

Scientific poster workshop

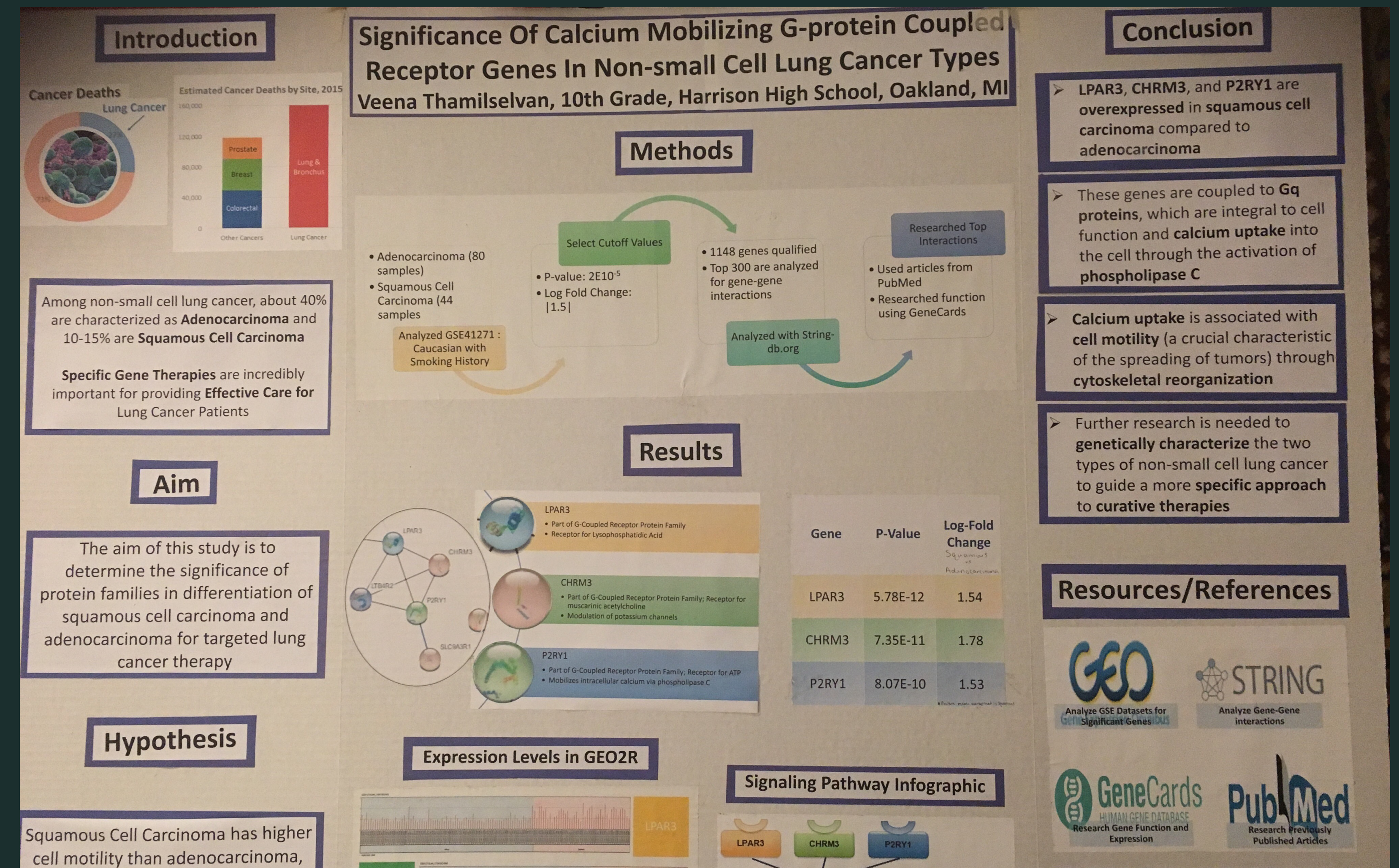
科學海報工作坊



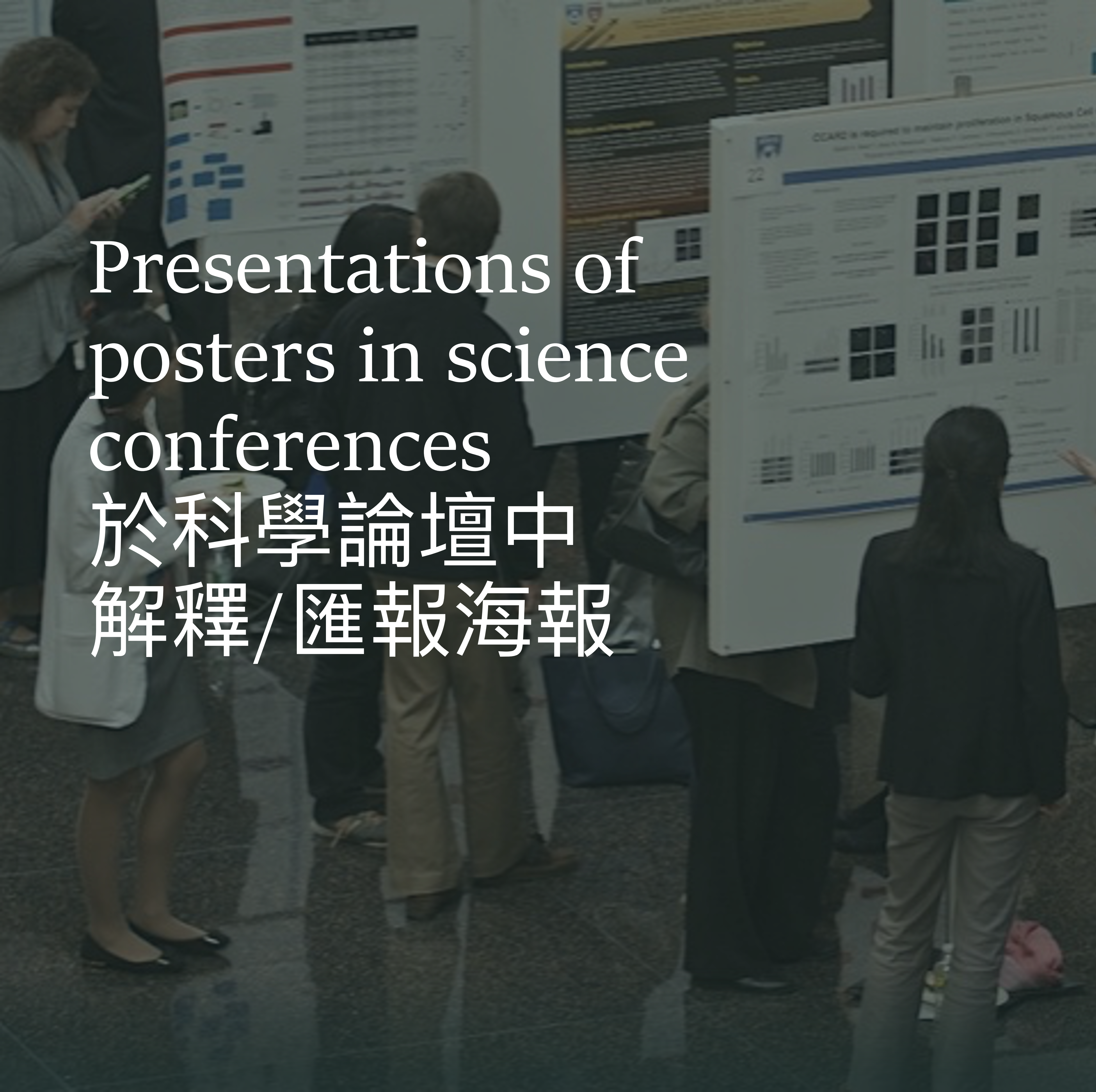
What is a scientific poster?

