Artificial Intelligence: Systems and Technologies (JS4468 / AISTN)
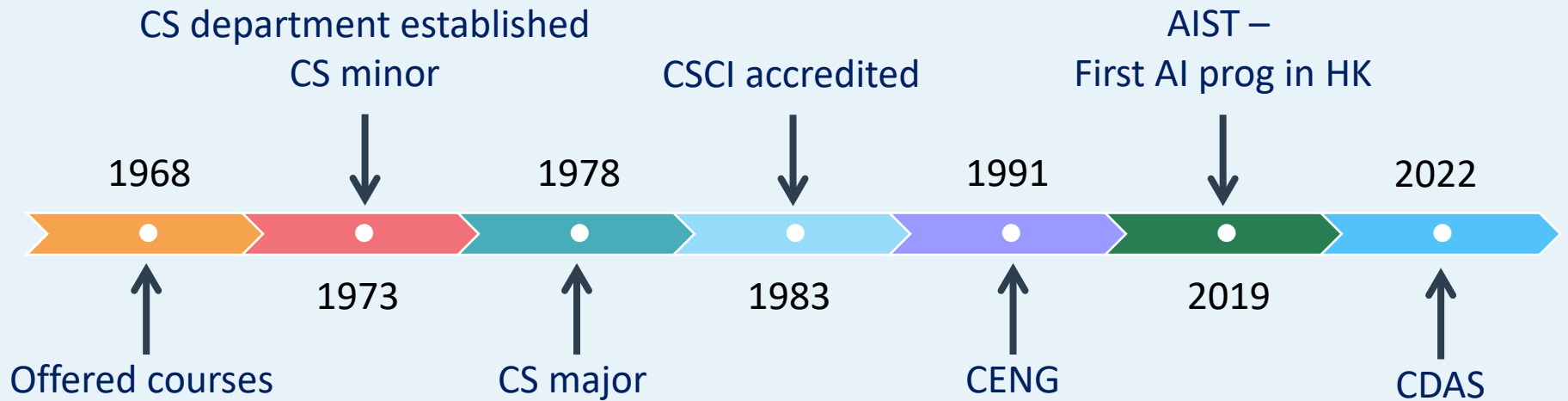
Agenda

1. Introduction of our Department
2. Introduction of AIST Programme
3. Admission Requirements
4. Curriculum Structure
5. FAQ

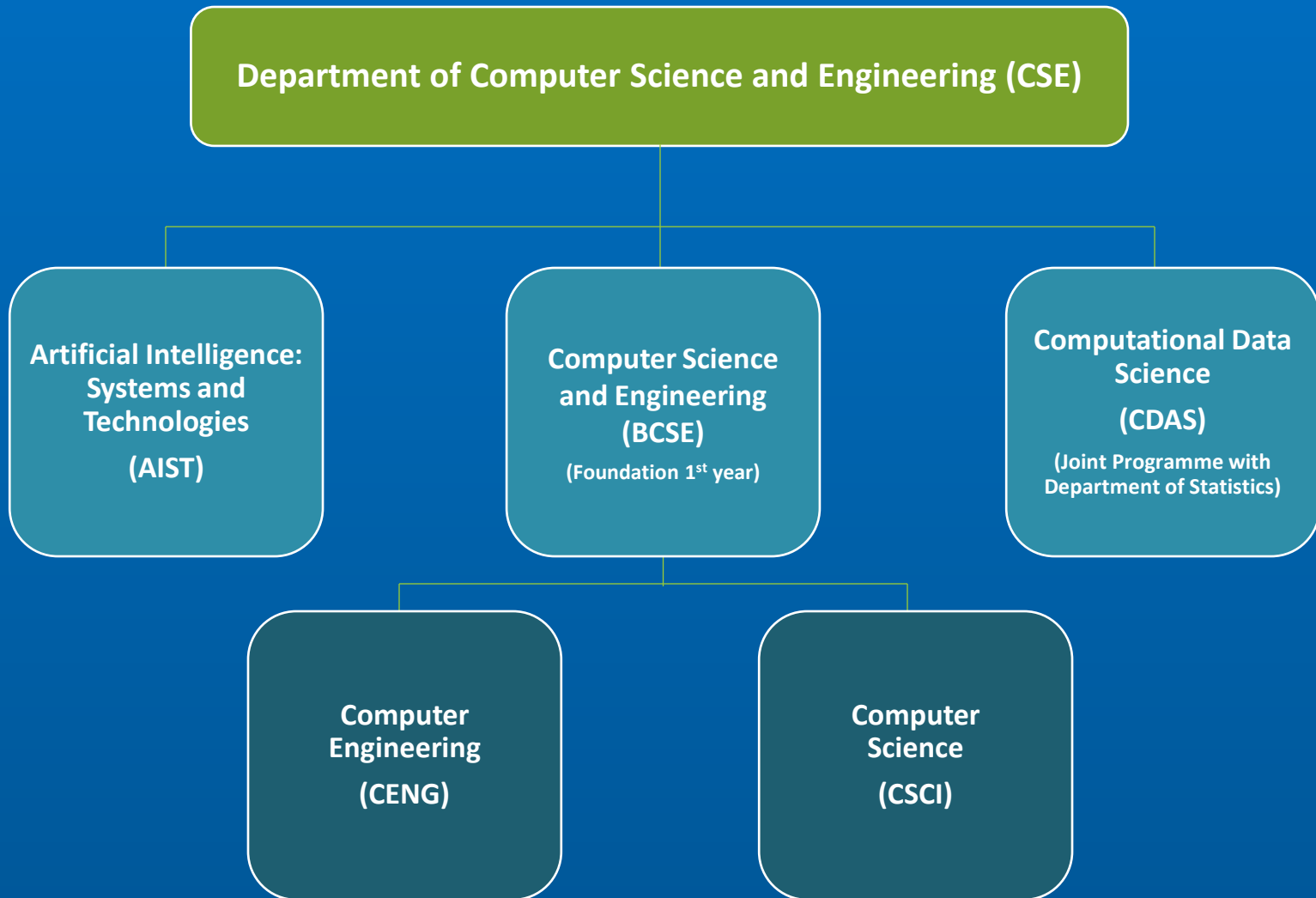# Department of Computer Science and Engineering

A Long History

- The first computer science department in HK
- Offering AIST, CDAS, CENG and CSCI programmes
- A strong alumni network

CS department established
CS minor

CSCI accredited

AIST –
First AI prog in HK

1968

1978

1991

2022

1973

1983

2019

Offered courses

CS major

CENG

CDAS

Excellent Teaching and Research Team

- **2021 Kyoto Prize Laureate and Turing Award Recipient**
  Prof. Andrew Yao

- **7 ACM Fellows**
  Prof. Benjamin Wah, Prof. John Lui, etc.

- **13 IEEE Fellows**
  Prof. Irwin King, Prof. Evangeline Young, Prof. Yufei Tao, etc.

- **2022 IEEE CEDA Ernest S. Kuh Early Career Award**
  Prof. Bei Yu

- **Hong Kong Academy of Engineering Sciences Fellows 2021**
  Prof. Michael Lyu

- **InnoStars Award 2021**
  Prof. Jiaya Jia

- **Forbes 30 Under 30 Asia (Healthcare & Science Category) – Class of 2022**
  Prof. Yu Li

- **Distinguished Fellow of the Hong Kong Computer Society 2022**
  Prof. Jimmy Lee

Rankings

US News and World Report: Best Universities in *Artificial Intelligence* 2022-2023
#1 in Hong Kong
#3 Globally

US News and World Report: Best Universities in *Computer Science* 2022-2023
#1 in Hong Kong
#10 Globally

Strong Alumni Network

Sharing from our AIST Alumni

The special thing about AIST programme is the learning experience which has been eye-opening. I can get to build a **solid foundation** on not only the **problem-solving mindset**, but also **fundamental knowledge** such as calculus and statistics. Although some may find them difficult, they are valuable tools that will help distinguish me from the non-engineering counterparts.

Marco AU YONG,
AIST 2023 Graduate

Sharing from our AIST Alumni

Long Him CHIU,
AIST 2023 Graduate

Thanks to the invaluable connections and knowledge I have gained at CUHK, I have been able to apply my academic expertise in AIST to successfully launch and operate my own startup with some CSE friends I met in the programme. This university has played a pivotal role in shaping my career path and created opportunities for personal growth. With support from CUHK, we have been able to transform our aspirations into reality. I will be forever grateful for the transformative experience and lifelong connections I have gained during my time at CUHK.

