Introduction to Artificial Intelligence

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Lino's Current Status – REALLY roughing it

What is Artificial Intelligence?

artificial intelligence

[ˌärdəˈfiSHəl inˈteləjəns]

"the theory and development of computer systems able to perform tasks that normally require human intelligence, such as visual perception, speech recognition, decision-making, and translation between languages."

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Common Applications of AI

Decision Making

Anomaly Detection

Visual Interpretation

Understanding Written & Spoken Language

Participation in dialogs and conversation

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Common AI Workloads

Machine Learning

Anomaly Detection

Computer Vision

Natural Language Processing

Conversational AI

Artificial Intelligence In Azure

Azure Machine Learning (AML)

Cognitive Services

Azure Bot Services
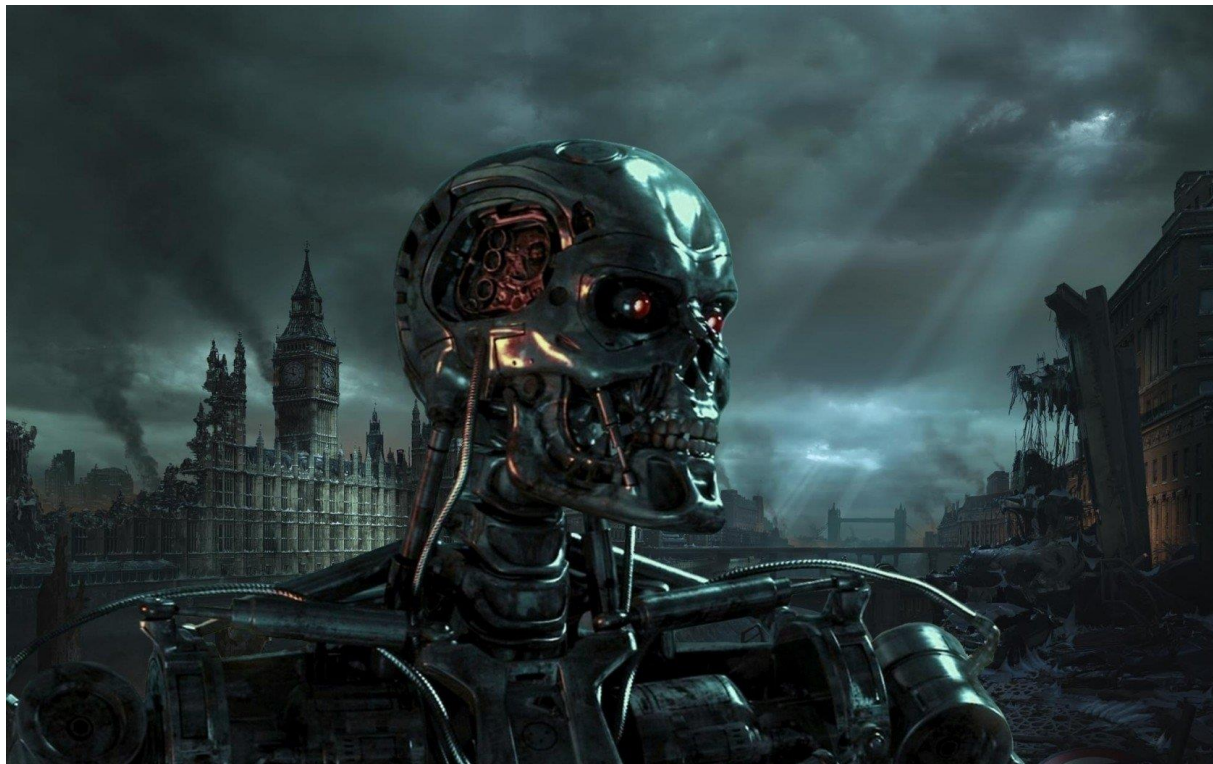
With great power comes great responsibility

Image source: https://wall.alphacoders.com/big.php?i=294343

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Challenges and risks of AI

Challenge or Risk	Example
Bias can affect results	A loan-approval model discriminates by gender due to bias in the data with which it was trained
Errors may cause harm	An autonomous vehicle experiences a system failure and causes a collision
Data could be exposed	A medical diagnostic bot is trained using sensitive patient data, which is stored insecurely
Solutions may not work for everyone	A predictive app provides no audio output for visually impaired users
Users must trust a complex system	An AI-based financial tool makes investment recommendations - what are they based on?
Who's liable for AI-driven decisions?	An innocent person is convicted of a crime based on evidence from facial recognition – who's responsible?

https://docs.microsoft.com/en-us/learn/modules/get-started-ai-fundamentals/7-challenges-with-ai

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Principles of Responsible AI

Fairness	Reliability & Safety	Privacy & Security
Inclusiveness	Transparency	Accountability

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https://www.microsoft.com/ai/responsible-ai

Fairness

"AI systems should treat all people fairly"

Reliability & Safety

"AI systems should perform reliably and safely"

Privacy & Security

"AI systems should be secure and respect privacy"

Inclusiveness

"AI systems should empower everyone and engage people"

Transparency

"AI systems should be understandable"

Accountability

"People should be accountable for AI systems"

AI Stories – Dover Fueling Solutions

- **IoT Solution**

- **Targeted and personalized advertising**

- **Increased customer loyalty**

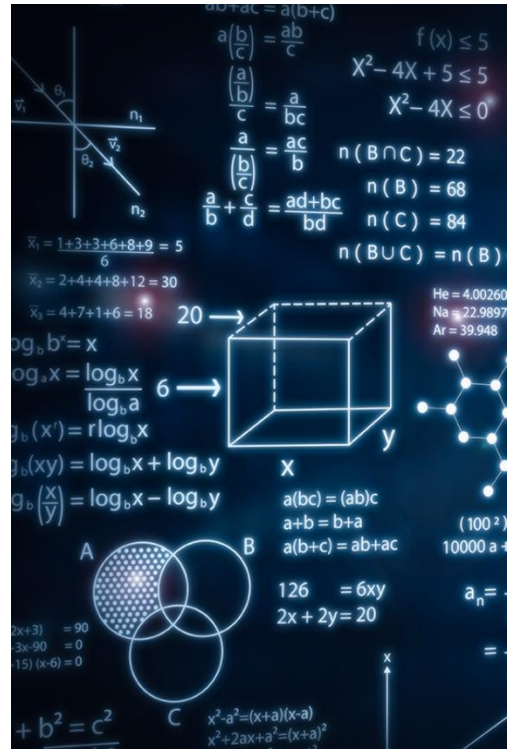- **Remote monitoring**

- **Predictive maintenance**

AI Stories - HOCHTIEF

- **Documentation required for all defects encountered in a project and the steps necessary to remediate the situation**

- **Implementation of a phone-based system for site managers "Virtual assistant"**

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AI Stories - Barracuda

- Barracuda provides email and data protection and application, cloud, and network security to more than 220,000 customers worldwide

- "Data Inspector" uses AI to discover sensitive information to make compliance easier

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