AI Education Curriculum for Gifted Students

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Mastering AI through Gamification

AI For Chinese Culture and History

2021 2022 2023 2024 2025

AI Based Real Problems Solving Skills

Cultural Innovation Through AI

We have done ...

Bot Design

Mbot control system design, implementation and testing

Culture Innovation

Hands-on projects related to Chinese folk tales to implement different AI models

Programming

Basic Python coding
build recognition systems with design, implementation and testing

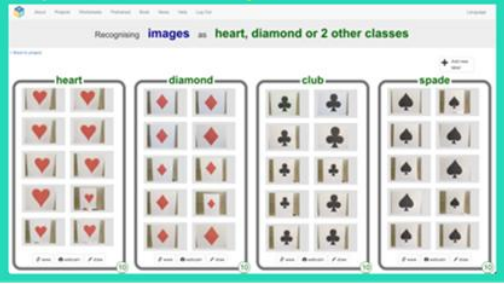
Train Machine Learning!

1. Repeat until you've taken 10 photos of the Heart card

2. Click "+ Add new label" and create one called "diamond"

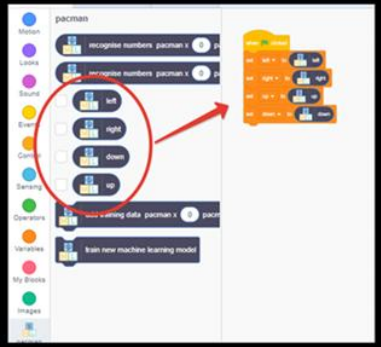
3. Use the webcam button in the diamond bucket to take 10 photos of your Diamond card

4. Repeat for club and spade.



Let AI study

3. Modify the script to use your new blocks from the pacman project



Train AI

1. Click the "Train" button

2. Check your training data

3. Click the "< Back to project" link. Then click "Learn & Test"

4. The training page won't let you train a model yet

DO you know what can be done by Bots?

1. Bot can avoid obstacles

2. Bot can follow the line

3. You can play bots buy manual control

Coding

1. Fill in the information about the Jack Dawson character in the fields displayed on the left.

This will update the skeleton code on the right.

2. Copy the updated skeleton code displayed into the template.

```
# CHANGE THIS to the data that you want your
# machine learning model to classify
test_data = [ ]

demo = classifyNumbers(API_KEY, test_data)

label = demo["class_name"]
confidence = demo["confidence"]
```

3. Update this line from the template code:

```
# CHANGE THIS to do something different with the result
print ("result: '%s' with %d%% confidence" % (label, confidence))
```

Change it to this:

```
# CHANGE THIS to do something different with the result
print ("%d%% sure that Jack %s" % (confidence, label))
```

4. Click on the "run" button Run

Your machine learning model will display its prediction for whether Jack survived the sinking of the Titanic.
Does the prediction match what happened in the movie?

```
Console   Shell

{'status': 'ready to use', 'msg': 'Status for Titanic survivors'}
100% sure that Jack did_not_survive
>
```

PROGRAMMING TIME!

1. Edit the file "run-test.py" in your favourite code editor to test other URLs.

Look at how the example URLs above were tested to learn how to use the checkUrl function.

Test the addresses for **legitimate websites** that you use and trust to see if your machine learning model predicts that they're safe.

Test the addresses for **phishing websites** to see if your machine learning model predicts that they can't be trusted. If you need to find URLs for phishing websites, https://phishtank.com is a good place to look. Find new URLs that have only just been reported as phishing sites to see how your ML model copes.

2. Click the "Learn & Test" button
3. Click the "Describe your model" button

4. Examine the visualisation for the machine learning model

This shows how your model is making predictions.

Use the **Test** button to see how it works.

Coding Time

1. Click on "Make" Make
2. Click on "Python"
3. Find your project "API key". You'll need this code later.

4. Visit https://github.com/qalelane/Noughts-and-Crosses
5. Click the "Clone or download" button, then click "Download ZIP"

6. Paste the API key from Step 3 into the KEY variable

```
11  # API KEY  - the unique private code fr
12  global KEY
13  KEY = "put-your-project-API-key-here"
```

7. Make sure you have requests and pygame installed.
Ask your teacher if you don't know how to do this.
8. Run the Python program.
PLAY! PLAY! PLAY!

Your machine learning project will be choosing where to make it's moves at random.

Look at Data

12. RUN YOUR CODE AND PLAAAAAY

13. See the data you have trained in the training tool

Look at your training so far
Each item is a move made by the winning player.
The details in each item describe the state of the board at the time the winning player made that move.
This is collecting training data, but you still need to use it to train a machine learning model.