Recent Achievements in Intl'/Local Competitions

Championship in
Robocon Hong Kong Contest 2022

Hong Kong Computer Society
Student Sponsorship 2022

First Prize in the Cloud Track of the
Huawei ICT Competition

Industrial Visits

- Visit to companies to learn latest development in industry

Work-Study Scheme

- One-year placement and internship for students to gain practical experience in a real working environment

Example of Previous Opportunities in CSE

What's More?

- Chances to create your own project and innovation with support and advice from CSE teachers

- Exchange opportunities to world-class universities

- High competitiveness in job market with 90% of CSE graduates employed within one month of graduation

- CSE teachers usually have the highest teaching evaluation scores

Artificial Intelligence: Systems & Technologies (AIST) Programme

In the CUHK Technology Forum...

'*With the* *omnipresence* *and* *power* *of AI clearly in sight and within our reach, how should humans co-exist and manage this new "being" as a benevolent partner? This is particularly relevant to Hong Kong as it is actively striving for the advancement of Innovation and Technology.*'

- Prof. Rocky S. TUAN, Vice-Chancellor and President of CUHK

Press Release: https://www.cpr.cuhk.edu.hk/en/press_detail.php?1=1&1=1&id=2703&t=cuhk-faculty-of-engineering-holds-technology-forum-to-explore-the-future-possibilities-of-ai

AI is transforming the way we live!!!

Many disciplines are changing

A – Automotive

B – Bioscience

C – Creative Services

D – Data

E – Education

F – Finance

G – Gaming (note: G may also mean Government)

H – Healthcare

I – Internet of Things

… …

Reference: https://www.businessinsider.com/sc/artificial-intelligence-companies?IR=T

AI in Automobile
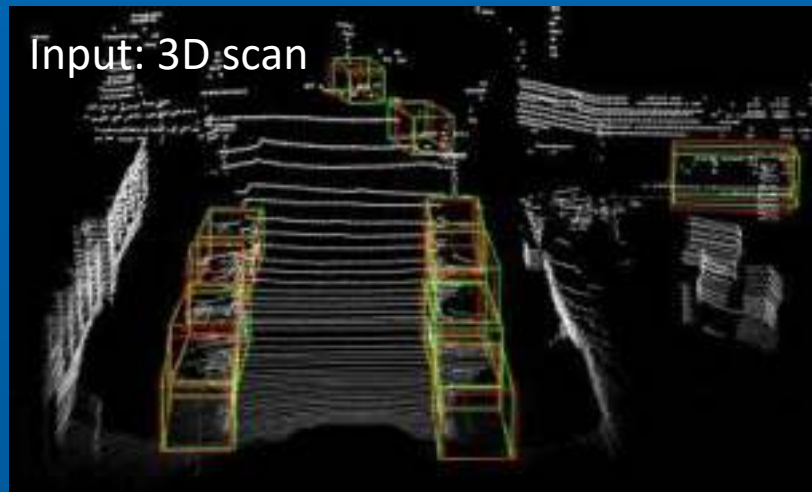
Computer vision enables
- Road line detection
- Traffic sign recognition
- Vehicle / pedestrian detection
- ...

Our result

Input: 3D scan

Reference: KITTI dataset
http://www.cvlibs.net/datasets/kitti/eval_object.php?obj_benchmark=3d

AI in Bioscience

Prof. P.-A. Heng
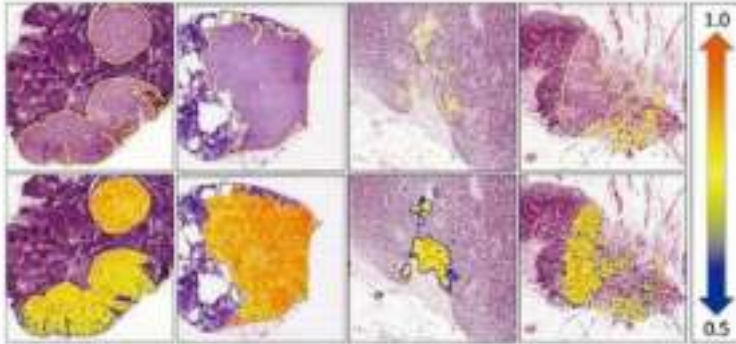
Prof. Dou Qi

Reference:
https://bit.ly/38ofojs (2021年5月27日明報大學道專題)
https://cutt.ly/xEYdPYC (2019年5月10日明報大學道專題)

AI in Creative Services

AI removes & auto-fills word balloon in manga

AI執筆創作「手塚」味漫畫　本月下旬面世

AI執筆創作具「手塚治蟲」（左圖）味的漫畫。

周日（9日）是日本已故漫畫家手塚治蟲逝世的30周年。其筆下《小飛俠阿童木》等作品是不少人的童年回憶。有日本公司去年與大學聯合開發一項「手塚治蟲新漫畫」紀念企劃，透過讓AI「學習」手塚治蟲以往的漫畫作品，再執筆創作出具手塚大師影子的新作品。破格的新漫畫將於本月27日刊登於日本人氣漫畫雜誌《Morning》。
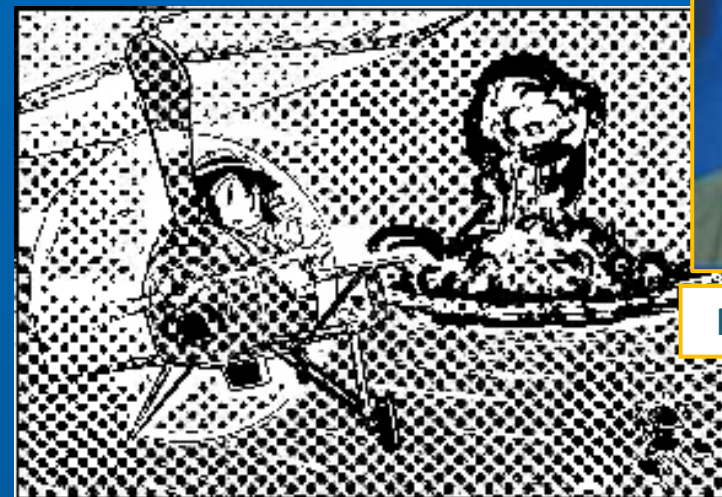
Prof. T.T. Wong

References:
https://hk.on.cc/hk/bkn/cnt/aeanews/20200208/bkn-20200208180001681-0208_00912_001.html
http://www.cse.cuhk.edu.hk/~ttwong/papers/mangainpaint/mangainpaint.html

AI in Data

AI can help find insights in data, e.g., **social media data**, and relate different kinds of data

Can we predict a series of key phrases for a social media post with both texts and images?

Prof. Michael Lyu

Prof. Irwin King

Post (a): Contemplating the mysteries of life from inside my egg carton...☺
#cat #cats #CatsOfTwitter

Post (b): The <mention> have the slight lead at halftime!

#NBAFinals

Reference:
https://www.cse.cuhk.edu.hk/lyu/students/phd

AI in Finance

80%銀行未來5年增人工智能投資

By 信報財經新聞 on August 22, 2020

HOW MACHINE LEARNING AND AI ARE TRANSFORMING FINANCE INDUSTRY

SEPTEMBER 22, 2021 — 1:38 PM UTC, FINANCEFEEDS EDITORIAL TEAM

Thanks to the wealth of data that are increasingly available to banks and the general public, sophisticated algorithms are enabling improved processes in many areas of finance.