什麼是科學海報

- Not a talk in a classroom 不是課堂匯報
- Not a report or essay 也不是論文或作業
- But a way of presenting findings with
 - 而是一種以圖片和交字作解釋數據的方法
 - Pictures, diagrams
 - Writing



Presentations of
posters in science
conferences
於科學論壇中
解釋/匯報海報

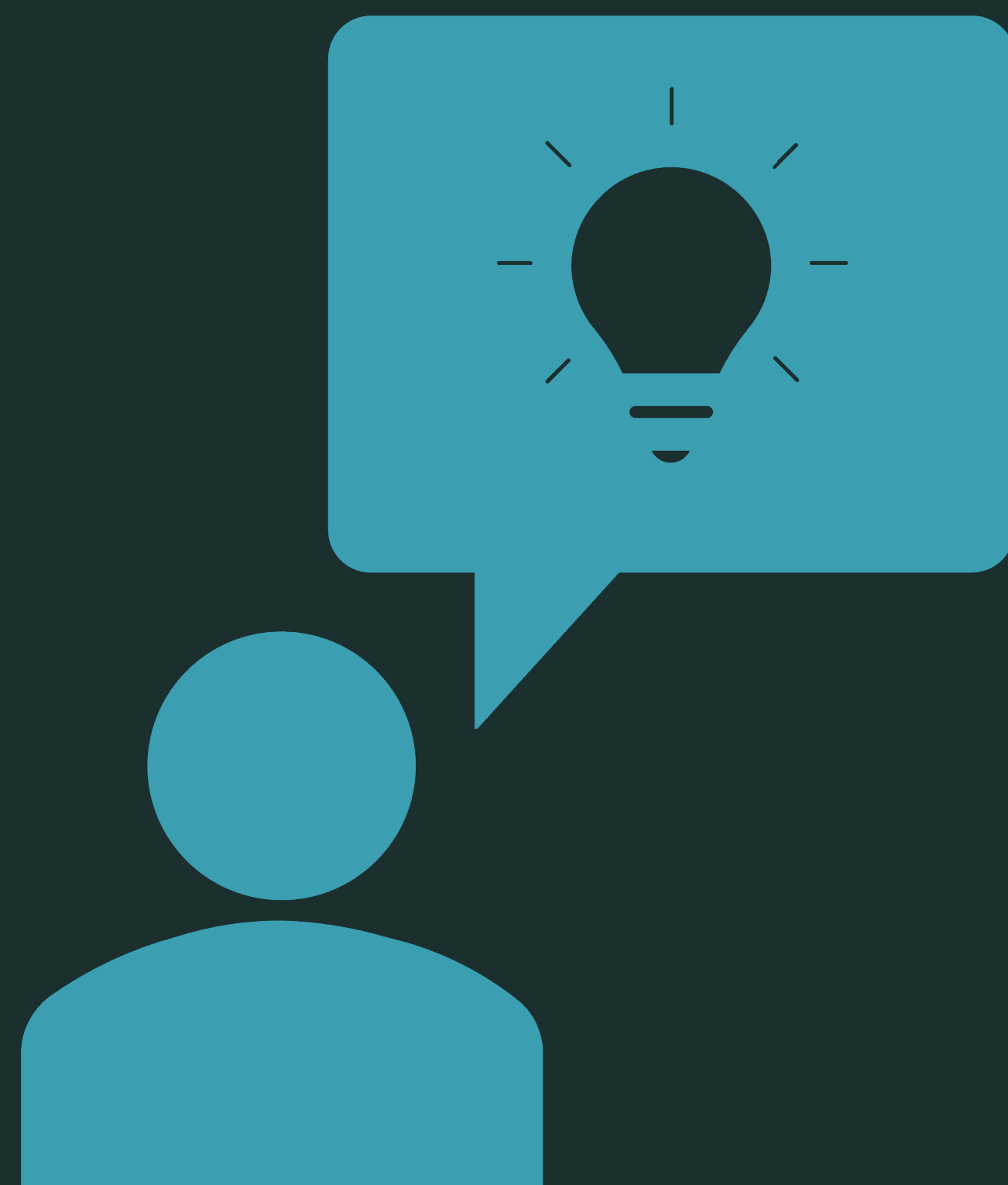


Presentations of posters in science conferences 於科學論壇中 解釋/匯報海報

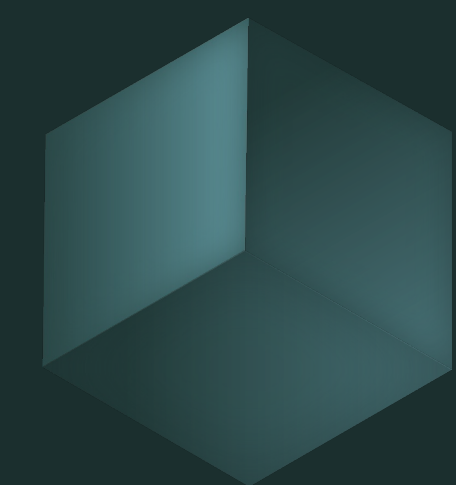




Basics: Telling people what you found out 告訴人你的研究成果



- You are showing your results, think about:
- What is the problem you are solving?
- 除左show出你既結論
- 你都要諗下你解決緊咩問題



MIRACINAE IN AUSTRALIA: Investigating the biodiversity of an unexplored subfamily of parasitoid wasps

Mollie Slater-Baker, Erinn Fagan-Jeffries
University of Adelaide

MIRACINAE

Miracinae is small subfamily of braconid wasps, characterised by their 14-segmented antennae, a distinctive 'Y' shaped structure on the abdomen, and reduced wing venation. They are parasitoids of the leaf-mining larvae of small moths, and are known to inject their host with symbiotic polydnaviruses when the female lays her eggs, acting to suppress the host immune system.

Actual size!

