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

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

AI in Automobile

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

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

準確診斷患者病況 提升醫生診症效率

使用人工智能的前期工夫，需要搜集大量相關的數
據分析，數據愈多分析便愈精準。如應用在醫學
上，若能搜集大量健康與患上個別疾病人士的DNA，
及早找出最適當的治療方法，也可預測使用藥物
否有用，對醫學及公共衛生都有很大幫助，惟收集
數據要有特定的條件，如為相同種族與生活飲食文
化等，否則未必有理想的效果。

中大計算機科學與工程學系葉旭立教授指出，在人
工智能的協助下，可找出許多疾病的「隱藏規則」，
預測病情走勢、用藥效果及推測病人的存活率等。

葉教授解釋，要收集這些數據須很專門的知識與技術，數
據雖然是愈多愈好，如糖尿病與中大醫學院及多間醫院等合
作，也有一些機構把數據公開，但未必全部可用。「我們主
要的對象是華人，特別是中國南方的華人，一些外國機構公
開的數據屬歐美人士，所以我們要有華人及歐美患有個別疾
病及健康人士，才能得到準確的數據，否則比較出來的結果
可能只是華人與歐美人士在體格上的分別，數據便不夠準
確。」

Reference:
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

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

Prof. T.-T. Wong
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 keyphrases for a social media post with both texts and images?

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

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

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 machines to be trained rather than meticulously programmed through line-by-line coding.

References:
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/

Reference:
http://startupbeat.hkej.com/?p=102056/

Prof. Dou Qi
Growing Demand and Opportunities

- Expect more than 50,000 jobs for high-tech industries with the HKSAR government’s policies in innovation and technology

- AI Specialist is the most popular among the top 15 emerging jobs with annual growth of 74% in demand in USA, according to LinkedIn 2020 Emerging Jobs Report

Reference:
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**
The AIST Programme
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，以應對社會對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，香港處在金融科技及智能城市，今年香港貿易發展局更在生物科技、AI、金融科技、智慧城市等四大領域推行了發展，所以，可見AI對香港而言，是非常重要的發展。加上近年AI在不同層面的應用不斷增加，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，其前景非常廣闊。

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、電氣工程等基礎專業知識和在工程學院裏學習，非常重視有志成為科學家及工程師等師資。

課程除了培育學生具備設計及操作人工智能系統及技術的能力，藉著數學、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及相關專業領域的巨大挑戰，使學生能開發尖端人工智能及解決方案，這些方案在學術、工業和社會均有具體意義。課程亦着重數理基礎、科學理論和應用的系統技術，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「智能創意醫學」範疇，學生可在生物醫學上學習應用AI技術，例如生物醫學影像處理、電動車和醫療設備的自動化設計。在「智能圖書館」範疇，則教學生運用AI在圖書館管理、圖書館內的自動化和圖書館的自動化管理，例如將某類書籍或書目由書架上移動至另一個書架，或者通過AI撰寫文章，甚至對一些文章作出分析等。

「大規模人工智慧」範疇則教授學生AI理論與系統的學問，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年前進行應用大數據時，當時使用了更強大的CPU/GPU和電處理它們，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，能自動思考、學習、應用及與人類交流，多年來，科學家的理想是創造出模仿人類的機器人，雖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，榉校會協助學生思考，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，學生製作智能電子殺手等應用，學生製作智能飛彈殺人等應用，學生製作智能製造設備等應用，這些都是可以應用AI在社會中發揮正面作用。

行業前景向好，工作職位衆多

除了一般科類，課程於2021至2022年更推出工作學習計劃，讓學生能夠在實習期間獲得實務經驗。參與計劃的學生若把握到企業或社會機構實際工作，部門涉及會有學生於香港及海外的實習機會。在專業人士的指導下，使學生獲得廣泛的實務經驗，並在實際環境中，尤其是在AI領域獲得實用的實務經驗。在實習過程中，學生可以將課堂知識應用到工作環境中，邊學邊做，更有機會提升未來發展的競爭力。