Image Source: **Canva Pro**

A subfield of artificial intelligence (AI), machine learning (ML) enables systems to learn and improve independently without the need for explicit programming or human involvement. But ML only works when it has access to enormous volumes of data, allowing

【金融科技】本港虛銀：AI及數據應用成發展關鍵 港具地理優勢

文章日期：2020年1月14日 14:16

本港8家虛擬銀行料今年陸續開業，當中多家坐擁重量市均出身亞洲金融強權分享行業的發展看法。平安壹賬通銀行行政總裁馮鈺龍則表示，人工智能（AI）已推動銀行業的整體發展，例如Chatbox（聊天機械人）、語音機械人等。未來虛銀將致力加強有關應用。又指香港具有鄰近內地的地理優勢。有利於兩地的人才交流與人才引入。

銀行業在人工智能應用上面對困難，包括相關人才不足及監管環境不斷轉變等。資料圖片）

金融科技為近年發展大趨勢，金管局旗下金融學院的香港貨幣及金融研究中心日）發表研究報告，80%受訪銀行表示，計劃在未來5年內增加對人工智能的風險管理和提升客戶體驗為最大原因。

References:
https://www.mpfinance.com/fin/instantf2.php?node=1578982602897&issue=20200114
http://startupbeat.hkej.com/?p=91478

AI in Gaming

Some games start to use AI:
- To bring non-player characters (NPC) to life
- To adapt to each player's gameplay
- To create stronger AI players, e.g., E-sport in Starcraft II (not only chess games)
- To create a more dynamic virtual world

References:
https://www.nature.com/articles/d41586-019-03630-0
https://www.nature.com/articles/d41586-019-03298-6

AI in Healthcare

- Radiology
- Imaging
- Disease Diagnosis
- Telehealth
- Electronic Health Records
- Drug Interactions
- Creation of New Drugs

Reference:
https://inews.hket.com/article/2572760/

中大研發新系統 0.04秒完成評估
AI分析CT圖速驗新冠肺炎

Reference (Apr 2021): http://startupbeat.hkej.com/?p=102056/

Prof. Dou Qi

麻省理工AI發現超級抗生素　有效殺滅多種致病細菌

Growing Demand and Opportunities

- Many industries are now looking for the use and advancement of AI to boost up the work efficiency
    - » Opportunities for you to innovate and change the world!

- Many other possible occupations
    - » AI Specialist
    - » Data Scientist
    - » Software Developer
    - » Computer Engineer
    - » R&D for AI
    - » ...

Growing Demand and Opportunities

Due to the pandemic :

- workers going remote

- companies turning to e-commerce to survive,

- organizations needing to be more digitally agile

➢ Engineering is the fastest-growing field in the world

➢ 24 of 28 countries listed data engineer among its fastest-growing careers

Linkedin: The Fastest-Growing Jobs Around the World in 2023 (https://www.linkedin.com/business/talent/blog/talent-acquisition/fastest-growing-jobs-2023)

Growing Demand and Opportunities

- Hong Kong's start-up ecosystem is thriving. In 2022, the number of start-ups in Hong Kong grew by 6% to 3,985, employing nearly 15,000 people.

- Biotechnology, artificial intelligence, smart city and financial technologies were identified as the four key areas for Hong Kong's innovation and technology industry.

- Hong Kong's innovation and technology sector together with that of Shenzhen and Guangzhou – the Shenzhen-Hong Kong-Guangzhou science and technology cluster – ranks as the world's second performing according to the Global Innovation Index 2023.

Industry Data				
Global Rankings	2019	2020	2021	2022
Global Innovation Index	11/131	14/132	14/132	17/132
IMD Digital Competitiveness	5/63	2/64	9/63	N/A

Source: Global Innovation Index Reports; IMD World Competitiveness Centre

Reference: https://research.hktdc.com/en/article/MzEzOTIwMDIy

Programme Objective

- Equip students with the capabilities of building AI systems that can analyze and infer knowledge from massive information

- Backed by rigorous foundations like data structures, statistics, machine learning and distributed computing

- Emphasize solid trainings on
  - » Mathematical analysis and reasoning on massive data
  - » Large-scale system design and implementation for processing massive data

Special Features

- 1st Bachelor of Engineering programme in AI in Hong Kong

- 4 specialized streams
  » Biomedical Intelligence
  » Intelligent Multimedia Processing
  » Large-scale Artificial Intelligence
      – Theory and Systems
  » Intelligent Manufacturing and Robotics
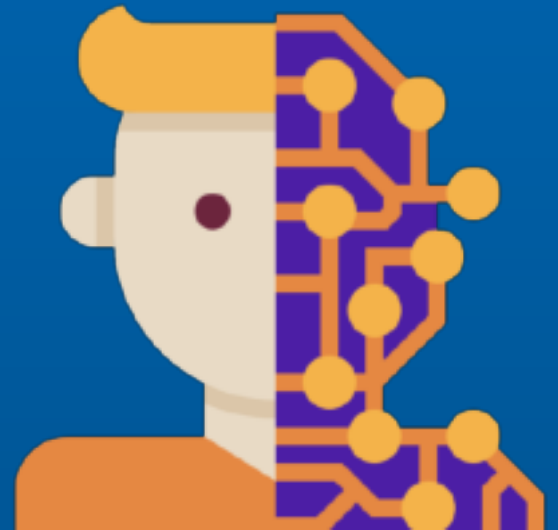
Mission

- Enable students to develop cutting-edge AI solutions that are of practical interest to academics, industry, and society

- Nurture local talents in AI related applications to meet today's tremendous need of well-trained talents in AI and related specializations

中大計算機科學與工程學系
科技知識培養人才 推動香港人工智能發展

人工智能（AI）發展一日千里，本年政府更大力推動有關AI科技的項目，可見此已成為現今科技的大趨勢，社會對相關人才亦相當渴求。因此，香港中文大學（中大）開辦了「人工智能：系統與科技」工程學士課程教授學生基礎知識、創新及可靠的AI解決方案，以及與道德和社會相關的AI問題等，培養能應對各種有關AI挑戰的專才，以應付社會對AI人才的需求。

中大計算機科學與工程學系系主任金國慶教授表示，香港是金融中心及智能城市，今年香港貿易發展局更在生物科技、AI、金融科技、智慧城市等培大領域推行了發展，所以，可見AI對香港而言，是非常重要的科技發展。加上近年AI在不同層面上的應用不斷增加，社會對AI人才的需求殷切，很多相關的工作與政府或大型企業都有密切關係，它的前景非常廣闊。

因此，為配合社會需要，中大在兩年前開辦了「人工智能：系統與科技」工程學士課程，以培養學生掌握人工智能的知識，從而培育更多AI方面的人才。雖然其他大學亦有開辦類似的課程，但金教授指出，中大這個課程非常獨特，有別於其他大學開辦的課程。這課程的全部科目，例如：數學、工程，還有電腦編程等基本專業知識都集中在工程學院裏學習，非常適合有志成為科學家及工程師等的學生。

課程除了培育學生具備設計和操作人工智能系統和技術的能力，精通數學、基礎科學、數據結構、統計學、分佈式計算等基礎，從大量信息中分析、推理和推斷知識。旨在培育學生應付當今人工智能和相關專業領域的巨大需

▲金國慶教授指出，「人工智能：系統與科技」工學士課程獨特之處是集中在工程學院內教授學生專業科技知識，培訓科學家及工程師等人才。

求，使學生能開發尖端人工智能解決方案，這些方案在學術、工業和社會均具實際意義。課程亦著重數理基礎、科學理論和實用的系統技術，並提供四個專修範圍，供學生根據自己的興趣選修。

學生因應興趣 選讀四大專科範疇

在「智能生物醫學」範疇，學生可在生物醫學上學習應用AI技術，例如探測生物心臟訊動、血血等各式各樣的醫學工作；而「智能多媒體處理」範疇，則讓學生能運用AI在影像、語言處理及其他多媒體上進行智能處理，例如將某個人的臉部或說話口音轉化成另一個人，或者透過AI撰寫文章，甚至對一些文章作出分析等。

「大規模人工智能—理論與系統」範疇主要教學生AI理論與系統上的學問，由於現在AI技術發展愈來愈普及，人們很多時需要AI提供更快及更精確的工作。例如5年前流行應用大數據，當時使用了更強大的CPU/GPU及電腦處理它們，形成更發達的AI技術，解決這個問題；最後是「智能製造與機器人學」範疇，將AI系統結合在機器人上，希望以後可以製造的機器人不只能動，還能看、聽、說，以及與人交流。多年來，科學家的理想是製造出很仿人類的機器人，跟然要達到這個目標仍有距離，但我們已完成很多東西，例如使用Google進行訊息處理等，這些都能提高工作效率和減少出錯。

另外，學生不只在工程、理論及系統上學習AI相關的知識，本課程亦會提供一些相關社會科學的內容，讓學生了解人工智能發展有機會對社會造成甚麼的影響，科目會幫助同學思考，利用AI製作出的產品能為人類及社會帶來

