HW-Topic-12

Data Acquisition, Modeling and Analysis: Big Data Analytics

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Embodied AI

CORE IDEA

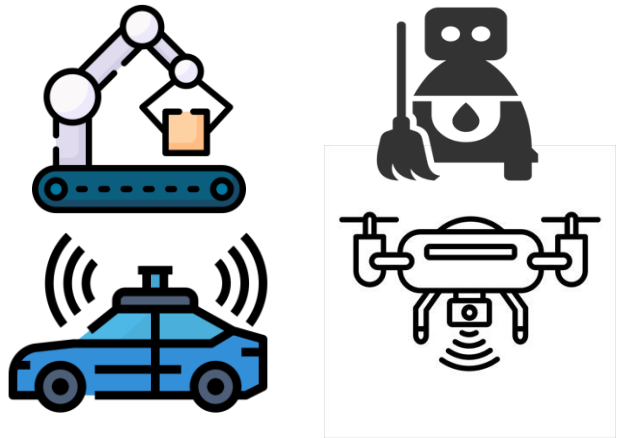
- AI models that **interact with the physical world** through sensors & actuators.
- Combines **perception, learning, planning, and control**.
- Learns from **real-world feedback**, not just data.
- Helps robots behave **more intelligently + context-aware**.

GOAL

- Enable robots to **navigate and act** like humans.
- Build systems that adapt to **unpredictable environments**.
- Improve **autonomy**, decision-making, and safety.

APPLICATIONS

- Self-driving cars
- Home & service robots
- Factory automation
- Drones & mapping



Advantages

- Robots learn better by interacting with the real world.
- Works well in messy, changing environments.
- More natural, human-like actions.
- Can improve safety and accuracy over time.

Disadvantages

- Needs a lot of training and good hardware.
- Hard to simulate real-world situations perfectly.
- Can make mistakes in unpredictable environments.
- Expensive to build and maintain.