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A COURSE ON

AI in Medicine: From Theory to Practice



الذكاء الاصطناعي في الطب: من
النظرية إلى التطبيق

محمد خلف الله عثمان
طبيب باحث ومحترف في الذكاء
الاصطناعي في المجال الصحي

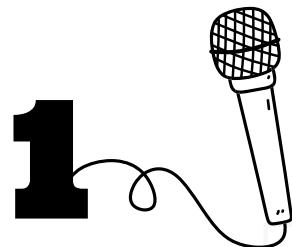


Artificial Intelligence in the Medical Field: Between Innovation and Responsibility

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الوحدة الأولى

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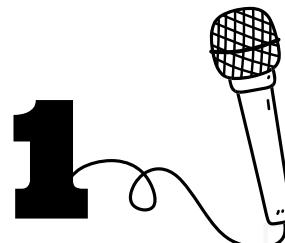


What is Artificial Intelligence?

ARTIFICIAL INTELLIGENCE IS NOT JUST A PASSING TECHNOLOGY; IT IS A COMPREHENSIVE SYSTEM OF ALGORITHMS AND DATA THAT ENABLES MACHINES TO "THINK" AND MAKE DECISIONS BASED ON DEEP ANALYSIS.

الذكاء الاصطناعي ليس مجرد تقنية عابرة؟ بل هو منظومة متكاملة من الخوارزميات والبيانات التي تتيح للأجهزة "التفكير" واتخاذ القرارات بناءً على تحليل عميق.

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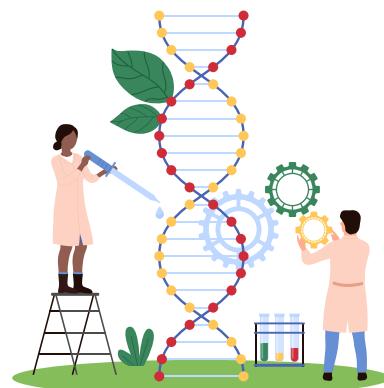


Why AI in Medicine?

**IMPROVING DIAGNOSIS:
DEVICES CAPABLE OF
READING X-RAY IMAGES
WITH ACCURACY
COMPARABLE TO EXPERT
DOCTORS.**



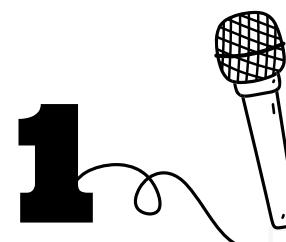
**ADVANCING TREATMENT:
CUSTOMIZING TREATMENT
PLANS BASED ON
INDIVIDUAL PATIENT
GENETICS.**



**ENHANCING EFFICIENCY:
SMART MANAGEMENT
SYSTEMS THAT IMPROVE
WORKFLOW IN
HOSPITALS AND REDUCE
ERRORS.**



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Practical Applications: Examples That Make a Difference

EARLY DISEASE DIAGNOSIS

DRUG DEVELOPMENT

IMPROVING PATIENT EXPERIENCE

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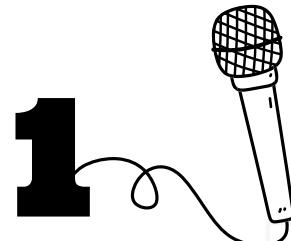
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Challenges: Questions That Need Answers

★ETHICAL CHALLENGES

★TECHNICAL CHALLENGES

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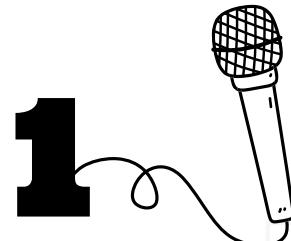
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The Future: Responsibility and Opportunity

THE OPPORTUNITY

THE RESPONSIBILITY

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Questions

**WHAT IS YOUR PERSONAL VISION OF AI'S
IMPACT ON OUR HEALTH?**

ما هي رؤيتك الشخصية لتأثير الذكاء الاصطناعي
على حياتنا الصحية؟

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Through this course, we aim to achieve three main objectives:



INTRODUCE PARTICIPANTS TO THE CONCEPT OF ARTIFICIAL INTELLIGENCE (AI)



EXPLAIN AI APPLICATIONS TO IMPROVE CLINICAL AND ADMINISTRATIVE PERFORMANCE



ENHANCE THE ABILITY OF HEALTHCARE PROFESSIONALS TO APPLY AI TECHNOLOGIES

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2 A white microphone with a green and white checkered pattern on its top cap.