金教授表示，現今本地和全球企業市場上的AI專員供不應求，根據觀測，現在企業的實務經驗，尤其是電子工程師、機器人學家、及現代化製造工程師，以至於香港金融管理局的電子工程師等職位，預計將為擁有高端技術知識和技術的人才，創造50,000個工作機會。

另外，根據LinkedIn 2020年職業報告，人工智能專家在美國15個新興工作中的排名名列前茅，需求年增長率為74%。基於這些原因，香港中文大學在培養未來的AI工程師、科學家、生物醫學工程師、信息及計算技術人才、製造及機器人工程師、以及為互聯網公司提供的智能多媒體知識。他續稱，「簡而言之，這課程的學生前景是光明、積極及令人興奮的！」
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

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。
Special Features

• **1st Bachelor of Engineering programme in AI in Hong Kong**
  » More preferred by students (based on JUPAS results)

• **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
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
Department of Computer Science and Engineering
Let’s take a look at our department

The Chinese University of Hong Kong

https://www.cse.cuhk.edu.hk/
The First BEng in “AI Programme” in HK

- The first “Computer Science” department in Hong Kong
- Offering AIST, CENG and CSCI programmes
- A strong alumni network

Timeline:
- 1968: Offered courses
- 1973: CS department
  - CS minor
- 1978: CS major
- 1983: BCS accredited
- 1991: Engineering faculty
  - CE program
- 2019: First in HK
  - AIST programme
Excellence in Teaching and Research

One Turing Award Recipient
Prof. Andrew Yao

Seven ACM Fellows
Prof. Martin Wong, Prof. Irwin King, Prof. Michael Lyu, Prof. John Lui, Prof. Yufei Tao, etc.

Ten IEEE Fellows
Prof. Irwin King, Prof. John Lui, Prof. Leo Jia, Prof. Michael Lyu, Prof. Martin Wong etc.

AI 2000 Most Influential Scholar Annual List (2021)
Prof. Irwin King, Prof. Jiaya Jia, Prof. Yufei Tao, and some professors are named in the list, recognizing their research excellence in AI fields

CUHK University Education Award 2020
Prof. Irwin King

Vice-Chancellor’s Exemplary Teaching Award 2019
Mr. Michael Fung
Recent Achievements in Intl’/local Competitions

International Collegiate Programming Contest (ICPC)
(formerly named as ACM Programming Competition)

2019: ranked 12\textsuperscript{th} (over 3000 universities)
2012: ranked 8\textsuperscript{th}
2011: ranked 13\textsuperscript{th}
2001: ranked 8\textsuperscript{th}

PwC’s HackaDay 2019

2\textsuperscript{nd} place

Networking cocktail
Student Training

CUHK Amazon Deep Learning Workshop 2019 & AWSome Day 2020

Cooperated with Amazon to offer student training in deep neural networks and machine learning

City Challenge – Bridge to a Smarter City 2016

Designed technology-based living applications for the elderly and won the second runner-up
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

Google
Microsoft
HP
HSBC
HANG SENG BANK
Sun Hung Kai Properties
ASM Pacific Technology
HKSTP
Fujitsu
Strong Alumni Network

**IT Industry**
- Microsoft
- Google
- IBM
- Nokia
- Amazon.com
- Facebook

**Education**
- National University of Singapore
- City University
- NUS

**Banking**
- HSBC
- Citibank
- Morgan Stanley
- Deutsche Bank
- Goldman Sachs
I'm now working in Deloitte’s Cyber Risk Advisory Team. Cybersecurity is a promising job, you can equip yourself to be a cybersecurity expert by enrolling relevant courses provided by the Department of Computer Science and Engineering. Cybersecurity professionals, like information security analysts, protect businesses, governments, and individuals from criminal activities on the internet. With the explosive growth of the internet in business, education, and personal communication, computer experts with knowledge of cybersecurity are in high demand.
The courses offered by the CSE department give a solid foundation on both the practical and theoretical sides of CSCI programme. I'm now working in Google's Android Pixel team, topics from CSCI courses still often pop up during my day-to-day job. As the software industry becomes increasingly competitive, I feel quite lucky that I’ve undergone such rigorous academic training.