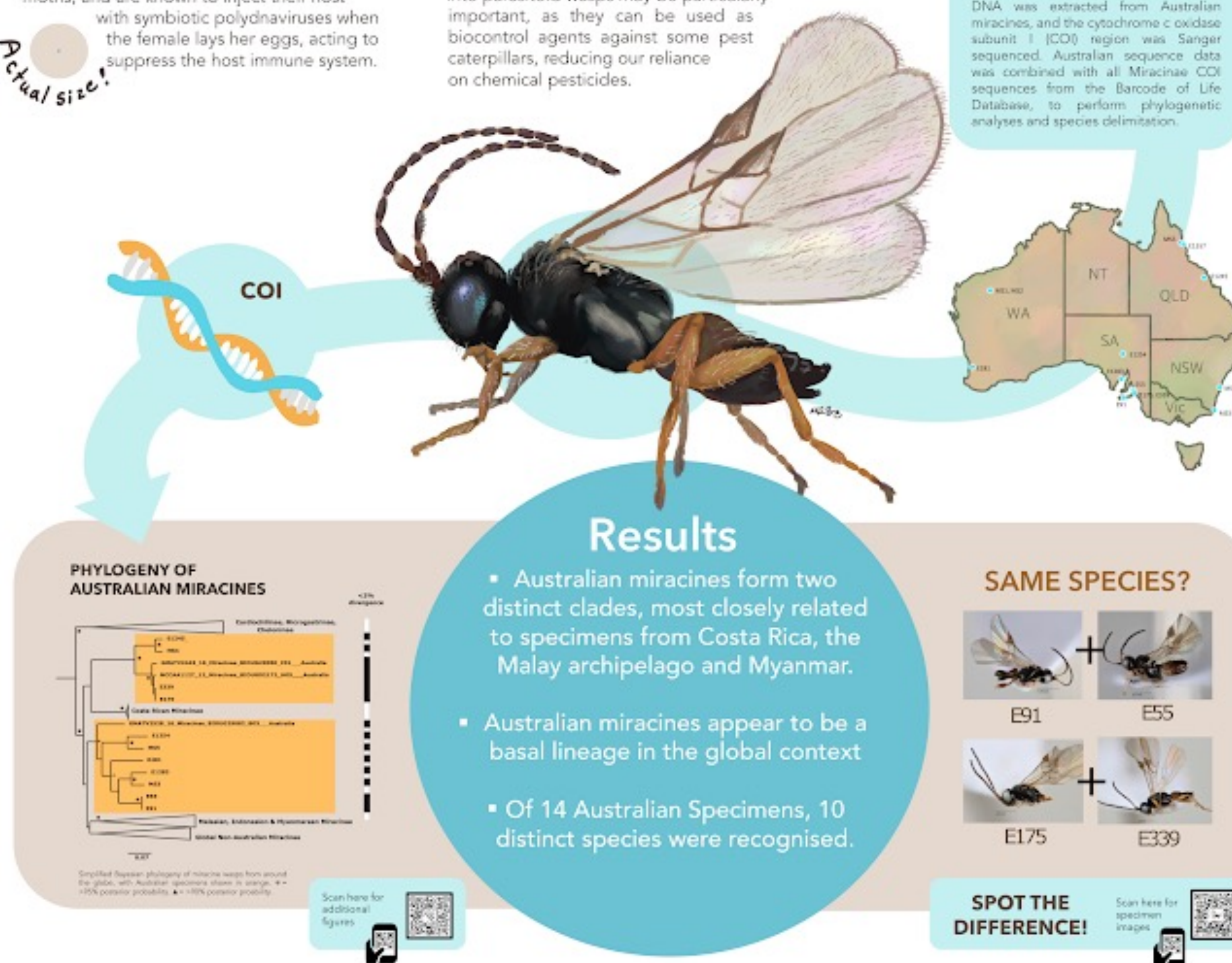
WHY STUDY THEM?

Research on Miracinae is currently very limited, and to date, no work has been done on these wasps in Australia. Describing and studying biodiversity is important for a variety of reasons, from conservation to human health. Research into parasitoid wasps may be particularly important, as they can be used as biocontrol agents against some pest caterpillars, reducing our reliance on chemical pesticides.

AIM: To perform a preliminary exploration of the biodiversity of Australian miracine wasps.

METHODS

DNA was extracted from Australian miracines, and the cytochrome c oxidase subunit 1 (COI) region was Sanger sequenced. Australian sequence data was combined with all Miracinae COI sequences from the Barcode of Life Database, to perform phylogenetic analyses and species delimitation.



CONCLUSIONS

- The number of distinct specimens in a limited sample suggests that Australia may have many endemic species of Miracinae
- Morphological differences between delimited species were difficult to characterise, and some species may be morphologically cryptic
- DNA extraction was unsuccessful for older samples collected in 2005, so specimen age may be a limiting factor for DNA sequencing

WHAT NEXT?

There is much more to be done towards understanding the Australian Miracinae, and further avenues of study may involve:

- Increased sampling and barcoding of miracines from across Australia
- Phylogenetic analysis using additional loci such as internal transcribed spacer 2 (ITS2) and wingless (WG) to produce a more robust phylogeny for the group
- Detailed imaging of morphological features using scanning electron microscopy
- Formal identification and description of Australian species