甚麼好處。金教授舉例，學生製作智能飛彈殺人好嗎？製作者應與製造出彈機械人，做出缺德的事怎樣？如果有人利用AI多媒體技術將個人的臉轉換成別人的樣子，再做東西等？科目教導看懂AI知識的學生，從人為的角度看事情，增強他們的三觀思考，令教授AI更人性化，讓學生運用AI在社會中發揮正面作用。

行業前景向好 工作職位眾多

除了一般科目，課程於2021至22年要推出工作學習計劃，讓學生能夠通過為期十二個月的實習獲得實踐工作經驗。參與計劃的學生有機會到企業或國際機構實習，部門過往曾有學生到渣打銀行、恩科系統公司、百度、阿里巴巴、香港金融管理局等公司及機構獲得實習職位。在專業人士的指導及培訓下，使學生獲得實踐的實踐技能，並在現實環境中，尤其是在AI領域中獲得大量的寶貴的工作經驗。在實習過程中，學生可以將課堂知識應用於工作環境、學習人際關係技巧，更有助畢業後，成為AI專業技術專業做準備。

金教授表示，現今本地和全球就業市場上的AI專家均存在人力短缺問題。根據創新科技局的資料，香港政府在創新科技方面的政策包括重新工業化，建構將更廣工業流的科學園，以及在落馬洲建立香港港深智能的創新科技園，預計將為擁有高端技術如識和技能的人才，創造50,000個工作職位。

另外，根據LinkedIn 2020年新興工作報告，人工智能專家在美國15個新興工作中都名列前茅，需求年增長率為74%。基於這些原因，香港中文大學旨在培訓未來的AI工程師、科學家、生物醫學工程師、信息和計算技術人才、製造和機器人工程師，以及為互聯網公司提供的智能多媒體處理。他續說：「總括而言，就讀課程的學生前景是光明、精彩及令人興奮的！」

中文大學首創人工智能課程　為未來創科五萬職位提供人才

☆ 業界專誌　by Antony Shum　on 六月 5, 2019
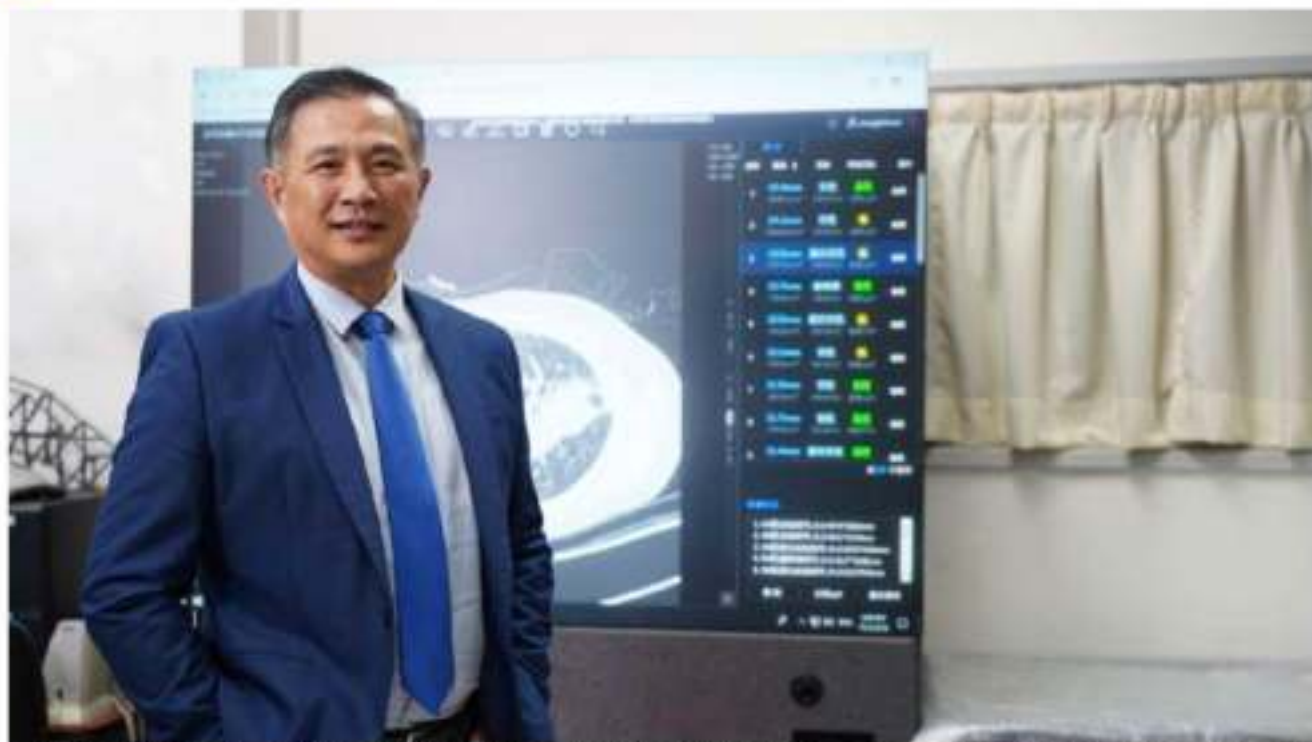
人工智能無疑是近年非常熱門的新科技潮流，其應用範圍之廣，甚至可以取代真人的工作，影響就業市場。不過也有意見認為人工智能的普及會為求職市場增加需求，在香港新增達五萬個職位。香港中文大學就看準這個機會，開辦人工智能課程培育相關人才。

Admission Requirements

AIST Admission Requirements for <u>JUPAS</u>

HKDSE Subject	Minimum Level	Subject Weighting
HKDSE Core Subjects		
English Language	4	1.25
Chinese Language	3	1.25
Mathematics (Compulsory Part)	5^	1.75
Citizenship and Social Development	A (Attained)	-
HKDSE Elective Subjects		
Any two subjects	3	#

^ *Applicants with level 4 in Mathematics (Compulsory Part) and good results in other HKDSE subjects will be exceptionally considered on a case-by-case basis.*

\# *The AIST programme accepts any subject as elective, with subject weighting of **1.75** for Mathematics M1/M2; **1.5** for Biology, Chemistry, Physics, and ICT; and **1** for any other subjects.*

Selection is based on the Best 5 HKDSE subjects with subject weighting applied. Bonus points will be awarded to the 6th and 7th subjects, if any.

AIST Admission Grades (2023 Entry)

Percentile	CHI	ENG	MATHS	LS	M1/M2	1st Elective	2nd Elective	3rd Elective	2023 Programme Weighted Total^
Upper Quartile	4	4	5**	4	5**	5**	5*		58
Median	3	4	5**	3	5*	5*	5	5	54.125
Lower Quartile	3	4	5**	4	5*	5*	5	5	51.375

^ *Category A subjects score conversion scale: 5** = 8.5 | 5* = 7 | 5 = 5.5 | 4 = 4 | 3 = 3 | 2 = 2 | 1 = 1;*
Category C subjects score conversion scale: A = 5 | B = 4 | C = 3 | D = 2 | E = 1;
2023 Subject Weighting: Eng (x 1.25); Chi (x 1.25); Math (x 1.75); M1 or M2 (x 1.75);
Bio, Chem, Comb. Sci, ICT, Phy (x 1.5).

- AIST was one of the **15 CUHK programmes** that admitted top students with **a score of 33 or above** in their best five HKDSE subjects in 2023 entry.

