Applying AI in Research: Possibilities and Challenges

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The outline

1

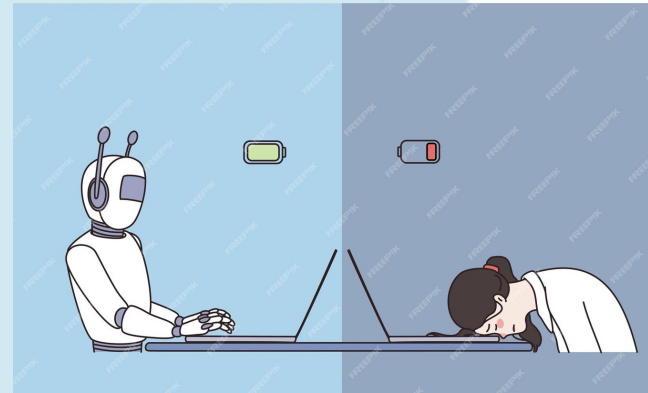# Overview of Artificial Intelligence

1 Overview of Artificial Intelligence

What is AI?

"technology that enables computers and machines to **simulate human intelligence** and **problem-solving** capabilities" IBM.

Why AI?

- Automate repetitive tasks

- Improves efficiency and productivity

Will AI replace humans? 🤔
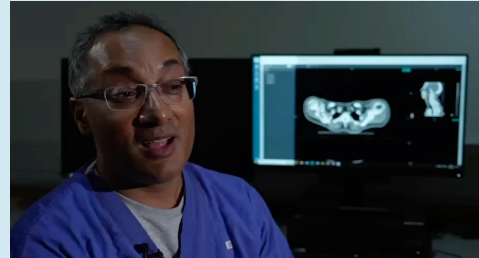
2

AI Revolutionize Healthcare

2 AI Revolutionize Healthcare
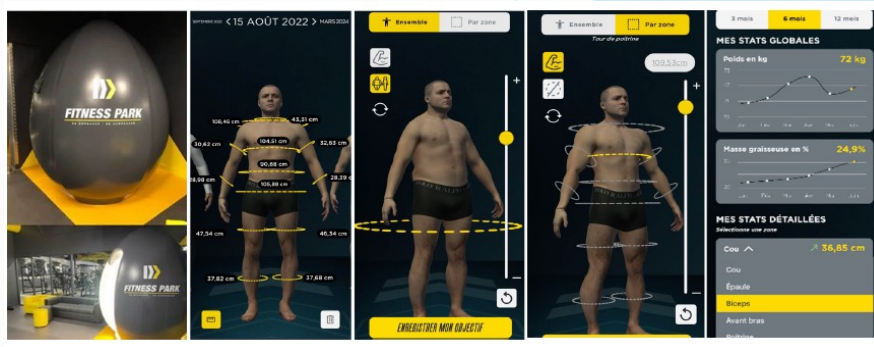
- Human ORGANS-ON-CHIPS

Credit: Wyss Institute at Harvard University

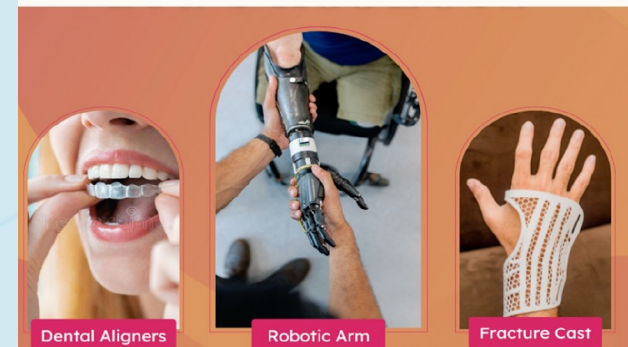- OSAIRIS: AI cancer imaging tool

Credits: Cambridge and Microsoft

- Disease Diagnosis with Digital Twin technology:

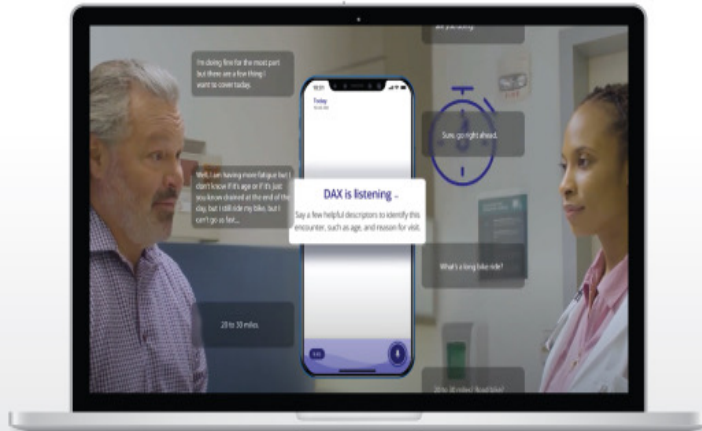

Credits: tOOinn

- 3D printing technology

Credits: 3D creative

2 AI Revolutionize Healthcare

- **NUANCE DRAGON AMBIENT EXPERIENCE (DAX)**

- **GOOGLE VERTEX AI SEARCH for health**

pulls information from various sources like patient records, notes, and even scanned documents. Clinicians can access information, answer questions, and caption images.

- **Awesome Healthcare**

SCAN ME

- **Azure AI**

3

AI Aid in Research

AI Tools in Research

3

1. Use tools developed for the scientific fields.

2. Do not trust and depend on these tools (hallucination).

3. Knowledge cutoff (ChatGPT 4.0 April 2024).

Search engines	Literature Mapping	Reference Management	Writing and Finalising
Semantic Scholar	Litmaps	Zotero	Moonbeam
Sourcely	Connected Papers	Humata	AI Writer
SciSpace	Inciteful	Mendeley	Jenni.ai
System Pro	Lateral	Papersapp	Trinka.ai
SciLynk		EndNote	Writefull
Scinapse		Paperpile	Paperpal
Perplexity		Overleave	Penelope
R discovery		texStudio	Grammarly
Scite.ai			Quillbot

3

AI Tools in Research: can not do

1. Data and source quality

2. Interpretability and explainability

3. Clinical context and human expertise

4. Data privacy and security

5. Generalization and validation

6. Regulatory approval and adoption

Should I learn AI and programming?
Basic: AI, machine learning (Bias), and programming (low code - no code).

The College of Computer and Information Technology

Information Technology