Yu CHAO,
CSCI Graduate of 2020
Sharing from Our CSE Students

Hei Yiu LAW,
CENG Graduate of 2021

During the 4 years of my study as a CENG student, I could take courses on different topics. These courses not only consolidate my knowledge related to my major but can also train up my critical thinking and logical thinking skills. We have to design & implement a smart hardware product in just a few weeks and this project not only gives me a hands-on experience on designing smart hardware product, but also improves my communication skill and time management skill.
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 Year 3 Student
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
Why CSE Department?

Because it is fun!
Admission Requirements for JUPAS Applicants
# AIST Admission Requirements (2022 Entry)

<table>
<thead>
<tr>
<th>HKDSE Subject</th>
<th>Minimum Level</th>
<th>Subject Weighting</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HKDSE Core Subjects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>English Language</td>
<td>4</td>
<td>1.25</td>
</tr>
<tr>
<td>Chinese Language</td>
<td>3</td>
<td>1.25</td>
</tr>
<tr>
<td>Mathematics (Compulsory Part)</td>
<td>5^</td>
<td>1.75</td>
</tr>
<tr>
<td>Liberal Studies</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>HKDSE Elective Subjects</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Any two subjects</td>
<td>3</td>
<td>#</td>
</tr>
</tbody>
</table>

^ 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, Combined Science 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 (2021 Entry)

<table>
<thead>
<tr>
<th>Percentile</th>
<th>CHI</th>
<th>ENG</th>
<th>MATHS</th>
<th>LS</th>
<th>M1/M2</th>
<th>Elective</th>
<th>Elective</th>
<th>Elective</th>
<th>Reference Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Quartile</td>
<td>4</td>
<td>5**</td>
<td>5**</td>
<td>4</td>
<td>5*</td>
<td>5*</td>
<td>5*</td>
<td>5*</td>
<td>32</td>
</tr>
<tr>
<td>Median</td>
<td>3</td>
<td>5</td>
<td>5**</td>
<td>3</td>
<td>5**</td>
<td>5*</td>
<td>5</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td>Lower Quartile</td>
<td>3</td>
<td>5</td>
<td>5**</td>
<td>4</td>
<td>5</td>
<td>5*</td>
<td>5*</td>
<td>5</td>
<td>29</td>
</tr>
</tbody>
</table>

^ The Total Reference Score is the total score of the applicant calculated based on the best 5 subjects in Category A or Category C of HKDSE:
where lv 5** = 7, lv 5* = 6, lv 5 = 5, lv 4 = 4, lv 3 = 3, lv 2 = 2, lv 1 = 1 for Category A subjects;
and Grade A = 5, Grade B = 4, Grade C = 3, Grade D = 2, Grade E = 1 for Category C subjects.

Admission is not based on public examination results alone, and the overall scores of students admitted vary from year to year. The information provided is for reference only and should not be used to predict the chance of admission in subsequent years.

Admission Requirements for Non-JUPAS Applicants
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 more details at OAFA’s website!

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

1. Faculty Package
   - Major Practicum
   - Major Core

2. Major Foundation
   - Major Core
   - Major Electives

3. Major Core
   - Major Electives
   - University Common Core (Languages, GE, PE) (39 Units)

4. Final Year Project
   - Major Electives
   - Free Electives (9 Units)

Total Units: 123
Curriculum – Major Requirements

- **1st Year**: Faculty Package
- **2nd Year**: Major Foundation, Major Practicum, Major Core
- **3rd Year**: Major Core, Major Electives
- **4th Year**: Final Year Project, Major Electives

Total: **75 units**
Faculty Package and Foundation (15 units)

- Problem Solving By Programming (ENGG1110)
- Linear Algebra for Engineers (ENGG1120)
- Multivariable Calculus for Engineers (ENGG1130)
- Calculus for Engineers (MATH1510)
- General Physics for Engineers (PHYS1003)
**Curriculum – Major Practicum**

- **Major Practicum** (3 units)
  - Technology, Society and Engineering Practice (AIST2601)
  - Engineering Practicum (AIST2602)
Curriculum – Major Foundation