AIST Admission Requirements for Non-JUPAS & International Applicants

- Applicants seeking admission on the strength of qualifications other than HKDSE examination results (*e.g.,* IB, GCE-AL, overseas qualifications) can apply through Non-JUPAS channels

- Will be considered on the basis of their education background and academic achievements

- Will be expected to demonstrate outstanding abilities in English, mathematics and science subjects

Check out details on the website of CUHK's Office of Admissions and Financial Aid:
Non-JUPAS Applications: http://admission.cuhk.edu.hk/non-jupas-yr-1/requirements.html
International Applications: http://admission.cuhk.edu.hk/international/requirements.html

Curriculum Structure

Curriculum – Overview

4	Final Year Project	Major Electives
3	Major Core	Major Electives
2	Major Foundation	Major Core
1	Faculty Package	Major Practicum	Major Core

University Common Core (Languages, GE, PE)

(39 Units)

Free Electives

(9 Units)

123 units
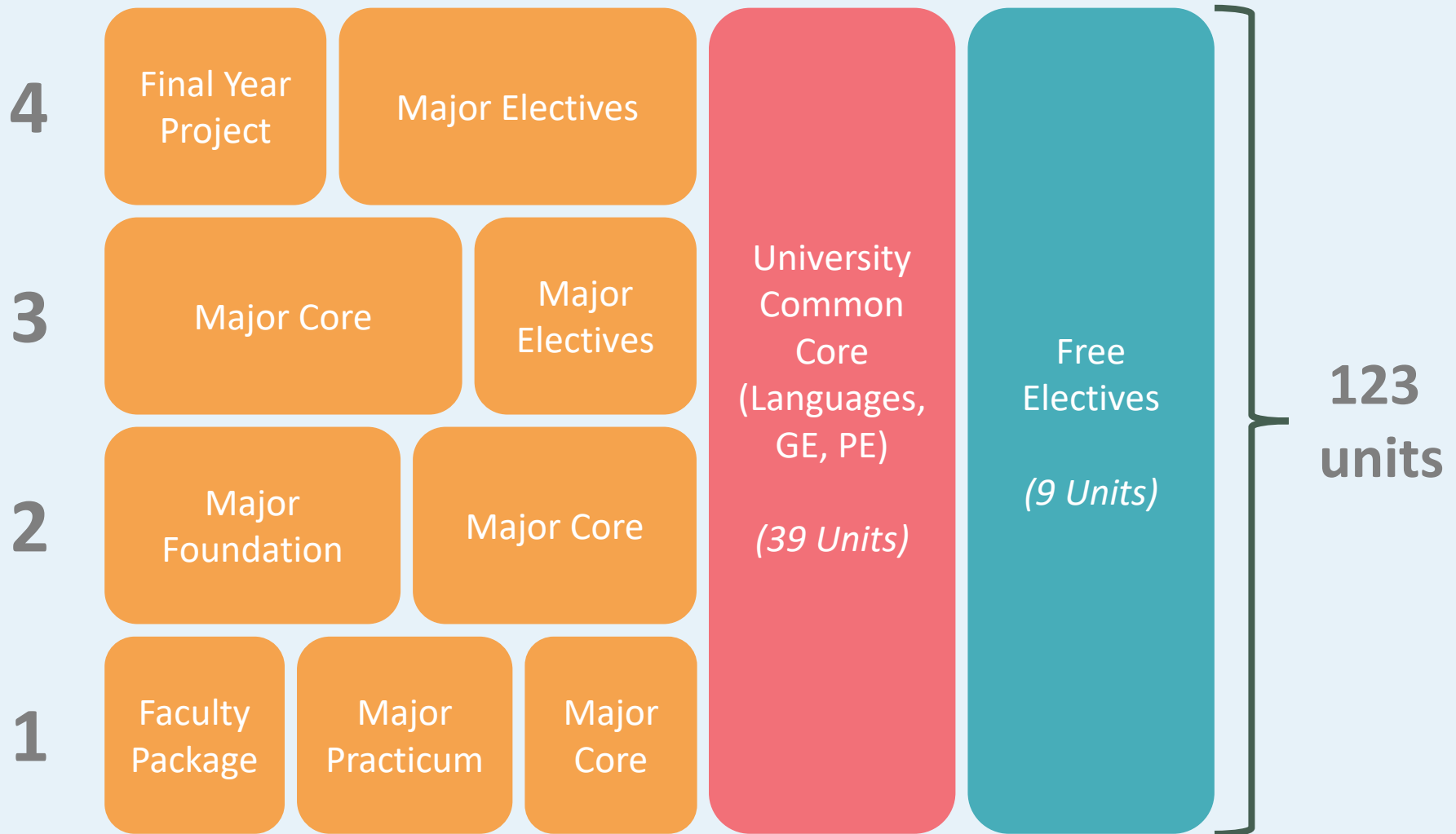
University Core Requirements

University Core Courses		Units Requirements
Language	English	8
	Chinese	5
General Education	University Foundation	6
	University GE	7 (At least 2 units in each Area A, C & D)
	College GE	6
Understanding China (UGCP1001) *(online course - complete before graduation in any one term, including summer term)*		1
Hong Kong in the Wider Constitutional Order (UGCP1002) *(online course - complete before graduation in any one term, including summer term)*		1
Digital Literacy and Computational Thinking (ENGG1003 or ENGG1004)		3
Physical Education		2
	Total of units required	**39**

Curriculum – Major Requirements

4
- Final Year Project
- Major Electives

3
- Major Core
- Major Electives

2
- Major Foundation / Core
- Major Practicum

1
- Faculty Package
- Major Foundation / Core

75 units

Major Requirements

Major Requirements	
Faculty Package	9
Foundation Courses	16
Major Required Courses	22
Research Components	6
Stream Requirements	22
Total of units required	**75**

Curriculum – Faculty Package

4	Final Year Project	Major Electives
3	Major Core	Major Electives
2	Major Foundation / Core	Major Practicum
1	Faculty Package	Major Foundation / Core

Faculty Package (9 units)

- » Programming (ENGG1110)
- » Linear Algebra (ENGG1120)
- » Multivariable Calculus (ENGG1130)

Curriculum – Major Foundation

4	Final Year Project	Major Electives
3	Major Core	Major Electives
2	Major Foundation / Core	Major Practicum
1	Faculty Package	Major Foundation / Core

Major Foundation / Core (10 units)

» Calculus for Engineers (MATH1510)
» Physics (PHYS1003/1110)
» Intro to AI & ML (AIST1000)
» Intro to Computing Using Python (AIST1110)

Curriculum – Major Foundation

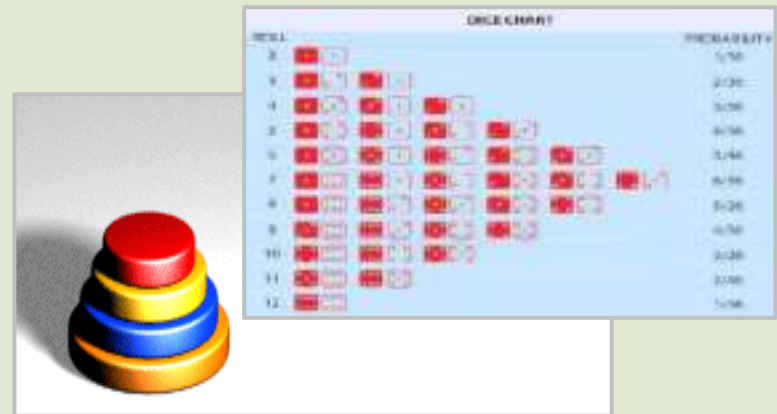|		
4	Final Year Project	Major Electives
3	Major Core	Major Electives
2	Major Foundation / Core	Major Practicum
1	Faculty Package	Major Foundation / Core

Major Foundation / Core (13 units)

» Discrete Maths (ENGG2440)
» Probability (ENGG2760)
» Statistics (ENGG2780)
» Data Structures (CSCI2100)
» Intro to Computer Systems (AIST3020)

Curriculum – Major Practicum

4	Final Year Project	Major Electives
3	Major Core	Major Electives
2	Major Foundation / Core	Major Practicum
1	Faculty Package	Major Foundation / Core

Major Practicum (3 units)

» Technology, Society and Engineering Practice (AIST2601)

» Engineering Practicum (AIST2602)

Curriculum – Major Core

4

Final Year Project

Major Electives

3

Major Core

Major Electives

2

Major Foundation / Core

Major Practicum

1

Faculty Package

Major Foundation / Core

Major Core (12 units)

» Numerical Optimization (AIST3030)

» Design and Analysis of Algorithms (CSCI3160)

» Fundamentals of Artificial Intelligence (CSCI3230)

» Fundamentals of Machine Learning (CSCI3320)