Questions

IN YOUR OPINION, HOW CAN WE BALANCE THE USE OF AI WITH MAINTAINING THE HUMAN TOUCH IN HEALTHCARE?

برأيكم، كيف يمكننا الموازنة بين استخدام الذكاء الاصطناعي والحفاظ على اللمسة الإنسانية في الرعاية الصحية؟

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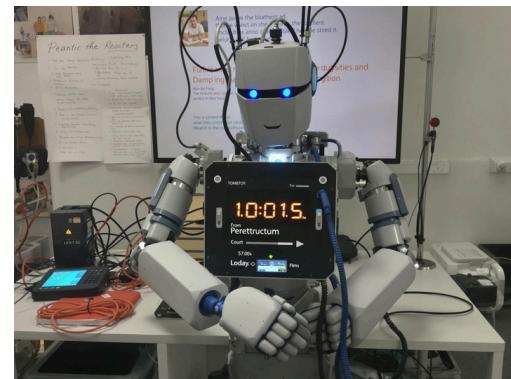


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What distinguishes AI:

***IT IS NOT LIMITED TO
PERFORMING PRE-
PROGRAMMED TASKS.***



***IT CAN LEARN AND
EVOLVE OVER TIME.***

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Quote

"ARTIFICIAL INTELLIGENCE IS NOT JUST A TECHNOLOGY; IT IS A MEANS TO GIVE MACHINES THE ABILITY TO THINK AND CREATE."

"الذكاء الاصطناعي ليس مجرد تقنية، بل هو وسيلة تمنح الآلات القدرة على التفكير والإبداع".

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Practical Examples: AI in Our Daily Lives

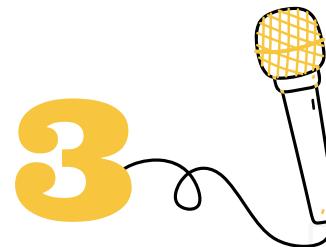
1 LEARNING FROM PAST EXPERIENCES

2 REAL-TIME DECISION MAKING

3 NATURAL INTERACTION WITH HUMANS

4 AI IN MEDICINE

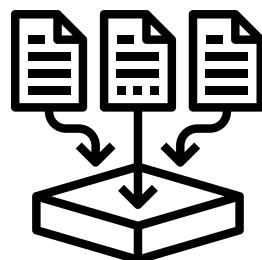
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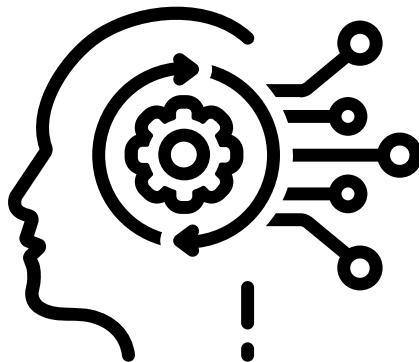


How Does AI Work?