14. Edit the learn_from_this function again to add a new line

```
def learn_from_this(winner, boardhistory, winnerdecisions):
    print("%s won the game!" % (winner))
    print("Maybe the computer could learn from %s's experience?" % (winner))
    for idx in range(len(winnerdecisions)):
        print("\nAt the start of move %d the board looked like this:" % (idx + 1))
        print(boardhistory[idx])
        print("And %s decided to put their mark in %s" % (winner, winnerdecisions[idx]))
        add_to_train(boardhistory[idx], winner, winnerdecisions[idx])
train_new_model()
```

The new line will use the training data collected so far to create a new machine learning model.
Make sure you get the indenting right so you only train a model after adding all of the moves.

Magic Schools Design

Wizarding school: Hogwarts	AI Programme
Gryffindor	Creative activities
Slytherin	Gamifications
Hufflepuff	Storytelling
Ravenclaw	Small group mentoring

Challenges and Problem

Curriculum Design

AI Education for primary school is a new frontier.
Suitable teaching mode is the most important things to consider.

Capturing their Attention

Can not expect primary school students behave like a college school to absorb the basics AI foundation knowledge.

Experience Sharing from Teaching Staff

我們的課程設計從**基礎到進階**，不僅需要緊密貼合生活實際，還著重於教授學生如何通過代碼去理解和分析数據。

此外，學生們還學習了**如何訓練模型進行物品識別**，将普通的圖片通過代碼轉換成**AI生成的素描畫**等等。這種將**理論知識與實際應用相結合**的教學方法，不僅讓學生們對人工智能技術的潛力和應用有了更深刻的認識，也激發了他們對**科技創新的興趣**。看到學生們將學到的知識應用於創造出有意義的項目，對我來說是一種無與倫比的榮耀和喜悅。

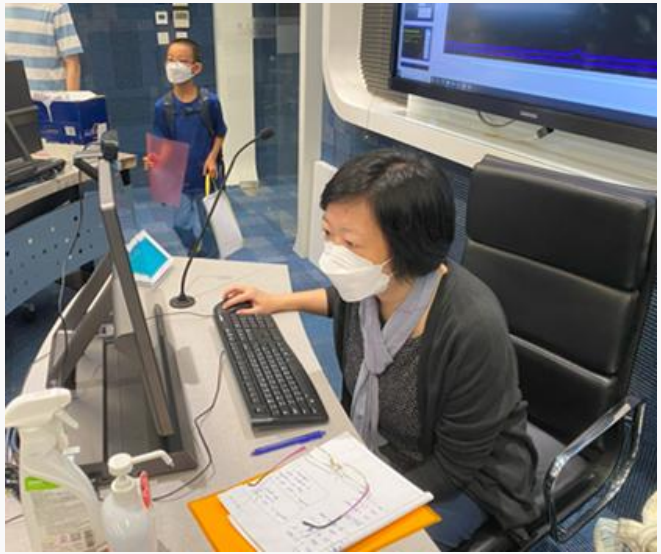
Karassay Yelaman
(數據科學工程師)

Experience Sharing from Teaching Staff

Zeyi Fan
(嶺南大學管理科學系博士生)

在我們的課程中，**學生的熱情和積極參與**給我留下了深刻的印象。他們不僅在課堂上表現出極高的配合度，而且反應迅速，對學習充滿了渴望。其中有些**學生特別好學，常提出一些深入且富有洞察力的問題**，這不僅挑戰了我們的教學，也使課堂變得更加生動有趣。能夠為這些學生提供指導，幫助他們在知識的海洋中進一步探索，讓我感到非常滿足和開心。這樣的教學經歷讓我更加確信，**激發學生的好奇心和求知慾**是促進他們學習的關鍵。

Experience Sharing From Teaching Staff



Emily Wang
(嶺南大學管理科學系教授助理)

作為一名導師，我深信對於對編程感興趣的學生來說，早期接並透過正確的方法循序漸進地學習是至關重要的。這樣不僅可以讓學習過程變得更加輕鬆，也能幫助學生對編程有更深入的理解。**基礎語法到複雜算法，一步一脚印地學習可以建立堅實的基礎，並逐步解銷編程的無限可能性。**我鼓勵所有對编程感興趣的學生擁抱這個過程，發現其中的樂趣，並在探索編程世界的旅途中持續進步。

Experience Video Sharing From Students

Our Achievements

A8 專題

2023年8月31日 星期四 大公報

嶺大為小學生辦課程 冀推廣至灣區城市

AI文創x歷史故事 培養資優生創造力

「人工智能技術的文化創新應用」課程

夸父逐日

孔融讓梨

《山海經》

牛郎織女

▲司徒頴權（右）表示，希望從小學開始給孩子們播種，讓他們有足夠的基礎，以便日後投身AI的學習和研究。左為黃文亮。 大公報記者何嘉駿攝

教育熱話

由嶺南大學電腦及決策科學學系開辦的「人工智能技術的文化創新應用」課程已於8月初正式開課。這個面向資優小學生的課程，注重培養對人工智能（AI）原理的理解及創新能力，借助生成式人工智能技術重塑中國歷史文化故事，提升小朋友對中國歷史文化的興趣，加強國民身份認同。