Poster sections

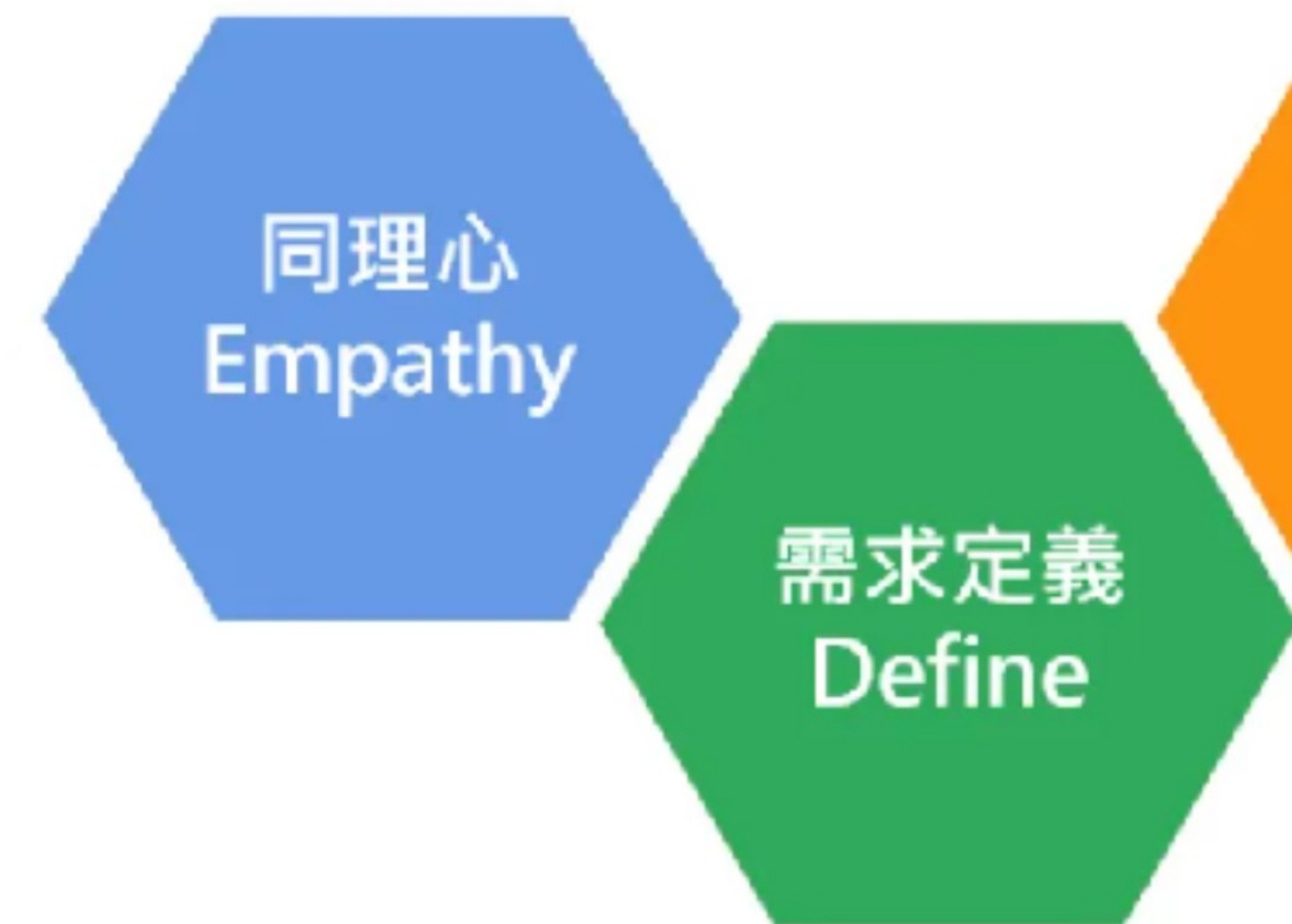
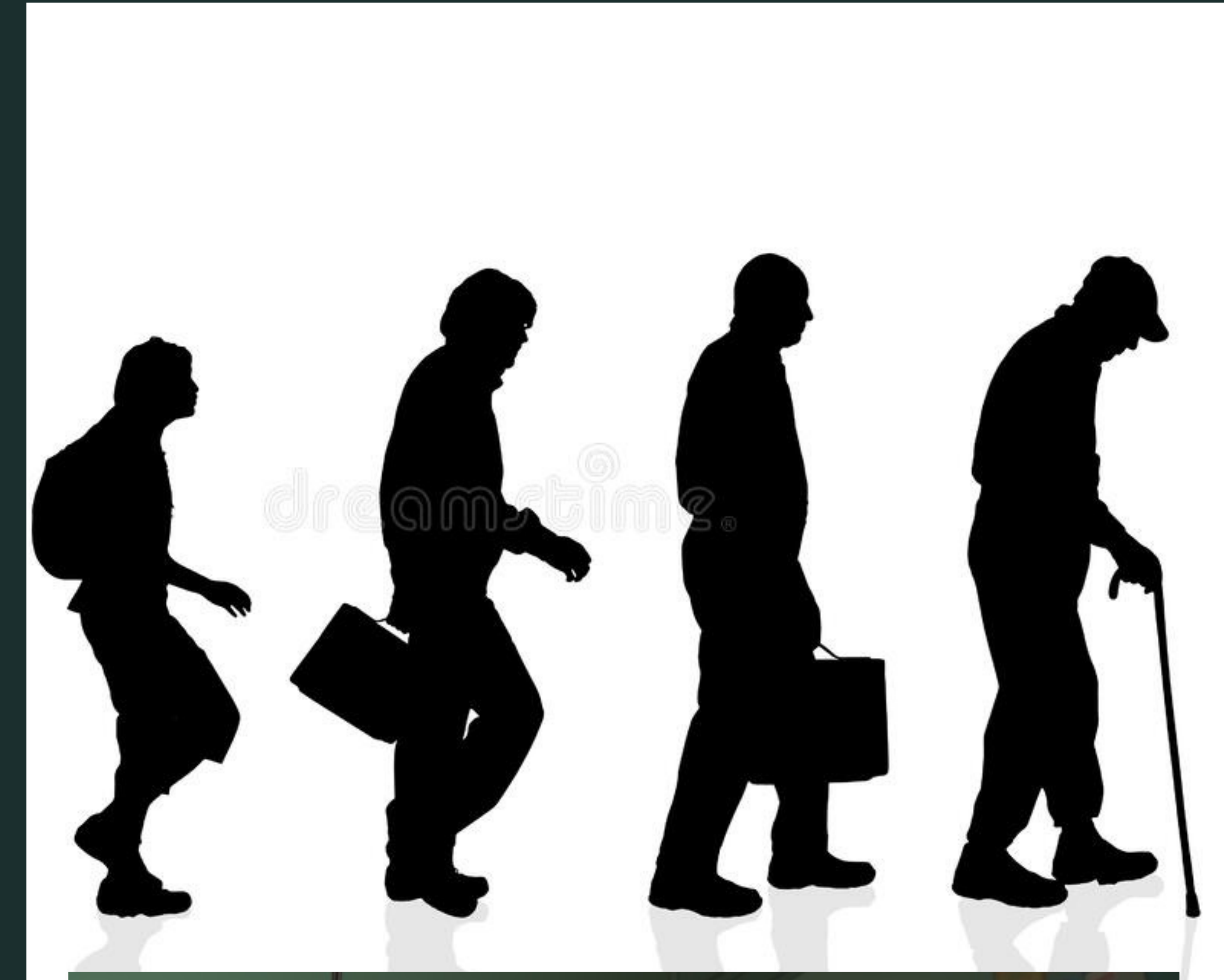
- Introduction 簡介
- Aims/Goals 目標
- Methods 方法
- Results 成果
- Discussion 討論
- Conclusions 總結
- References 參考資料

Introduction 簡介:

What is the problem?

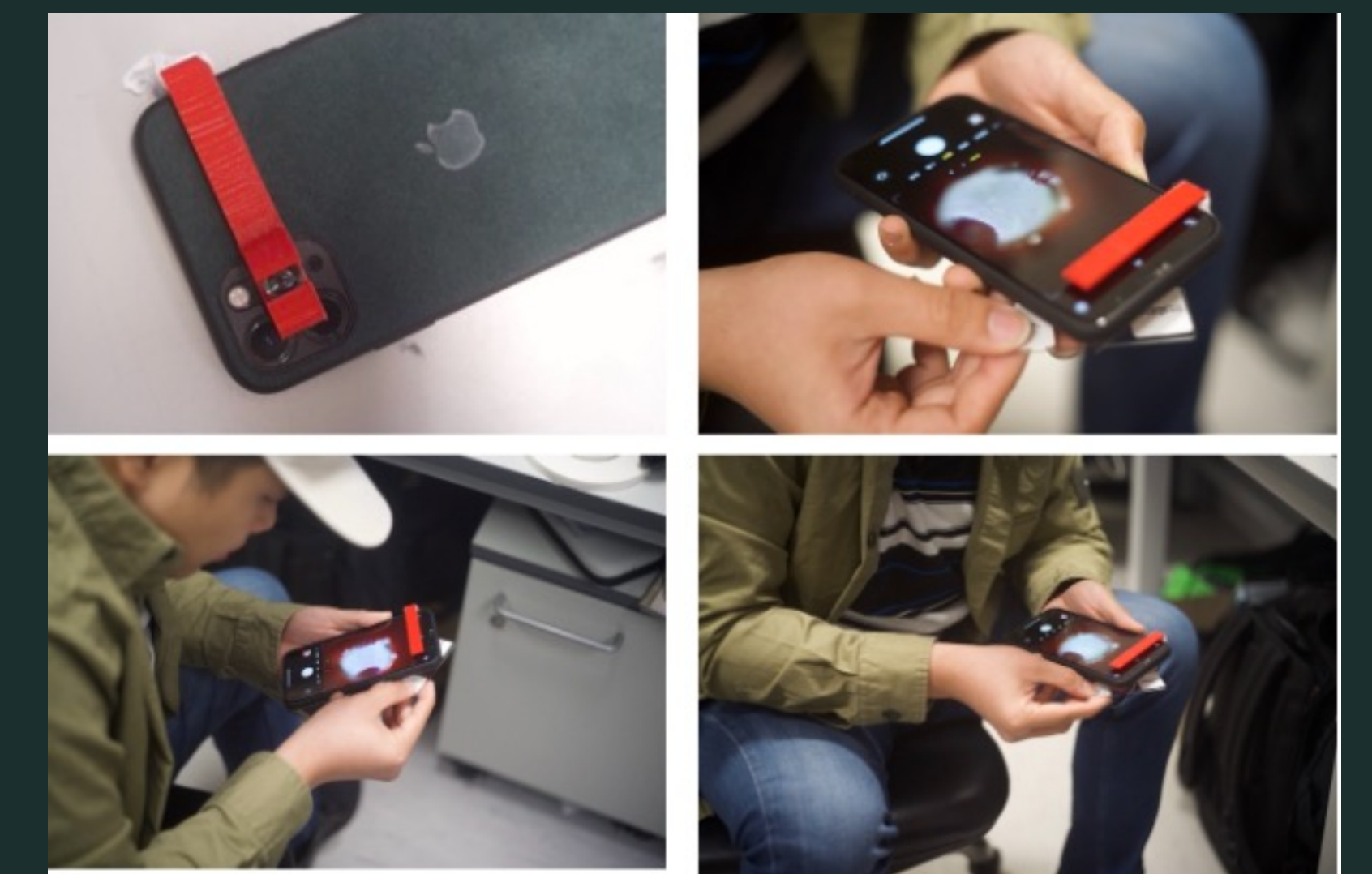
問題是什麼？

- Health?
- Economy?
- Energy?
- Aging?
- Environment?