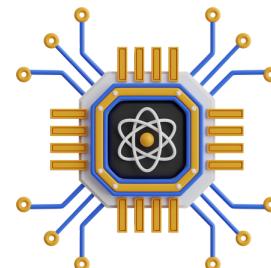
1. DATA



2. ALGORITHMS



3. COMPUTING POWER



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Types of Artificial Intelligence

1. NARROW AI



2. GENERAL AI

3. SUPER AI



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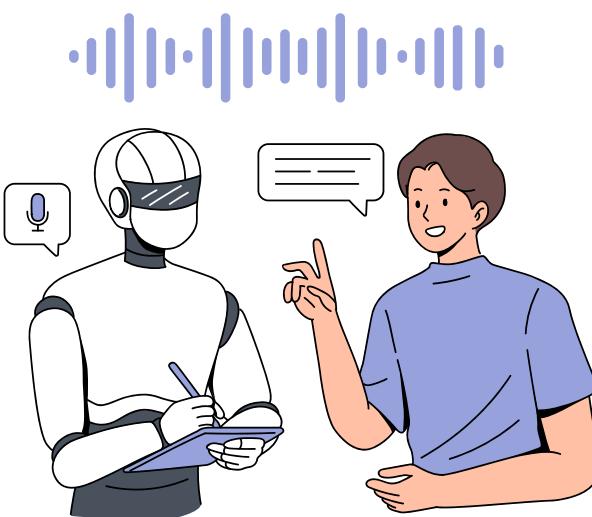
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The Importance of AI in Our Lives

1. IMPROVING EFFICIENCY

2. PERSONALIZING EXPERIENCES

3. SOLVING COMPLEX PROBLEMS



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Quote

"ARTIFICIAL INTELLIGENCE IS NOT JUST A TECHNOLOGICAL TOOL; IT IS A HOPE FOR FINDING SOLUTIONS TO HUMANITY'S GREATEST CHALLENGES."

"الذكاء الاصطناعي ليس مجرد أداة تقنية، بل هو أملٌ في إيجاد حلول لأكبر التحديات التي تواجه الإنسانية".

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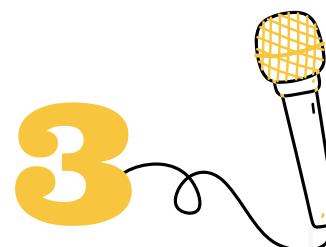


Questions

**HOW DO YOU SEE THE ROLE OF AI IN
IMPROVING OUR LIVES? AND WHAT CONCERNS
MIGHT WE FACE IN THE FUTURE?**

**كيف ترون دور الذكاء الاصطناعي في تحسين حياتنا؟
وما هي المخاوف التي قد تواجهنا في المستقبل؟**

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The Early Beginnings of Artificial Intelligence in Medicine

THE 1960S AND 1970S: EXPERT SYSTEMS



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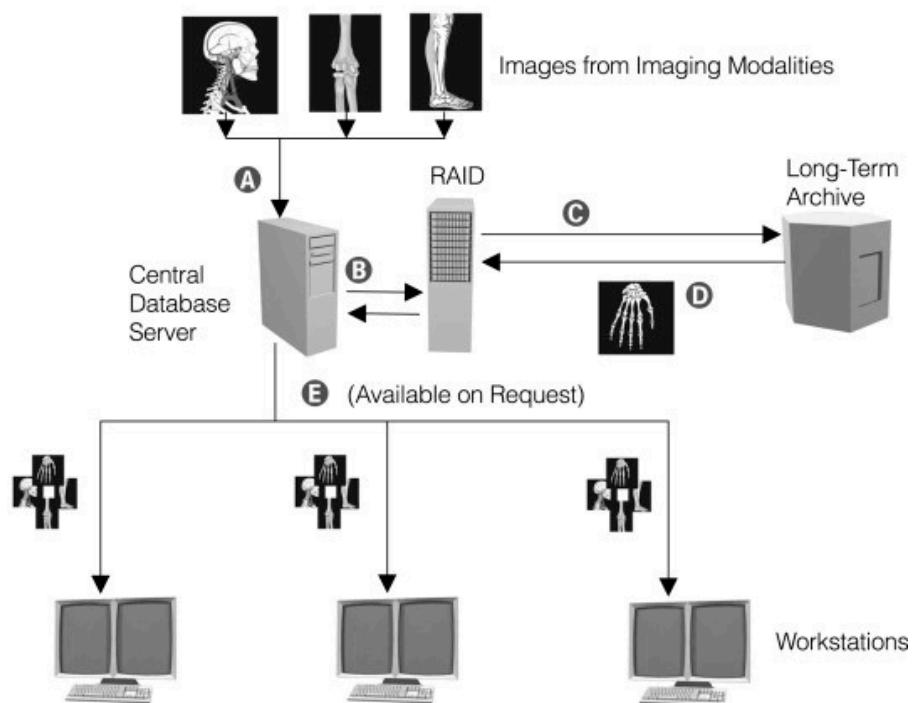