課程項目負責人司徒頴權教授表示，學生除了需要懂得如何運用人工智能外，亦需要明白背後的原理和運轉。嶺大更計劃開發面向全港小學生的人工智能課程，並希望將來能推廣至大灣區內地城市。

大公報記者 魏浴

參與課程學生有Say

發展AI醫療 造福人類

我認為人工智能對人類有好大的改變，之後AI可能是人們生活的一部分。我想借助

重塑「孔融讓梨」弘揚正向價值

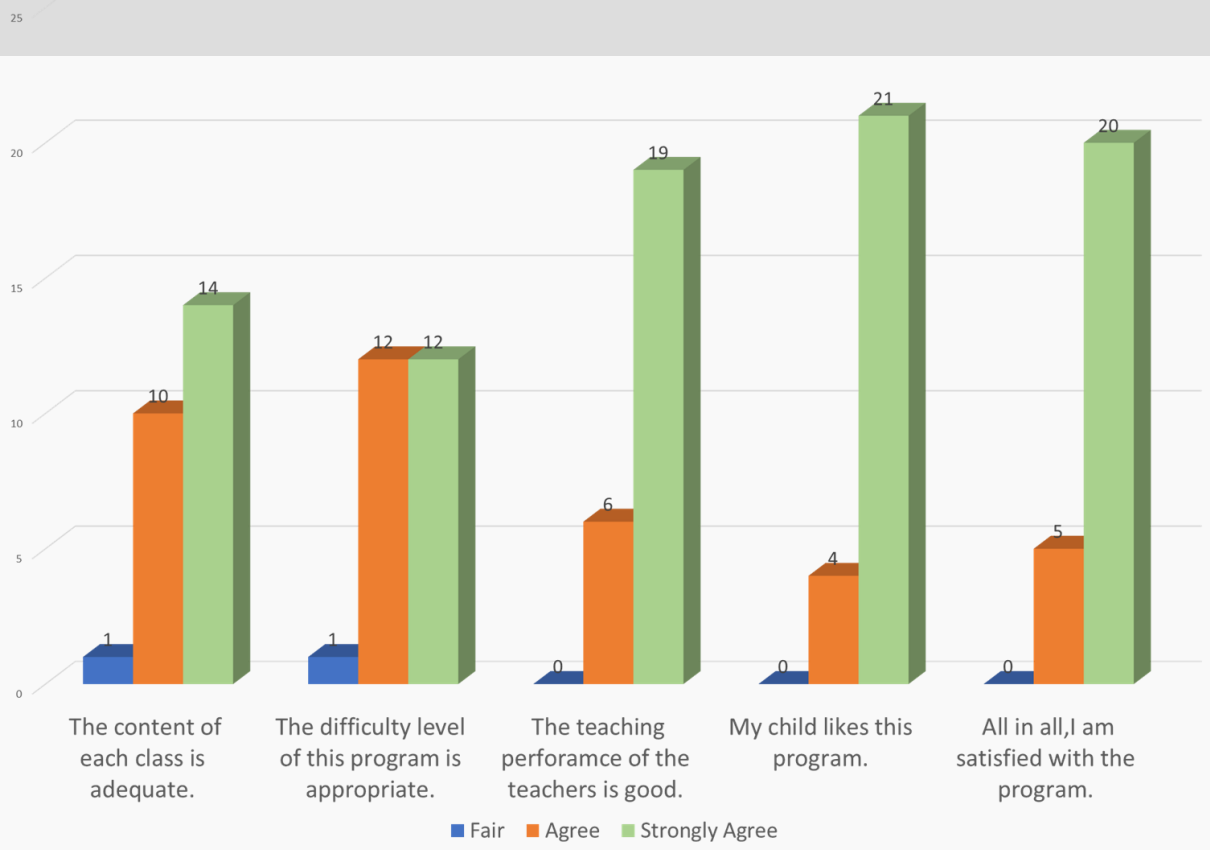
創新課程

嶺南大學開設針對資優小學生的「人工智能技術的文化創新應用」課程，依靠文字、圖像和聲音三方面的可重塑性面，這些故事家喻戶曉，比較適合用於教學；另一方面，這些故事蘊含了很多正向價值，希望讓學生們多學一些知識，加深他們對正向思維、正向價值的

Special Press by Ta Kung Pao

bitly

Access Newspaper !



Positive parents' feedbacks for the program

Our Future Plan

Establish AI Teaching and Learning Centre

Establish AI Learning centre for public in Hong Kong.

AI for Hong Kong's Cultural Heritage

Raise awareness and accessibility of AI with traditional culture

Lingnan University 嶺南大學 香港 Hong Kong

Thank you!