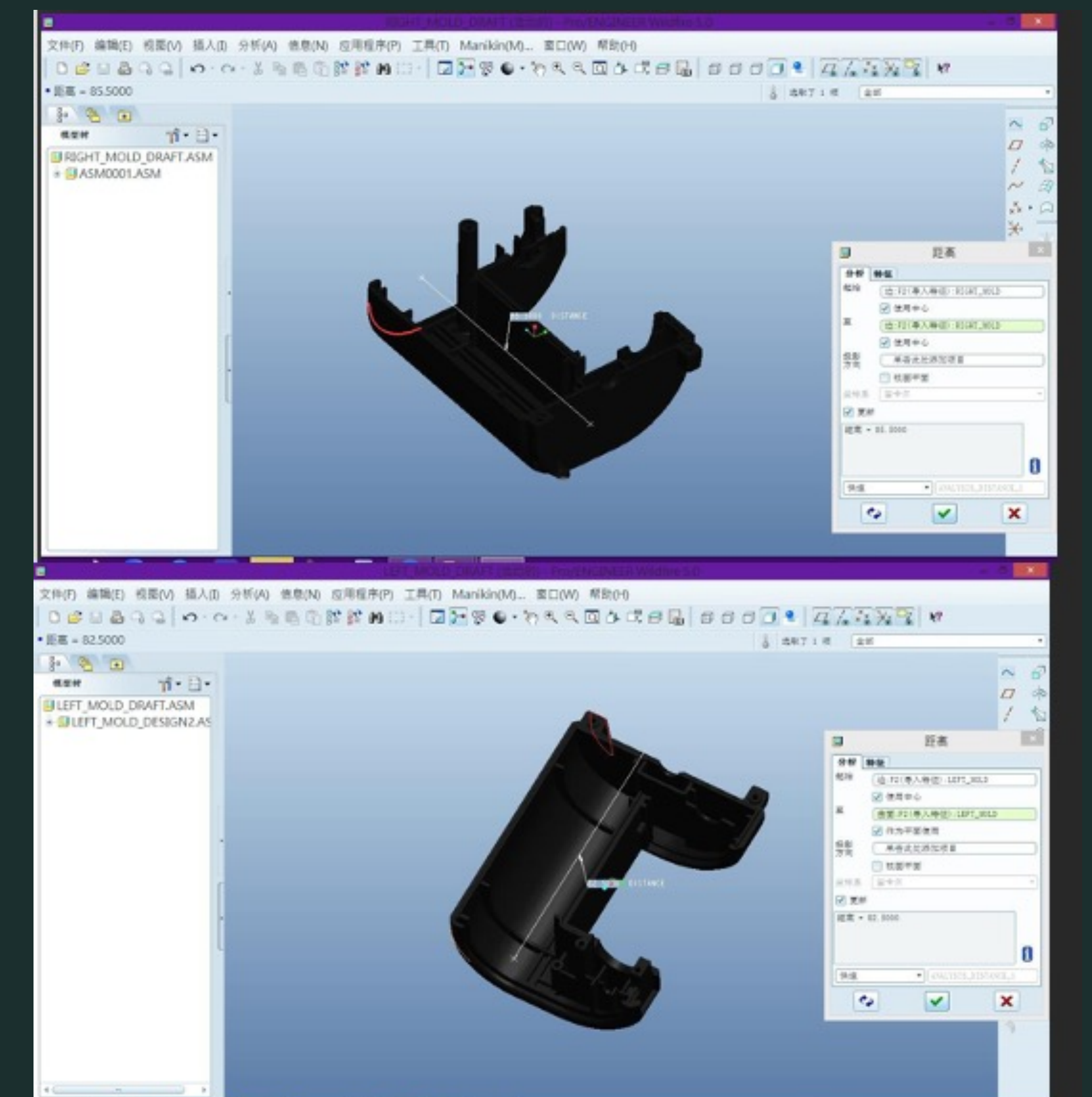
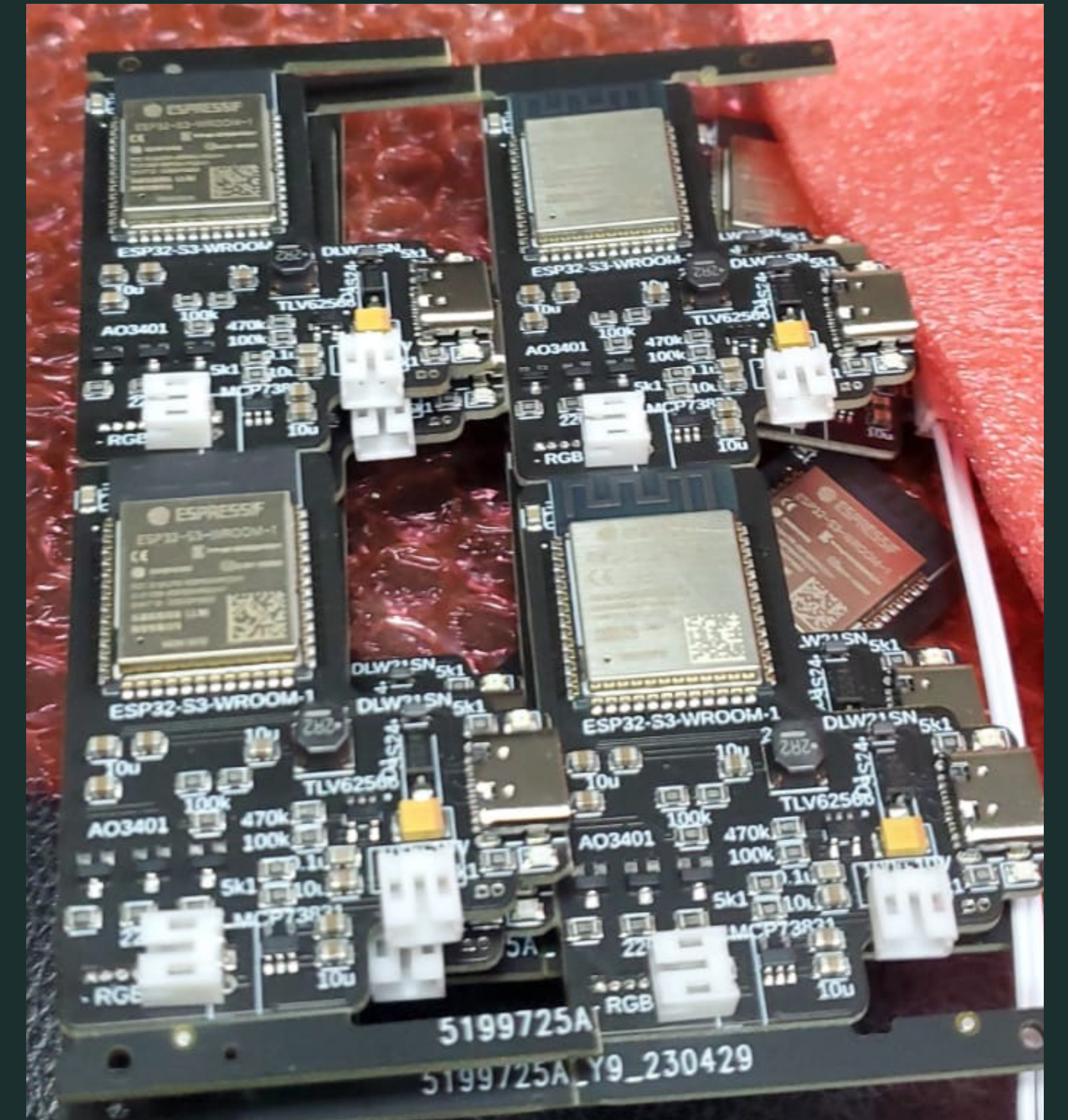
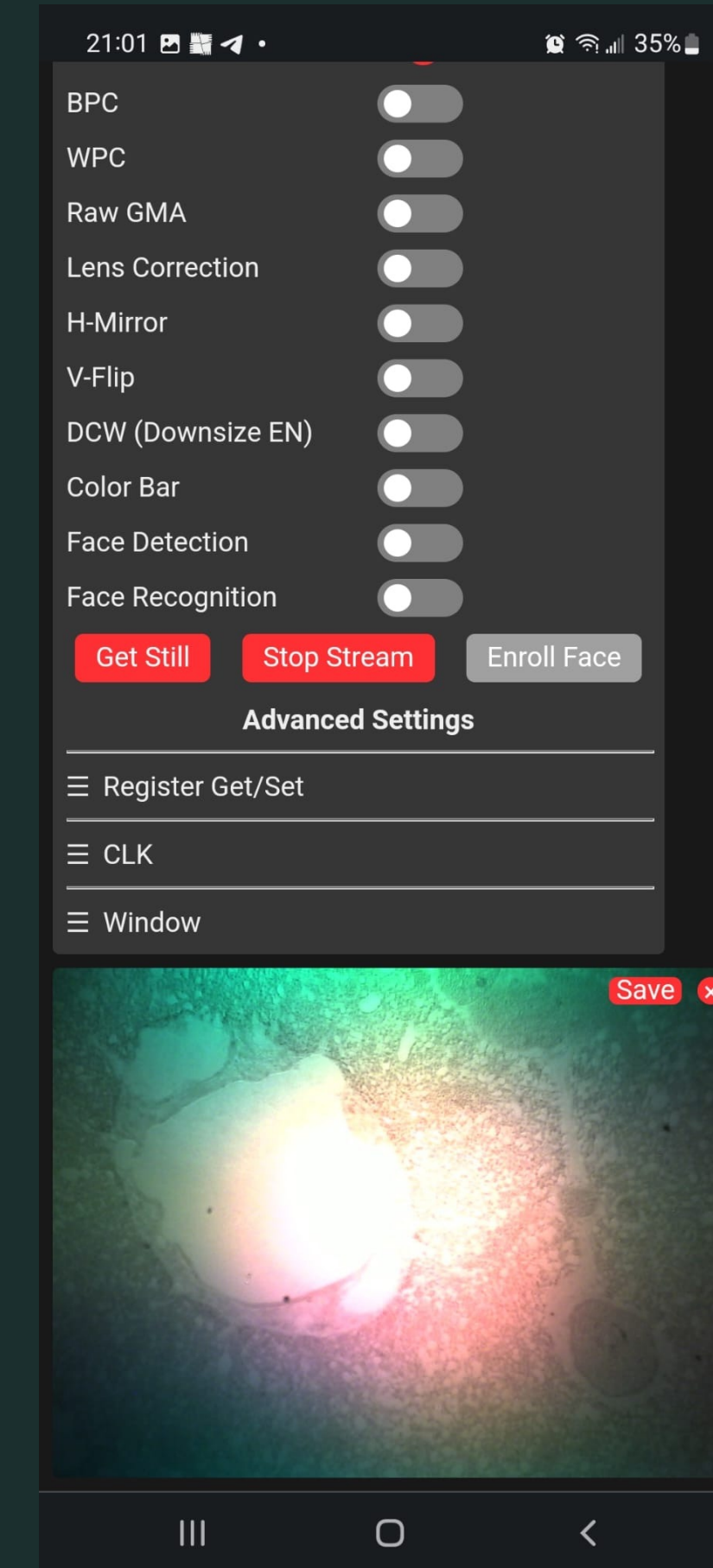
Introduction: How do you plan to solve the problem? 簡介: 你希望如何解決該問題