Curriculum – Major Electives

4 Final Year Project | Major Electives

3 Major Core | Major Electives

2 Major Foundation / Core | Major Practicum

1 Faculty Package | Major Foundation / Core
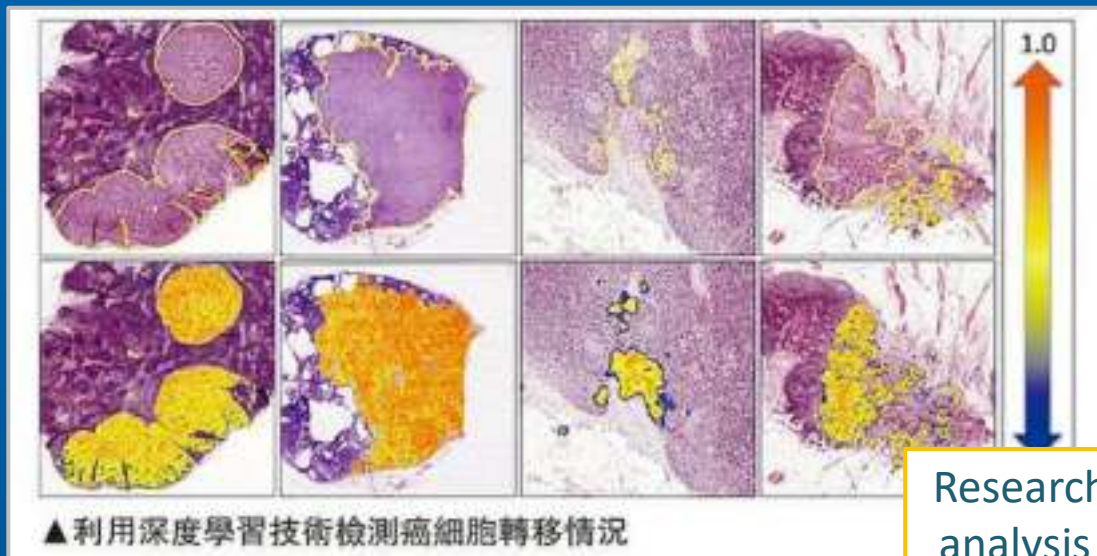
Major Electives (22 units)

Streams

1. **Biomedical Intelligence**
2. **Intelligent Multimedia Processing**
3. **Large-scale Artificial Intelligence – Theory and Systems**
4. **Intelligent Manufacturing and Robotics**

Non-Stream

5. General Artificial Intelligence: Systems and Technologies

Stream 1: Biomedical Intelligence

- Study how to build intelligent biomedicine and healthcare applications

- Two emerging markets:
  - » Personalized genomics and precision medicine (*e.g.,* disease prevention, prediction, early diagnosis and treatment)
  - » Clinical record systems (*e.g.,* electronic medical records and pharmacy prescription information and insurance records)

▲利用深度學習技術檢測癌細胞轉移情況

Research on medical image analysis by Prof. P.-A. Heng

Stream 2: Intelligent Multimedia Processing

- Study how to bridge AI and human brain functions and design models, algorithms, and systems for multimedia processing with high performance and high accuracy.

- Areas: digital image processing, face recognition, computer animation, human-computer interactions, speech and audio processing, computational linguistics

Color input   Invertible grayscale   Restored color image

Stream 3: Large-scale AI – Theory and Systems

- Study the advanced techniques of realizing large-scale artificial intelligence from both theory and system perspectives
  - » **Theory**: machine learning theory, statistical inference, online algorithms, *etc.*
  - » **Systems**: high performance computing, distributed storage, big data management, *etc.*
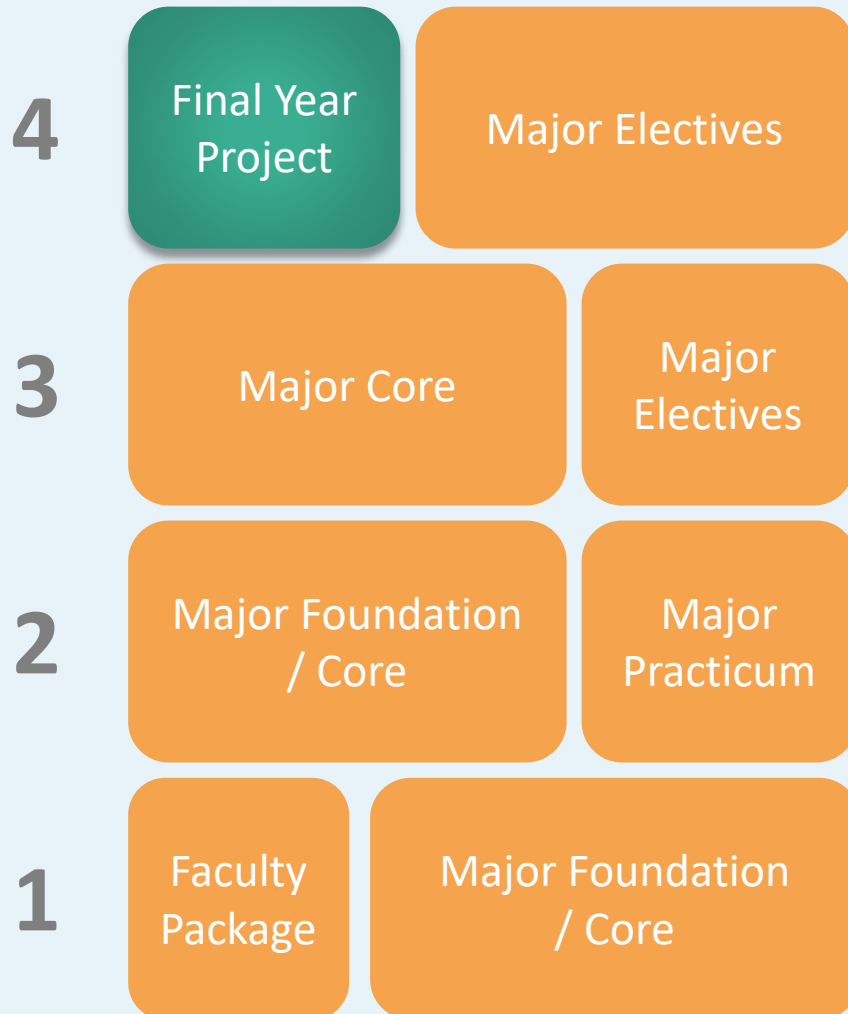
Stream 4: Intelligent Manufacturing & Robotics

- Study how to integrate manufacturing and robotics with AI for different aspects of human activities.

- Focus on the topics of mechanics, sensing and control, design & manufacturing, human-robot interactions, *etc.*
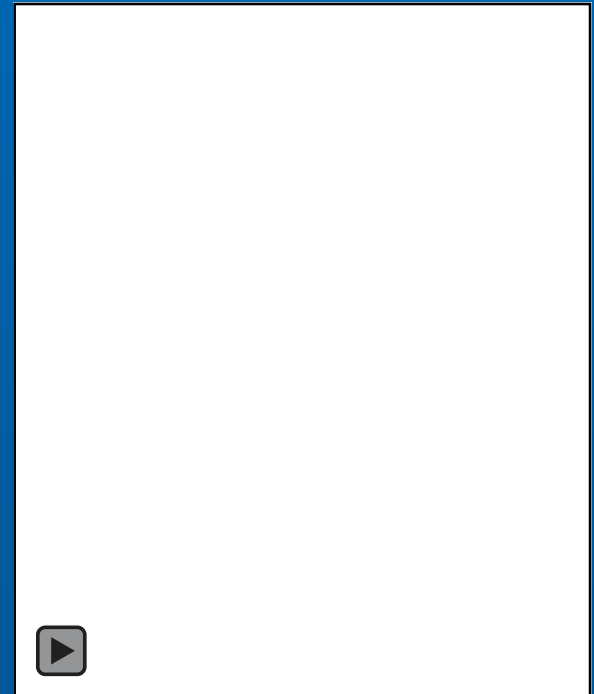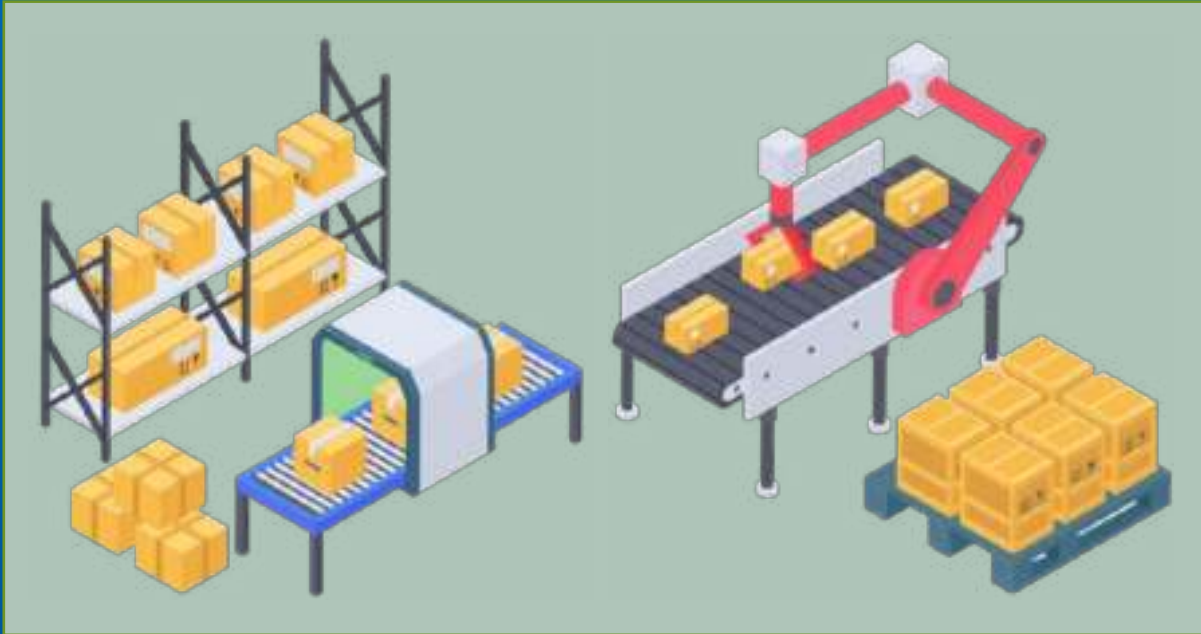
Distinct Topics