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The Early Beginnings of Artificial Intelligence in Medicine

THE 1980S AND 1990S: EVOLUTION OF MEDICAL ALGORITHMS



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Artificial Intelligence in Modern Medicine



*THE FIRST DECADE OF THE 21ST
CENTURY (2000-2010)*



*THE SECOND DECADE OF THE 21ST
CENTURY (2010-2020): DEEP LEARNING
CHANGES THE GAME*

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Current Applications of Artificial Intelligence in Medicine

1. MEDICAL DIAGNOSIS
2. DISEASE PREDICTION
3. PERSONALIZED MEDICINE
4. DRUG DEVELOPMENT
5. TELEMEDICINE

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Challenges and Future Prospects

1. PRIVACY



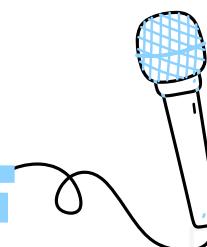
2. ACCURACY



3. COSTS



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Future Prospects

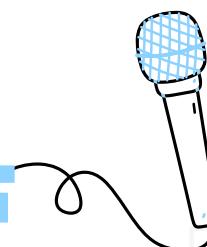
GENETIC DATA ANALYSIS

EARLY DIAGNOSIS

FUTURE SURGERY

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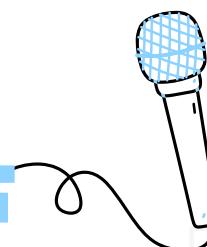
Quote

**"THE FUTURE IS NOT FAR AWAY; IT IS WHAT WE
MAKE TODAY."**

"المستقبل ليس بعيداً، بل هو ما نصنعه اليوم."

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AI in Medical Diagnosis

* **IMAGE-BASED MEDICAL DIAGNOSIS**

* **GENETIC DIAGNOSIS**

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5 A stylized microphone with a blue and white checkered pattern on its top cap, connected by a thin black cord to a large blue number '5'.

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AI in Treatment



AI-ASSISTED SURGERIES

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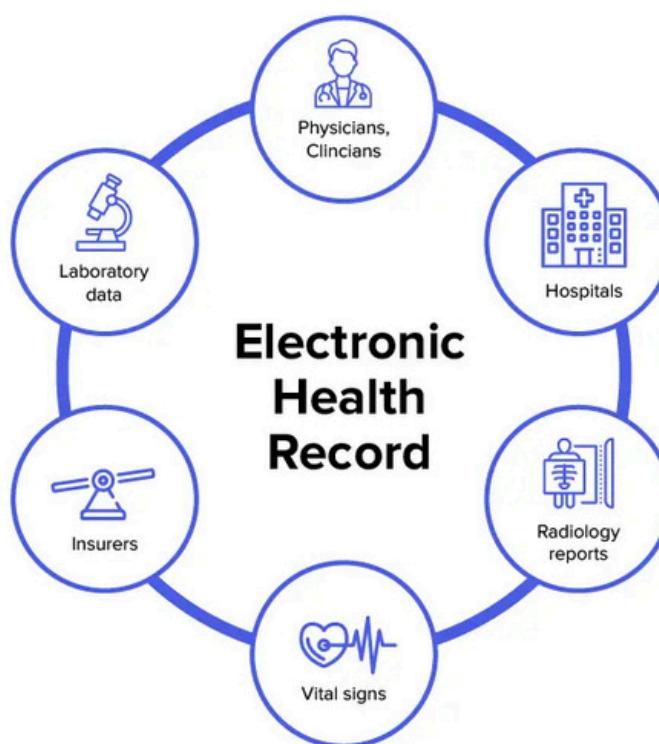
5 A large blue number '5' followed by a white microphone with a blue and white checkered pattern on its top cap.