- Write down how you want to solve this problem?
- Small microscope
- Streaming?



Methods 方法: How does your idea work? 你的想法如何被實行？

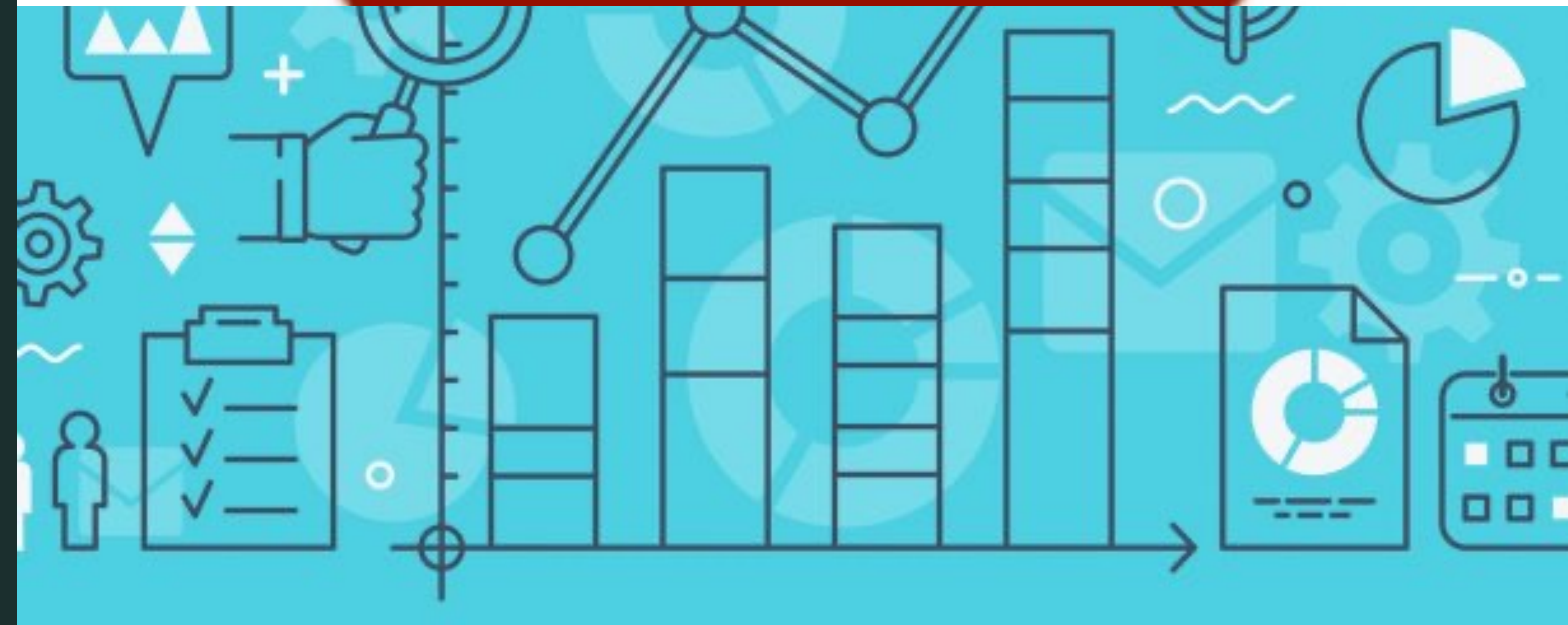
- What do you hypothesise?
 - Water can be cleaned with materials that are cheap
- What experiment did you do?
- Write down step by step



