



中三級創客科 人工智能課題

江文其

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ENTER



分享一



01

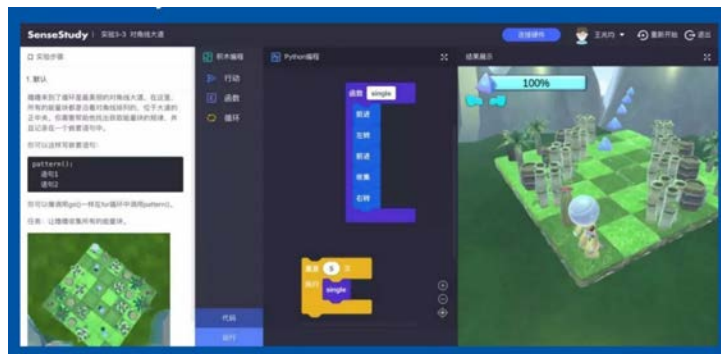
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- 於中三及中四級推行 **SenseStudy** 教育平台，目標是利用課後時間提升學生對人工智能的興趣
- 學生通過編寫 Python 程式，完成不同的AI視覺分析，例如面部關鍵點檢測、圖像分類及對象檢測等，從而學習人工智能技術
- 學生亦學習使用**SenseStorm**來創作出不同的AI應用
- 本節將分享該校於中三級推行創客校本課程的經驗，介紹如何將人工智能的課題加入常規課時之中





分享二



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- 該校使用 Google AIY Voice Kit 進行教學活動，讓學生體驗AI是如何運作。學生亦通過編寫 Python 程式，執行不同的 Google Cloud API 服務。
- 將語音套件進行編程，學習人工智能技術。通過使用Voice Kit 進行語音命令及相片分析，學生能夠創作出不同用途的智能產品。





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01.

SenseStudy



商湯集團



SenseStudy



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- SenseStudy AI由商湯集團推出，旨在讓學生能夠結合AI理論知識，在實踐中體驗AI編程的樂趣
- SenseStudy AI是一個可透過Blockly或Python代碼編寫遊戲程式的互動編程平台 SenseStudy AI實驗平台關聯「教」和「學」兩極端口
- 提供專為中學生設計的實驗課程和機械人擴展課程（共200+實驗課程），並提供封裝好的**深度學習API**接口；可以輔導和支持老師們參與AI實驗課程和項目創作



SenseStudy



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SenseStudy | 实验3-3 对角线大道

连接硬件



王兆均



重新开始



退出

实验步骤

1. 默认

噜噜来到了循环星最美丽的对角线大道，在这里，所有的能量块都是沿着对角线排列的，位于大道的正中央。你需要帮助他找出获取能量块的规律，并且记录在一个嵌套语句中。

你可以这样写嵌套语句：

```
pattern():  
    语句1  
    语句2
```

你可以像调用go()一样在for循环中调用pattern()。

任务：让噜噜收集所有的能量块。



积木编程

行动

函数

循环

Python编程

函数 single

前进

左转

前进

收集

右转

重复 5 次

执行

single

代码

运行

结果展示





SenseStudy



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「嚕嚕歷險記」以Python語言為工具，以指令交互的形式，對虛擬世界中的機器人嚕嚕發出指令，完成相應的任務。在完成不同任務的同時，幫助學生循序漸進地掌握編程基礎知識。

- 最左方：列出每課主題內容及詳細代碼運行步驟
- 中間：套用積木程式編輯器(blocky), 告別編程恐懼
- 中間：除了積木，學生亦可自行轉用Python運行代碼
- 最右方: 代碼運行後即時效果顯示



SenseStudy AI學習平台好處

01

1. 容易上手的用戶體驗界面

02

2. 支持兩種編程方式(Python 和 積木)

03

3. 可以自由切換簡體, 繁體中文, 英文3種語言

04

4. 配合完善AI題材教學, 按章節有系統地由淺到深階段性學習





SenseStudy



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學生學習分享



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02. Google AIY Voice/Vision Kit



Google



Google AIY



Google AIY 是 Google 旗下的一個教育硬件。

01

Google AIY 硬件而預先搭載 Google 的 TensorFlow AI 處理器，同學可以使用硬件製作很多有趣的 AI 項目，例如識別情緒和常見物體，追蹤面孔等，連接到 Google Assistance 更可以作語音辨認。同學可以發揮創意，組裝自己的 AI 項目。

