



Cihan University

Computer Science Dept

AI and Applications Seminar 14/5/2024

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## **AI and Applications**

**Artificial intelligence (AI)** is the ability of a computer to imitate intelligent human behavior.

# Artificial intelligence continue

• **Artificial intelligence** is a subcategory of computer science focusing on research to create machines that attempt to problem-solve and analyze contradictory or ambiguous information.

Topics covered in this category include **artificial intelligence technologies** such as :

- Expert systems,
- Fuzzy systems,
- Natural language processing,
- Speech recognition, pattern recognition, c
- Computer vision,
- Decision-support systems,
- Knowledge bases and neural networks.

# Important AI Courses

- Data Science

- What is data science?

- **Data science** is the study of data to extract meaningful insights for business. It is a multidisciplinary approach that combines principles and practices from the fields of mathematics, statistics, **artificial intelligence**, and computer engineering to analyze large amounts of data. This analysis helps data scientists to ask and *answer questions like what happened, why it happened, what will happen, and what can be done with the results.*

- Why is data science important?

- Data science is important because it combines tools, methods, and technology to generate meaning from data

# Best data science courses

## •Data Analysis

•Data analysis courses address methods for managing and analyzing large datasets. Start your career as a data scientist by studying **data mining, big data applications, and data product development.**

## •Machine Learning

•Machine learning courses focus on creating systems to utilize and learn from large sets of data. Topics of study include **predictive algorithms, natural language processing, and statistical pattern recognition**

# Probability and Statistics

- **Probability and statistics** courses teach skills in understanding whether data is meaningful, including optimization, inference, testing, and other methods for analyzing patterns in data and using them to predict, understand, and improve results.

## AI benefits and dangers

Potential Benefits	Potential Dangers
Greater accuracy for certain repeatable tasks, such as assembling vehicles or computers.	<b>Job loss due to increased automation.</b>
Decreased operational costs due to greater efficiency of machines.	Potential for bias or discrimination as a result of the data set on which the AI is trained.
Increased personalization within digital services and products.	<b>Possible cybersecurity concerns.</b>
Improved decision-making in certain situations.	Lack of transparency over how decisions are arrived at, resulting in less than optimal solutions.
Ability to quickly generate new content, such as text or images.	<b>Potential to create misinformation, as well as inadvertently violate laws and regulations.</b>

# Artificial intelligence applications

This specialty is one of the specialties that has many applications and uses in our daily lives, and these uses will expand in the near future. The most important of these uses are:

- Face recognition feature.
- Detection of cancers and tumors in health care.
- Industrial robots.
- Self-driving cars.
- Autonomous applications that mimic humans.
- Guiding missiles in defense systems

# تطبيقات الذكاء الاصطناعي

- يعد هذا التخصص من التخصصات التي لها العديد من التطبيقات والاستخدامات في حياتنا اليومية، والتي سوف تتسع هذه الاستخدامات في المستقبل القريب. من أهم هذه الاستخدامات:
  - خاصية التعرف على الوجه.
  - الكشف عن السرطانات والأورام في الرعاية الصحية.
  - الروبوتات الصناعية.
  - السيارات ذاتية القيادة.
  - التطبيقات الذاتية التي تحاكي الإنسان.
  - توجيه الصواريخ في أنظمة الدفاع.



## Artificial Intelligence Graduate Certificate by Stanford University School of Engineering

- Key elements: This graduate certificate program covers the principles and technologies that form the foundation of AI, including:
  - **logic, probabilistic models, machine learning, robotics, natural language processing and knowledge representation.** Learn how machines can engage in problem-solving, reasoning, learning and interaction, as well as how to design, test and implement algorithms.
  - To complete the Artificial Intelligence Graduate Certificate, you must **complete one or two required courses** and **two or three elective courses.** You must receive a 3.0 grade or higher in each course in order to continue taking courses via the Non-Degree Option Program.

# Certificates

- **Prerequisites:**
- Applicants must have a bachelor's degree with a minimum 3.0 grade point average, as well as college-level calculus and linear algebra, including a good understanding of multivariate derivatives and matrix/vector notation and operations. Familiarity with probability theory and basic probability distributions is necessary.
- Programming experience, including familiarity with Linux command-line workflows, Java/JavaScript, C/C++ Python or similar languages is also required. Each course might have individual prerequisites.