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Health Data Management Using AI

ELECTRONIC HEALTH RECORDS MANAGEMENT



appinventiv

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Epidemic and Disease Prediction



bluedot

Book A
Demo

Don't fight
tomorrow's
outbreaks with
yesterday's
tools

Infectious disease intelligence
revolutionized with AI

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Questions

HOW CAN WE, AS INDIVIDUALS AND COMMUNITIES, BENEFIT FROM THIS TECHNOLOGICAL REVOLUTION? ARE WE READY TO EMBRACE THIS TRANSFORMATION?

كيف يمكننا كأفراد ومجتمعات الاستفادة من هذه الثورة التكنولوجية؟ هل نحن مستعدون لتبني هذا التحول؟

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How Does AI Scenarios of AI Applications in Medicine Work?

- 1. MEDICAL DIAGNOSIS AND IMAGE ANALYSIS:
SAVING LIVES IN REAL-TIME**
- 2. ROBOTIC-ASSISTED SURGERY: PRECISION
BEYOND IMAGINATION**
- 3. DISEASE PREDICTION AND PERSONALIZED
TREATMENT: A STEP TOWARDS PREVENTION**
- 4. DRUG DEVELOPMENT: ACCELERATING
INNOVATION**
- 5. TELEMEDICINE: HEALTHCARE FOR EVERYONE**

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The Importance of AI in Medicine

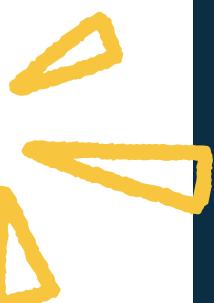


ACCURACY: REDUCING HUMAN ERRORS AND IMPROVING DIAGNOSIS.

EFFICIENCY: SPEEDING UP MEDICAL PROCESSES AND REDUCING COSTS.

PERSONALIZATION: OFFERING TREATMENT PLANS TAILEDRED TO EACH PATIENT.

INNOVATION: ACCELERATING DRUG DEVELOPMENT AND IMPROVING TREATMENT TECHNOLOGIES.



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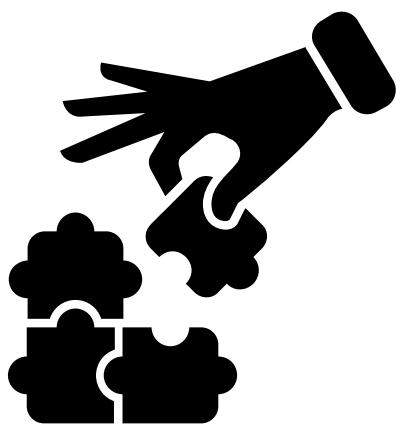


Conclusion: AI and the Future of Medicine

AI IS NOT JUST A TOOL; IT IS A PARTNER IN IMPROVING OUR HEALTH. FROM EARLY DIAGNOSIS TO DRUG DEVELOPMENT, AI OPENS NEW HORIZONS WE COULD NOT HAVE IMAGINED. HOWEVER, ITS SUCCESS DEPENDS ON HOW WE ADDRESS THE CHALLENGES THAT ACCOMPANY IT.

الذكاء الاصطناعي ليس مجرد أداة، بل هو شريك في تحسين حياتنا الصحية. من التسخيف المبكر إلى تطوير الأدوية، يفتح الذكاء الاصطناعي آفاقاً جديدة لم نكن نتصورها. ومع ذلك، فإن نجاحه يعتمد على كيفية مواجهتنا للتحديات التي تصاحبه.

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