Results 成果

- How you know your filter works?
- How much water could you clean?
- If it is a proposal, you could just tell your expected result

實際測試
Test





製作原型
Prototype

實際測試
Test

Discussion 討論

- What are the future steps to make this idea real?
- 未來方向
- Talk about the good and bad parts about your idea!
- 你的想法與其他人的想法對比的優劣

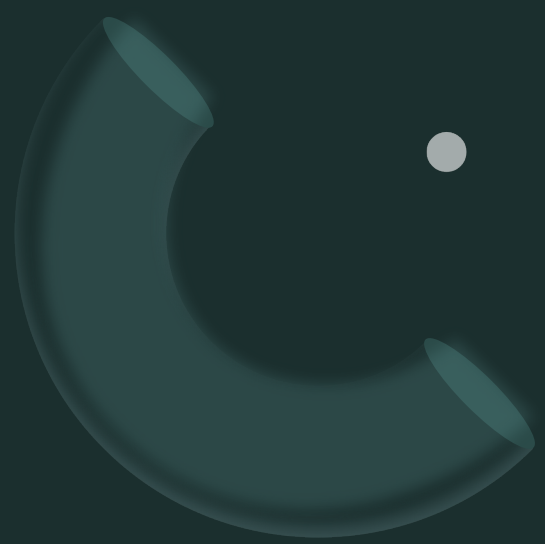


Conclusion 總結



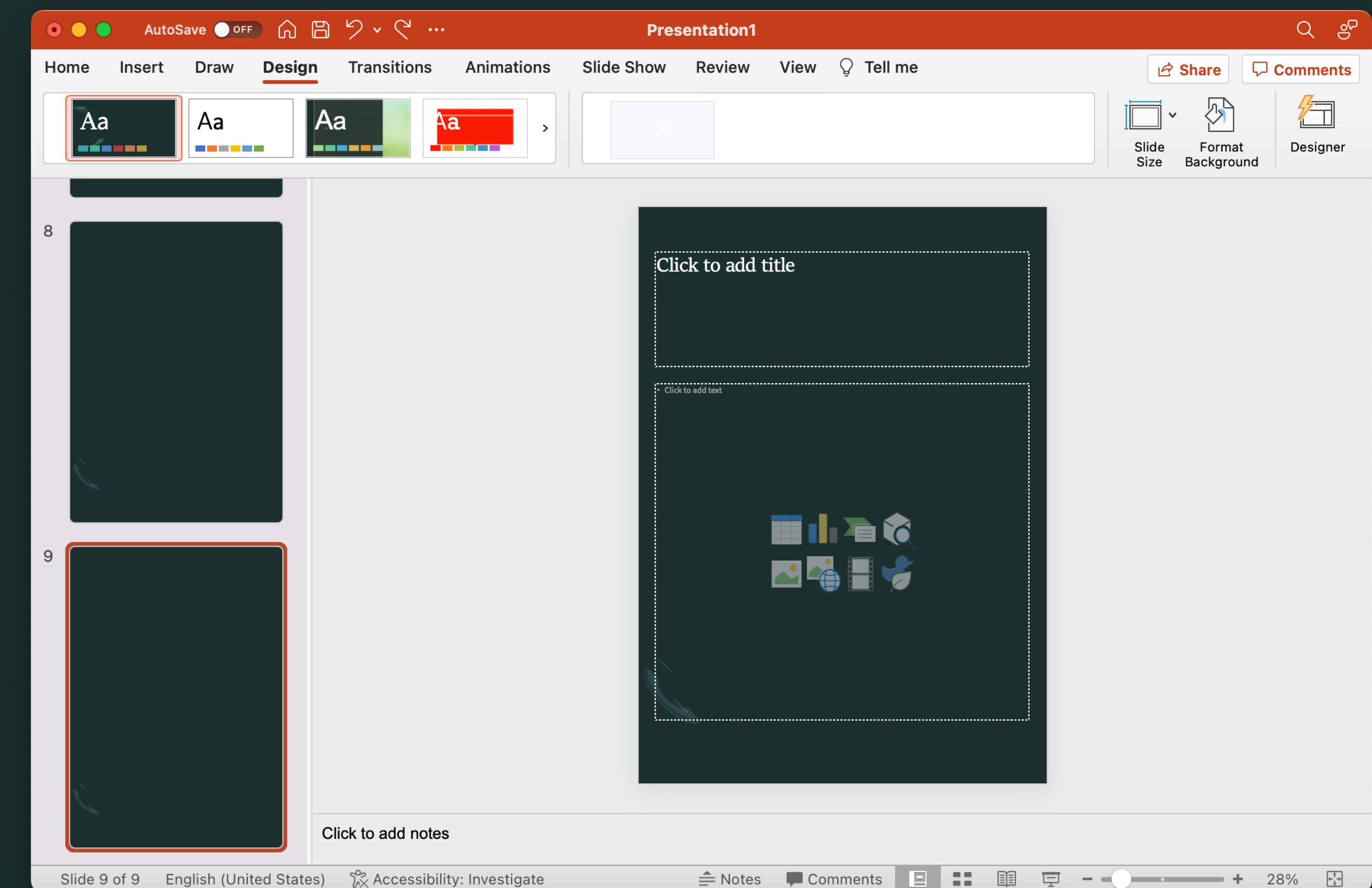
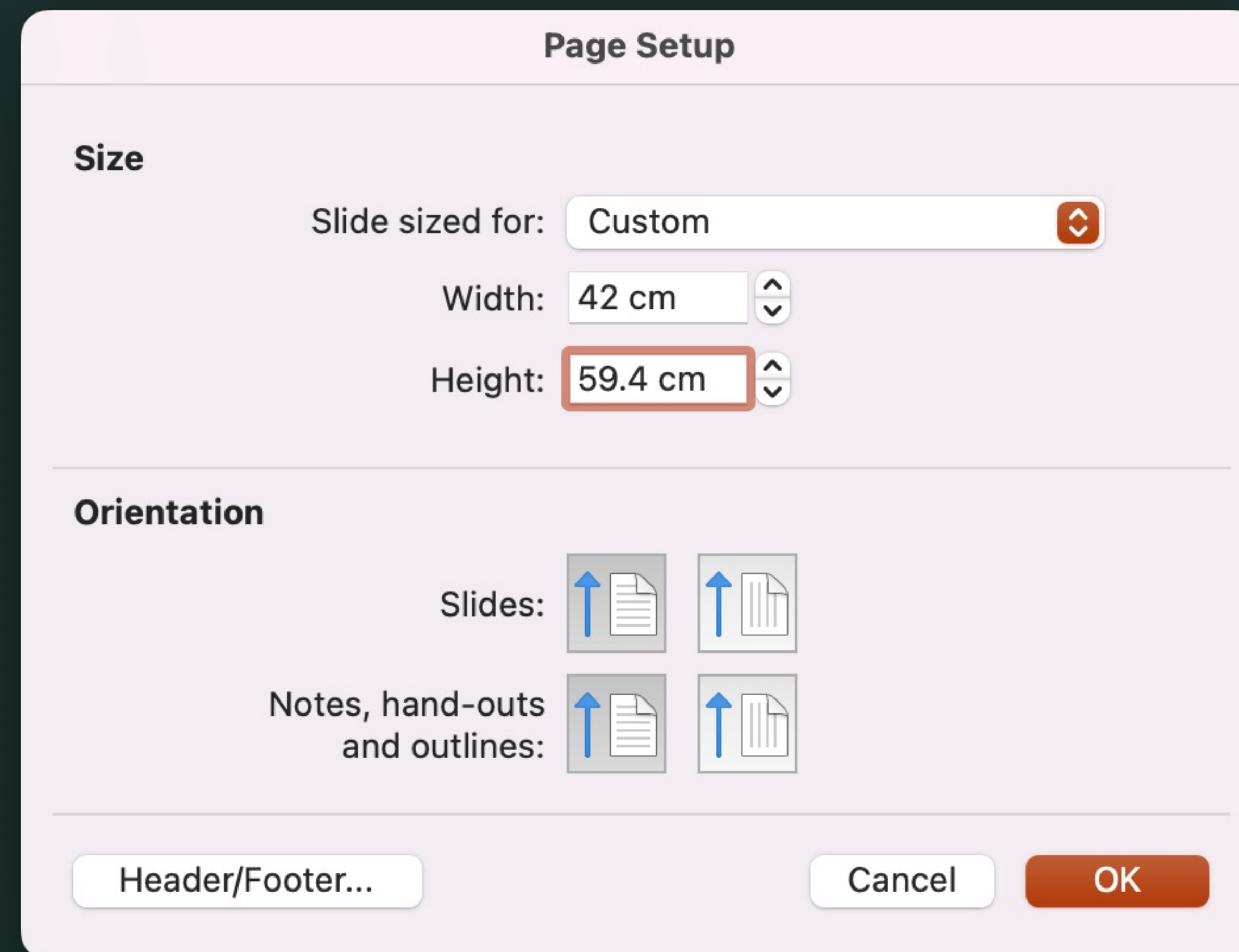
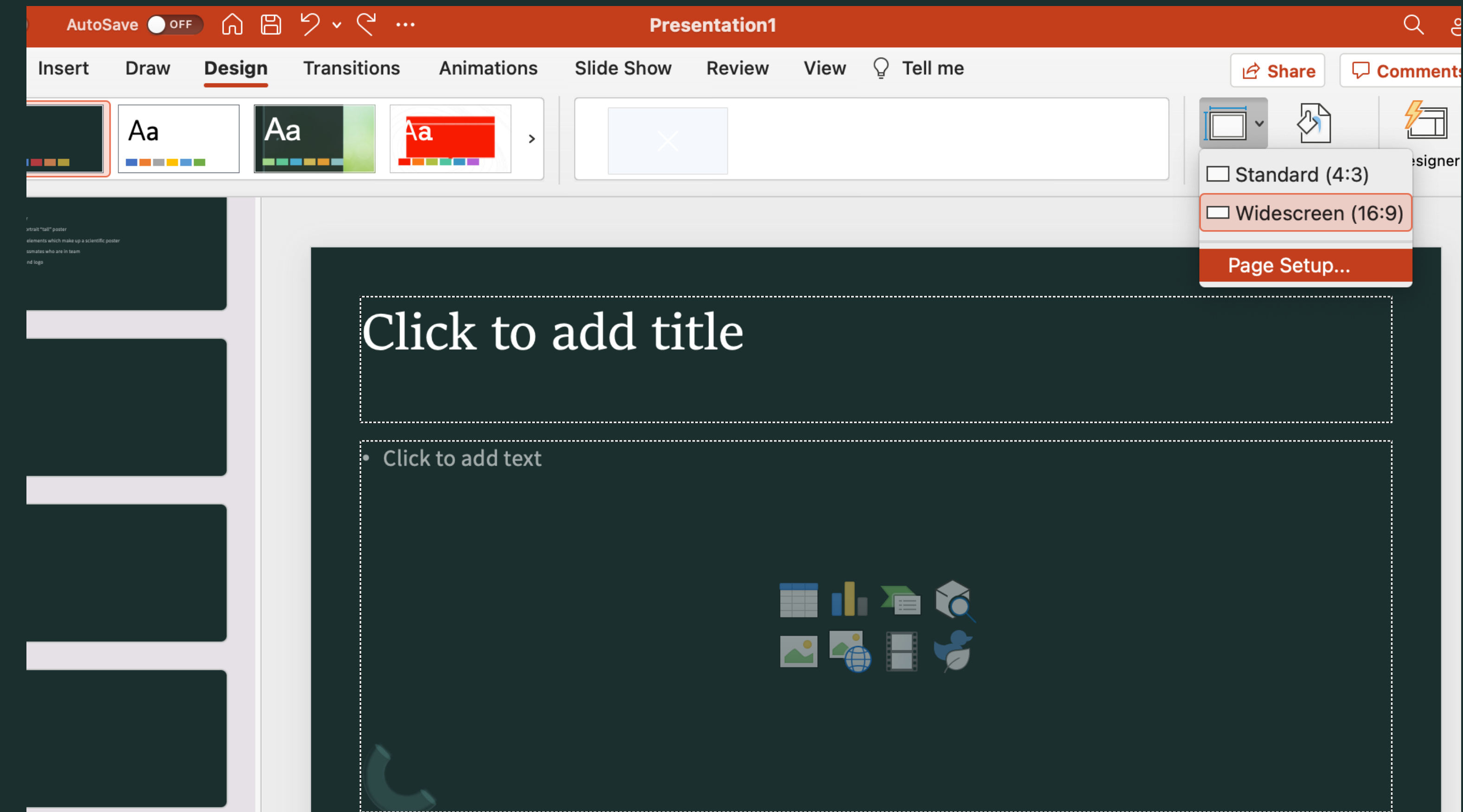
Designing tools 用什麼來設計？