## Examples : Tsinghua's Institute of Artificial Intelligence

- Natural language processing معالجة اللغة الطبيعية
- 
- Natural language processing generation and dialogue معالجة اللغة الطبيعية توليدها والحوار
- Computational neuroscience علم الاعصاب الحسابي
- 
- Robot learning, perception and control تعلم الروبوت والادراك والتحكم
- 
- Communion service robot روبوت خدمة التواصل
- 
- Autonomous driving القيادة الذاتية للمركبات
- 
- Information retrieval and recommendation استرجاع المعلومات والتوصية
- 
- Machine learning and A.I theory التعلم الالي ونظرية الذكاء الاصطناعي

## Some Examples of AI Center and applications

- Tsinghua's Institute of Artificial Intelligence
- Nadum algazali
- <https://quillbot.com/paraphrasing-tool>
- Smart Room using MM . All functions...are implemented by voice with different natural languages

# Chat GPT to convert programming langs

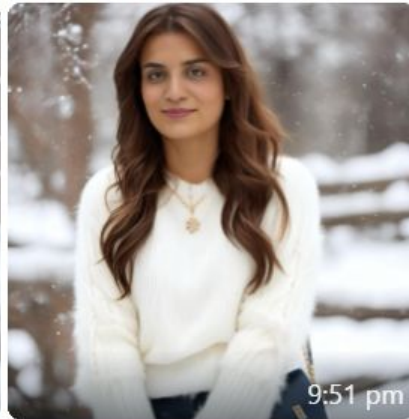
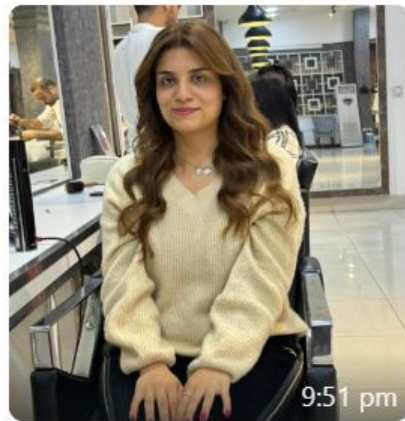
<https://chat.openai.com/>

- Chat **G**enerative **P**re-**T**rained Transformer
- Chat GPT stands for Chat Generative Pre-Trained Transformer and was developed by an AI research company, **Open AI**. It is an artificial intelligence (AI) chatbot technology that can process our natural human language and generate a response.
- What is ChatGPT used for?
- ChatGPT is a natural language processing chatbot driven by generative AI technology that allows you to have human-like conversations and much more. The AI tool can answer questions and assist you with tasks, such as composing emails, essays, and code. It's currently open to use by the public for free

## Facetune Application click

- Start editing photos & videos with Facetune, the world's premier photo editor powered by AI!
- **Enhance** your entire photo or frame at once using filters or one-tap photo editing, or express your unique vision with precision using manual editing to get the look and feel you want.
- Add personality into every post & selfie - show the world what makes you one of a kind!

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# How Does Artificial Intelligence (AI) Work and Its Applications **good website**

- <https://www.simplilearn.com/tutorials/artificial-intelligence-tutorial/how-does-ai-work>



• أفاد تقرير بأن شركتي ميكروسوفت وأوبن إيه.آي تخططان لمشروع إنشاء مركز بيانات قد تصل تكلفته إلى 100 مليار دولار، سيتضمن حاسوباً فائقاً يعمل بالذكاء الاصطناعي يسمى "ستارجيت".

- ونقل موقع ذي إنفورميشن عن مشاركين في محادثات خاصة بشأن المقترح قولهم إن [ميكروسوفت](#) ستكون على الأرجح مسؤولة عن تمويل المشروع الذي سيكون أكثر كلفة 100 مرة من بعض أكبر مراكز البيانات الحالية.
- وقال تقرير الموقع إنه من المتوقع تدشين المرحلة المقبلة من تحديثات [الذكاء الاصطناعي](#) الرئيسية لأوبن إيه.آي بحلول أوائل العام المقبل، وإن المديرين التنفيذيين في [ميكروسوفت](#) يتطلعون إلى تدشين ستارجيت في وقت قريب قد يكون في 2028.
- وأضاف التقرير أن الحاسوب المقترح، والذي من المقرر أن يكون في الولايات المتحدة، سيكون الأكبر في سلسلة من المرافق التي تتطلع الشركتان إلى بنائها على مدى السنوات الست المقبلة.
- وقال الموقع إنه استقى معلومة الكلفة الأولية البالغة 100 مليار دولار من شخص تحدث إلى سام ألتمان الرئيس التنفيذي لشركة [أوبن إيه.آي](#) ومن شخص اطلع على بعض تقديرات ميكروسوفت للكلفة الأولية. ولم يحدد الموقع هذه المصادر.
- أخبار ذات صلة

# AI worm

- <https://www.mc-doualiya.com/%D8%A8%D8%B1%D8%A7%D9%85%D8%AC/%D8%A7%D9%84%D9%86%D8%B4%D8%B1%D8%A9-%D8%A7%D9%84%D8%B1%D9%82%D9%85%D9%8A%D8%A9/>

- ***Thank you***