Major Foundation (10 units)

» Introduction to Computing Using Python (AIST1110)
» Discrete Mathematics for Engineers (ENGG2440)
» Probability for Engineers (ENGG2760)
» Statistics for Engineers (ENGG2780)
Curriculum – Major Core

Major Core (18 units)

- Introduction to Artificial Intelligence and Machine Learning (AIST1000)
- Numerical Optimization (AIST3010)
- Introduction to Computer Systems (AIST3020)
Curriculum – Major Core

Major Core (18 units)

» Data Structures (CSCI2100)
» Design and Analysis of Algorithms (CSCI3160)
» Fundamentals of Artificial Intelligence (CSCI3230)
» Fundamentals of Machine Learning (CSCI3320)
Curriculum – Major Electives

Major Electives (23 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)
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
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)

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

Open topic FYP – you may also propose a project to a professor
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

Sample from current CE/CS students (FYP MHW1804)
FYP (AI + 3D Vision)

• Design the best neural network for 3D car detection

Sample from FYP CWF2002 (The UG student co-authored “research papers” in AAAI 2021 & CVPR 2021)
FAQs
FAQ Contents:
Q: Will there be any interview?
Q: Will there be any exchange opportunity?
Q: Will there be any scholarship or financial aid?
Q: What is ELITE Stream? How can I join it?
Q: How can I declare the specialized stream?
Q: What are the differences between AIST and CSCI?
Q: What are the career prospects of CSE graduates?
Q: Can I transfer to CSCI or other majors in Year 2?
Q: Can I declare AIST / CSCI / CENG as second major or minor?
Q: I am still struggling to choose AIST / CSCI / CENG. What can I do?
Q: Will AI replace us in the near future?
Q: Will there be any interview?
We plan to arrange interviews in **mid-/late June, 2022**.

We only consider **Band A applications** for shortlisting.

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!
Interview Arrangement (Non-JUPAS & International)

• Interviews will be conducted in batches from ~Jan. 2022.

• 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: 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 at the Office of Admissions and Financial Aid (OAFA)!
Q: What is ELITE Stream? How can I join it?
Engineering Leadership, Innovation, Technology and Entrepreneurship Stream (ELITE Stream)

• Offered by the Faculty of Engineering to students with excellent academic performance.

• Challenge yourself with additional coursework, invaluable extra-curricular activities, exclusive stimulating and inspiring courses, special exchange opportunities, etc.!

Check out more details at the Faculty of Engineering!
Q: How can I declare the specialized stream?
Stream Declaration

• You should check and **complete the required courses** of the respective stream.

• You will be invited for the stream declaration in the **final year** of study.

• You can declare in **at most one stream**

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**Major Electives** (23 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
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 CSE graduates?
Career Prospects

• Employers of our graduates include:
  » Google
  » Intel
  » Microsoft
  » IBM
  » Apple
  » Facebook
  » Yahoo
  » Deloitte
  » Hong Kong Government
  » Investment Banking Institutes
  ... ...
Q: Can I transfer to CSCI or other majors in Year 2?
If you look for CSCI / other majors instead...

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

• If you are determined to go for CSCI, you may choose Computer Science and Engineering (JS4412) as your choice and select CSCI in Major Allocation when promoting to Year 2.
Q: Can I declare AIST / CSCI / CENG as second major or minor?
Declare Second Major / Minor

• You are **not allowed to declare AIST / CSCI / CENG 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.
Q: I am still struggling to choose AIST / CSCI / CENG. What can I do?
If you are still struggling to choose...

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

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

• You can also **subscribe our social media channels** to receive the latest updates from us! Stay tuned!
Q: Will AI replace us in the near future?
Humans in Future AI Era

• Umm... there may not be a perfect answer at the moment
• From what can be observed recently: **routine** jobs are more easily replaced by AI, while **others** are more likely to go into a “**human-in-the-loop**” model, where AI and humans work together to boost performance, *e.g.*, creative media

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www.youtube.com/channel/UCI0dSTad1sZkh5W3rVE3A6w
See you in Fall 2022!