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Google AIY

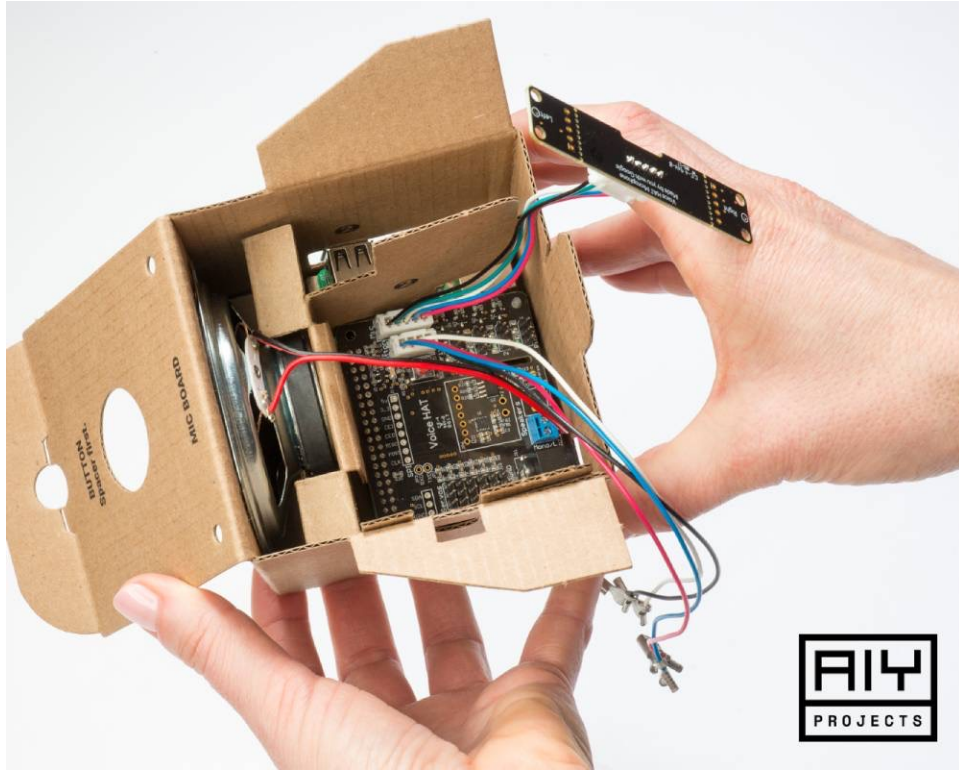


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Google AIY 學生學習分享



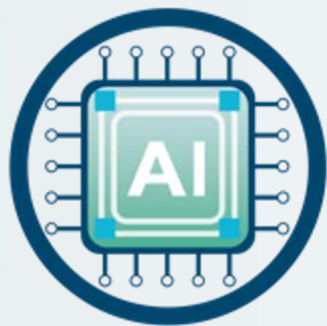
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AiSiA

Artificial Intelligence & Social Intelligence Alliance
人工智能及社會智慧聯盟

Mission:

To equip young minds with knowledge, skills, and compassion in artificial and social intelligences



Vision:

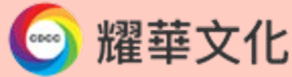
To understand, appreciate, and apply the power of diversity in life, at work, and in school

<https://www.youtube.com/watch?v=1H1sHBwA2V4>

Partners of AISIA



Sensetime & Multiply
AI & Generative Arts curriculum for Primary and Secondary school students



CCDC and SEBC
Non-profit Organizations
Social Intelligence SI curriculum for Primary and Secondary school students



City U Apps Lab & CUHK CLST
AI & STEM Projects, Interns, and Events' Partners for AI & SI curriculum development



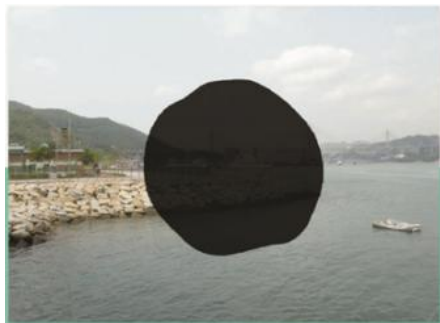
AI & SI Labs in Primary and Secondary Schools
Empower schools with sustainable AI & SI learning equipment and environment

