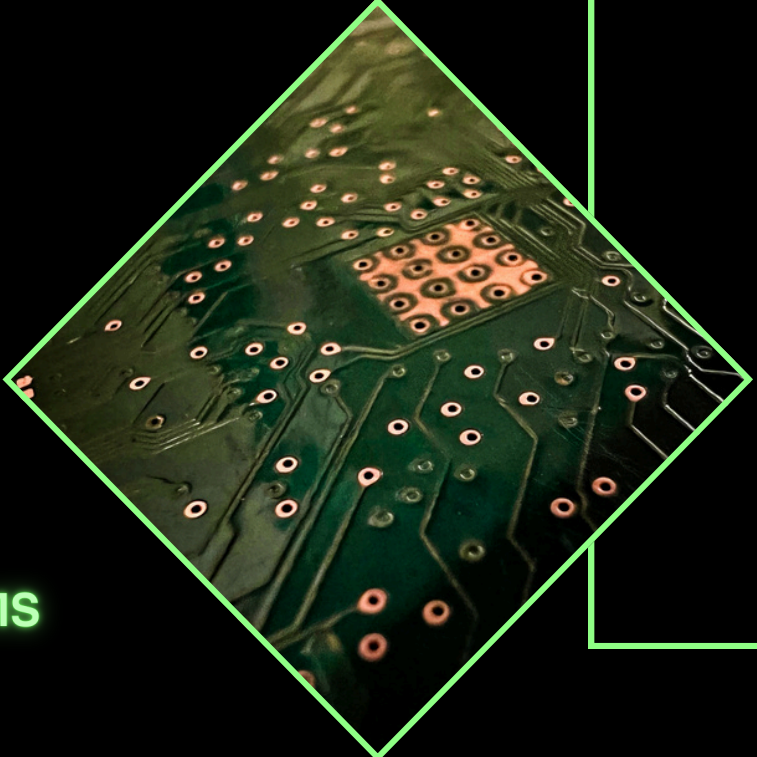
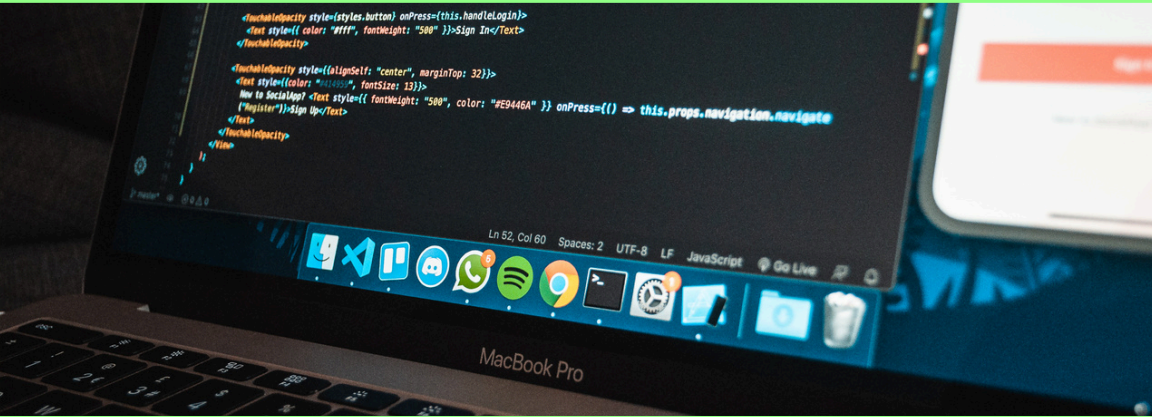
# UNSUPERVISED LEARNING



Useful for discovering hidden structures in complex datasets.

No labeled data

Finds patterns and groupings



## INNOVATION SYSTEMS

◆ Machine learning is already part of everyday life.

01

Recommendation systems

02

Image and face recognition

03

Fraud detection

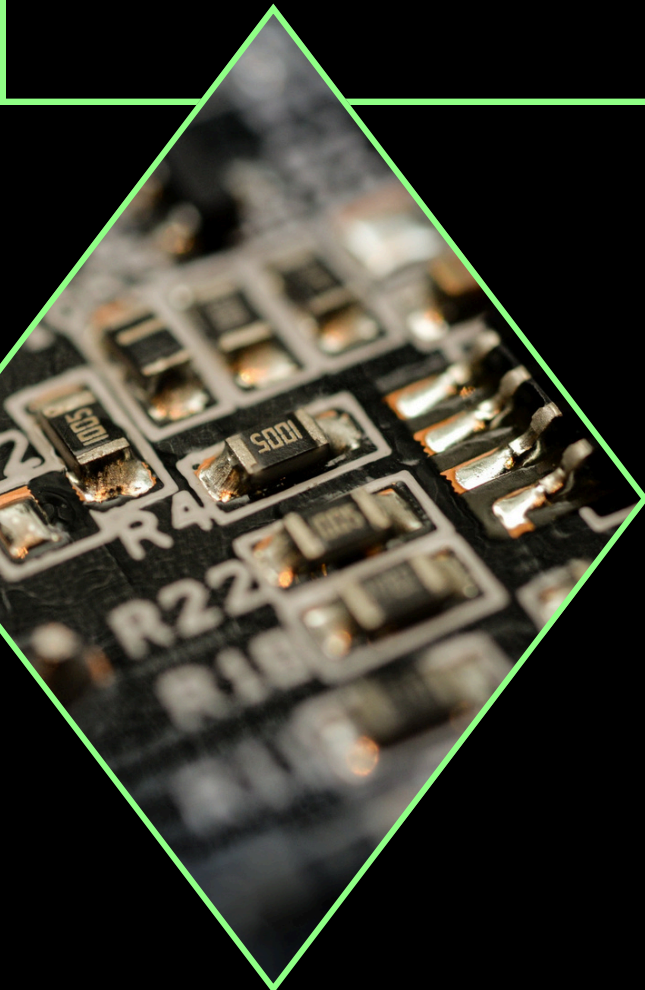


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# REAL-WORLD APPLICATIONS



# BENEFITS & CHALLENGES



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