- Many other practical and interesting courses in AI:
    - » Machine Learning
    - » Deep Learning
    - » Large Scale Distributed Computing
    - » Intelligent Embedded Systems
    - » Knowledge Representation/Inference
    - » Human-Computer Interactions
    - » Natural Language Processing
    - » Big Data Analytics
    - … …

Curriculum – Final Year Project (FYP)

|		
4	Final Year Project	Major Electives
3	Major Core	Major Electives
2	Major Foundation / Core	Major Practicum
1	Faculty Package	Major Foundation / Core

Final Year Project (6 units)

» Pick an interesting topic

» Interdisciplinary nature

» Apply the knowledge learnt in the previous courses

» Many open topics. Your creativity and discussion with the supervisor

» Complete a project under the supervision of an advisor

FYP (AI + Bioinformatics)

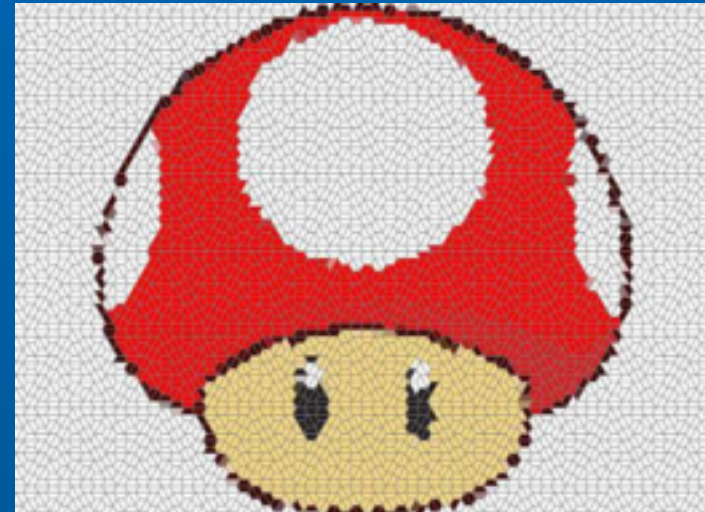- Apply machine learning to predict RNA-protein interaction
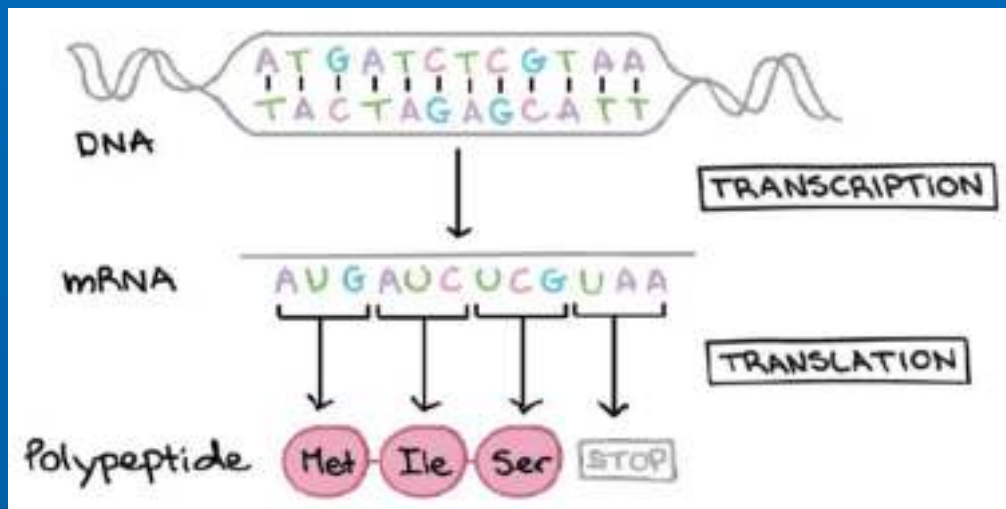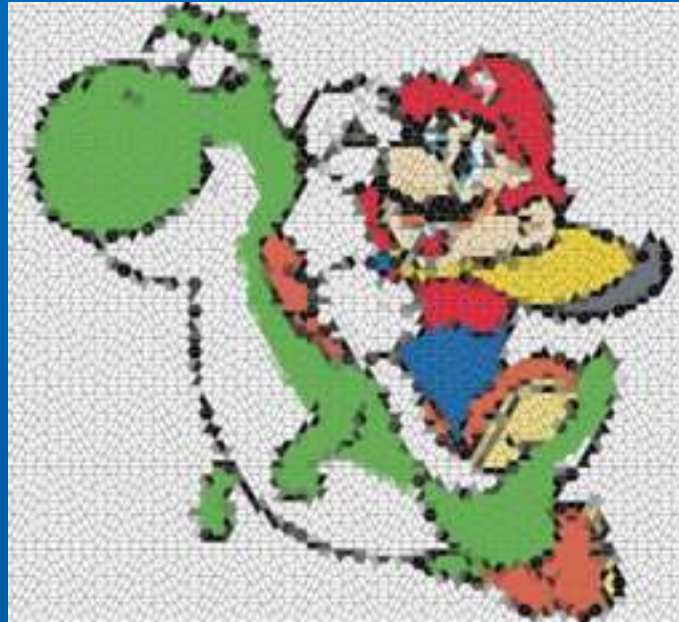

RNA-binding protein (RBP)
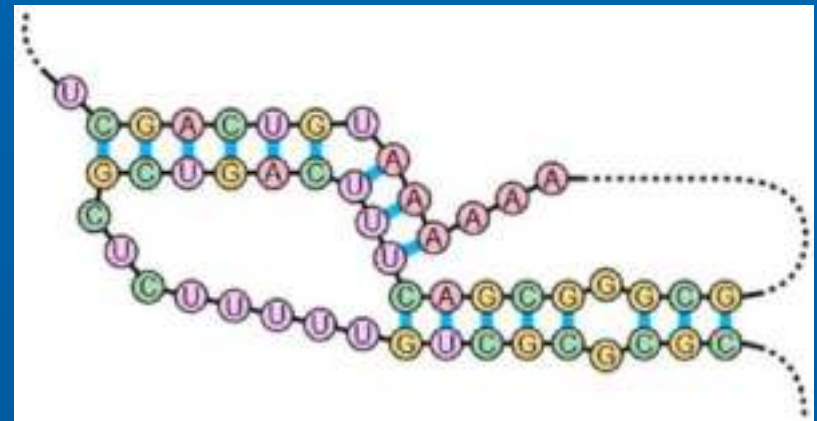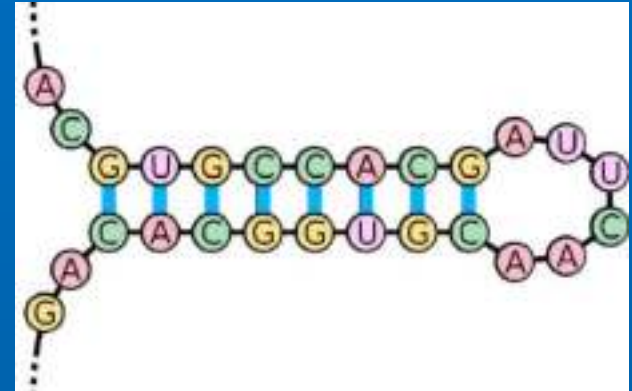
RNA folds to a specific structure to fit into the protein binding site