Social Intelligence

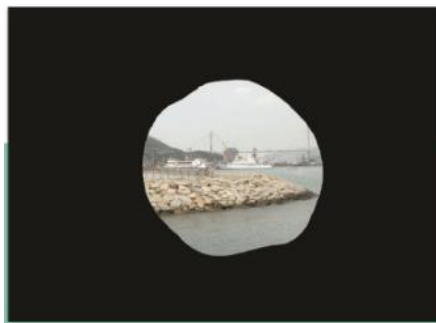
- ▶ Social Intelligence (SI) enhances primal empathy (sensing another's inner state), empathic accuracy (knowing another's feelings and thoughts), and social cognition (understanding complicated social situation)

<https://www.youtube.com/watch?v=TKDVNflTrus&list=PLAA3E980F4BA9E0D1&index=2>

視障



黃斑點病變



青光眼



糖尿變視網膜病變

不同的眼疾會造成不同程度的視力損害，
因為患有不同眼疾的人看見的世界都不同。



視網膜色素病變



白內障



喪失視力

長者友善社區

交通

室外空間
和建築

房屋

社會
參與

尊重和社
會包容

公民參與
和就業

信息交流

社區支
援和健
康服務

參考資料：齡活城市計劃

<https://app4.rthk.hk/special/agefriendly/info.htm>

長者家居意外



浴室

- ▶ 地面濕滑，容易滑倒



廚房

- ▶ 視力變差，易被利器割傷
- ▶ 煮食時忘記熄爐，容易失火



家居環境

- ▶ 燈光昏暗，容易跌倒

- ▶ 家中雜物太多，容易絆倒



家具

- ▶ 家具不夠穩固，容易跌倒

FARMTECH

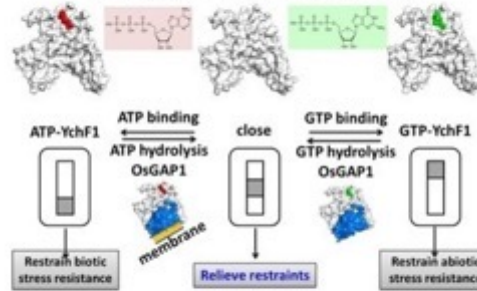


Soybean Research – Unlock Soybean Power

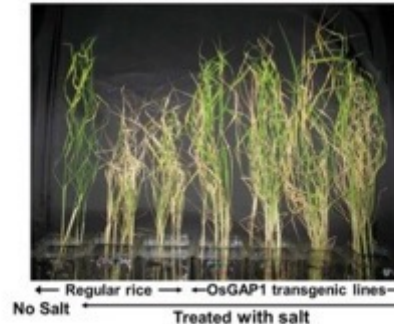
- ▶ Prof. Lam Hong Ming
- ▶ Professor of Life Sciences of CUHK
- ▶ Director of Center for Soybean Research
- ▶ Director of RGC-AoE Center for Genomic Studies on Plant-Environment Interaction for Sustainable Agriculture and Food Security
- ▶ <https://www.sls.cuhk.edu.hk/index.php/faculty-and-staff/teaching-staff/26-sls/faculty-and-staff/teaching-staff/57-professor-lam-hon-ming>

Current stress tolerance research in the Partner State Key Laboratory of Agrobiotechnology,
The Chinese University of Hong Kong

A Molecular Switch that Binds Both ATP and GTP (Prof. Hon-Ming Lam's team, CUHK; related publication: *PNAS* 113:2648)



Rice *OsGAP1* Gene Increase Salt Tolerance (Prof. Hon-Ming Lam's team, CUHK; related publication: *JBC* 290:23984)



From Lab to Farm to Education

- ▶ Create 360 VR farm learning site
- ▶ Create 3D realistic model (reconstruction by motion, photogrammetry)
- ▶ Blockchain - Food Safety & Traceability
- ▶ Big Data in Farming
- ▶ <https://syhuherbarium.sls.cuhk.edu.hk/vr/>
- ▶ <https://syhuherbarium.sls.cuhk.edu.hk/treehunt>



野生(根瘤)



培植(根瘤)



Students comparing soybean with and without root nodules

- 在陽光充足的自修室外
- 上有冷氣機滴水(不時補充水份)
- 用防蟲網覆蓋著所有盆栽



PBL – Project- Based Learning



Visited Large-Scale Soybean Experimental Field

where new stress-tolerant soybean cultivars co-developed by Prof. Lam and his collaborator Prof. Guohong Zhang in Gansu were grown.