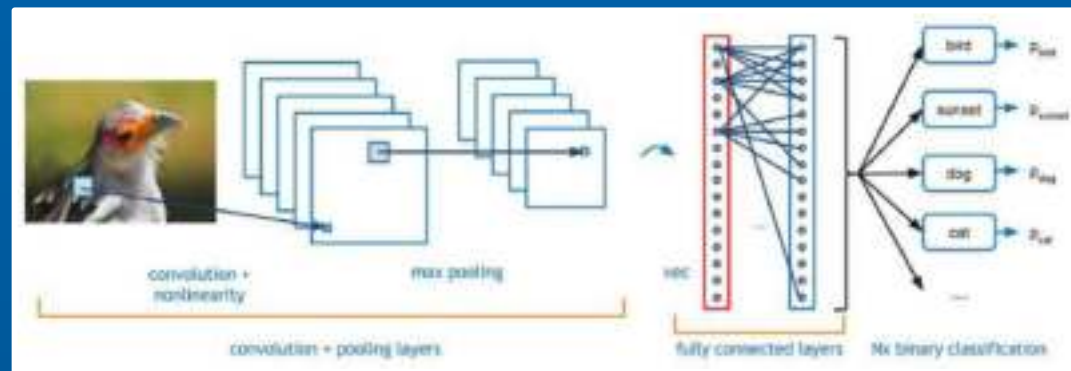Sample from current CE/CS students (FYP KY1804)

FYP (AI + Multimedia)

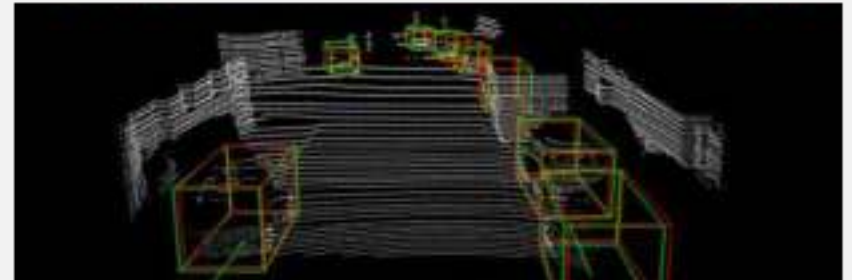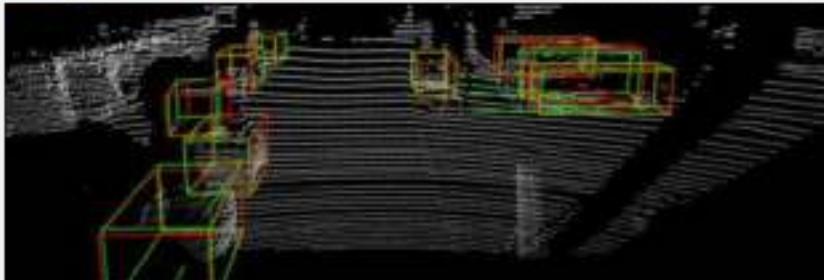- Design a neural network that learns to produce a tiling

FYP (AI + Computer Vision)

- Chinese Medicinal Herb Recognizer

FYP (AI + 3D Vision)

- Design the best neural network for 3D car detection

FAQs

FAQ Content:

Q: Will there be any interview?

Q: How many students will be admitted?

Q: Will there be any exchange opportunity?

Q: Will there be any scholarship or financial aid?

Q: What are the differences between AIST and CSCI?

Q: What are the career prospects of AIST graduates?

Q: Can I transfer to CENG / CSCI or other majors in Year 2?

Q: Can I declare CENG / CSCI as second major or minor?

Q: I am still struggling to choose between
   AIST / CENG / CSCI. What can I do?

Q: Will there be any interview?

Interview Arrangements for JUPAS Applicants

- Interviews will be arranged in mid/late June every year.

- Not all applicants will be interviewed. We only consider Band A applications when shortlisting interviewees.

- Shortlisted applicants will receive an invitation email by early June for the details, *e.g., date, time, format, etc.*

- Stay tuned! Check your email regularly for the latest update!

Interview Arrangements for Non-JUPAS & International Students

- Interviews will be conducted in batches from ~Jan. every year.

- You are encouraged to attach adequate supporting documents, *e.g., transcripts, predicted grade, certificates, etc.,* in your application for our holistic review.

- Shortlisted applicants will receive an invitation email for the details, *e.g., date, time, format, etc.*

- Stay tuned! Check your email regularly for the latest update!

Q: How many students will be admitted to AIST?

Local Intake Quota

- **30**

Note: There is no fixed quota for international students and Mainland students attempting Gao Kao.

Q: Will there be any exchange opportunity?

Exchange to Overseas Universities

- You are encouraged to join the exchange programme to broaden your horizon and learn with peers from diverse background

- List of some overseas universities for the exchange
  - » Macquarie University, Australia
  - » University of Toronto, Canada
  - » Shanghai Jiao Tong University, China
  - » Telecom & Management SudParis, France
  - » Royal Institute of Technology (KTH), Sweden
  - » University of California, Davis, USA

  …

More information: https://www.oal.cuhk.edu.hk/exchange2021/

Q: Will there be any scholarship or financial aid?

Scholarships and Financial Aids

- The Government and the University offer various scholarships and financial aids depending on student's financial situation, or their outstanding performance in academic or other areas

- List of some scholarships and financial aids
  - » Admission Scholarships
  - » Scholarships for Overseas Studies
  - » Government or University Financial Aid
  - » Summer Subsistence and Travel Loan Scheme
  - » Student Residence Bursary Scheme
  - …

Check out more details on the website of CUHK's Office of Admissions and Financial Aid: https://admission.cuhk.edu.hk/finance.html

Q: What are the differences between AIST and CSCI?

AIST vs CSCI ?

- AIST and CSCI have related foundation & basic theories

- AIST requires stronger Math foundation since it involves statistics, probability, calculus, linear algebra, etc., which are basis for machine learning and deep learning

- CSCI focuses more on software design and computing solutions, taking care of coding and software architecture

Q: What are the career prospects of AIST graduates?

Career Prospects

- Employers of our graduates include:
  - » Google
  - » Intel
  - » Microsoft
  - » IBM
  - » Apple
  - » Facebook
  - » Yahoo
  - » Deloitte
  - » Hong Kong Government
  - » Investment Banking Institutes

  … …

Many disciplines are changing

A	–	Automotive
B	–	Bioscience
C	–	Creative Services
D	–	Data
E	–	Education
F	–	Finance
G	–	Gaming (note: G may also mean Government)
H	–	Healthcare
I	–	Internet of Things

Q: Can I transfer to CENG / CSCI or other majors in Year 2?

If you look for CENG / CSCI or other majors instead...

- You may submit application for change of major (to CENG / CSCI or other majors), subject to prevailing regulations stipulated by RES and approval by relevant unit(s).

- If you are determined to go for CENG / CCSCI, you may choose Computer Science and Engineering (JS4412) as your choice and select CENG / CSCI in Major Allocation when progressing to Year 2.

Q: Can I declare
CENG / CSCI as
second major or minor?

Declare Second Major / Minor

- You are not allowed to declare CENG / CSCI as your second major or minor if you are a CSE student.

- However, you are encouraged to broaden your horizons and declare second major / minor offered by other departments.

If you are still struggling to choose…

- You can go through our website and admission materials for a better understanding before applying, and write to us via email at ug-admiss@cse.cuhk.edu.hk if you have any further queries.

- You can join our outreach activities in the future and chat with our teachers and student ambassadors.

Contact Us

📞 (852) 3943 4269

✉️ ug-admiss@cse.cuhk.edu.hk

🖱️ www.cse.cuhk.edu.hk/

See you in Fall 2024 !