PHASE 3 Parallel Workshop I - DNA Marker

- General introduction of DNA Marker
- Using DNA markers to identify Legumes
- Demonstration of PRC & Gel loading
- Visualizing successful results using pre-run gels
- Future prospective

Teachers guiding students on potential application of newly learnt knowledge & skills.



Invited Presentation at
**2018 High School
Biology Teacher
School-Based
Assessment (SBA)
Annual Conference**

ArtsTech

Learn programming with
beautiful visual-project based
learning, and provides you with
the essential programming skills
for countless applications

[https://sv-se.facebook.com/HomeAffairsBureau/videos/
當藝術遇上科技/213991630233055/](https://sv-se.facebook.com/HomeAffairsBureau/videos/當藝術遇上科技/213991630233055/)

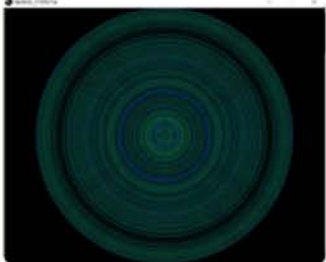
Global Trends in Art Tech

teamLab★

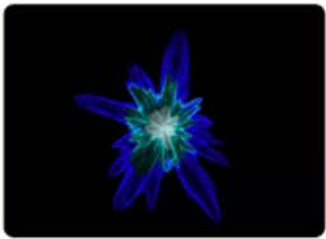


TeamLab showcases the growing popularity of Art Tech and its potential to capture the public imagination

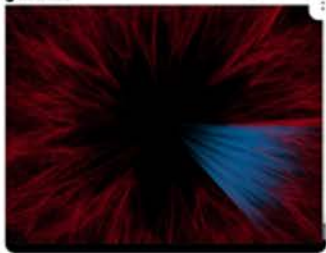
5D 16 Chan Chun Lok



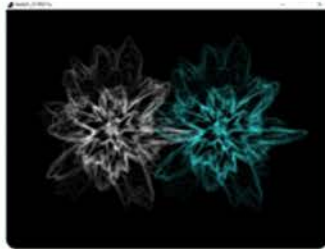
5B5



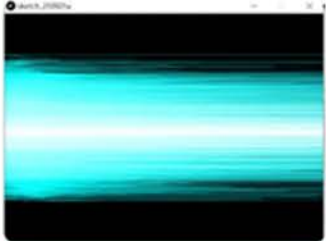
5B5



6D 23 Wong Chun Kit



6D 20 Leung Wang Hoi



5D 16 Chan Chun Lok



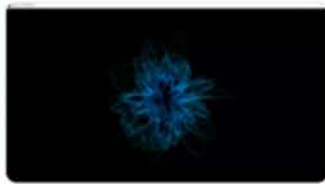
5D17 Cheng Chung Hin



5D17 Cheng Chung Hin



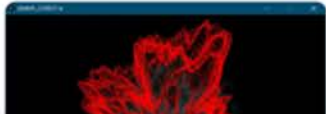
6B23 Koon Tsun Hin



Chen Siu Hei



5D 24 Leung Hoi Shun



4D12 Ng Sze Nga



6C 27 WONG CHUN HO



First AI & SI Lab in Secondary School with Sustainable Renovation Solutions



Sustainable
Office Solutions
Why Buy New?



Supported by CCDC Charity Foundation

AI & SI Learning Centre – Built with Sustainable Solutions
(Recycle old furniture and Reuse other office equipment and furniture)

First Community AI & SI learning centre, partnered with AI & SI social enterprise supported by Home Affairs Enhancing Self-reliance funding scheme

First iLab in HK with Mindfulness & Music

Sponsored by Wofoo Charity Foundation

AI & SI Centre in Don Bosco Ng Siu Mui Secondary School

Integrate mindfulness and music learning in AI & SI learning curriculum and environment

https://www.itb.gov.hk/en/speeches/2021/pr_20210423.html



Impact of AI & SI in Community

<https://www.youtube.com/watch?v=TKDVNfITrus>



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Gerontech and Innovation
Expo cum Summit

2020.11.19-22

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<https://www.sci.hkbu.edu.hk/eng/news/press-releases/488n>

Connect all sectors with compassion

Build social inclusion data together