- Software? 用軟件？用電腦？
 - Power point / illustrator/ 小畫家
 - Templates – there are free templates online but we will judge on creativity
 - Spend some time on google search for inspiration on designs
 - There are plenty of websites with ideas
- Hand made poster? 手畫？
 - Yes!
 - Use your imagination




Sizing 大細

- Use A2 size poster in portrait “tall”
- If using software such as powerpoint, please set 42cm width, 59.4cm height
- This ensures that the print will be the correct size!!!



Text in poster 海報中的文字



香港科技大學
THE HONG KONG
UNIVERSITY OF SCIENCE
AND TECHNOLOGY

ULTRAFAST GROUP



Enhancing the Absorption of Monolayer Molybdenum Disulphide with Silver Nanoprisms

Qiang Li¹, Christopher C. S. Chan¹, Jing Kong², and Kam Sing Wong^{1*}

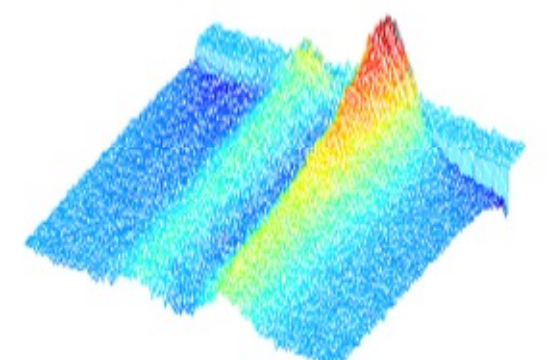
¹ Department of Physics, Hong Kong University of Science and Technology, Clear Water Bay, Kowloon, People's Republic of China
² Electrical Engineering & Computer Science, Massachusetts Institute of Technology, Massachusetts, USA
*Corresponding author e-mail address: phkswong@ust.hk

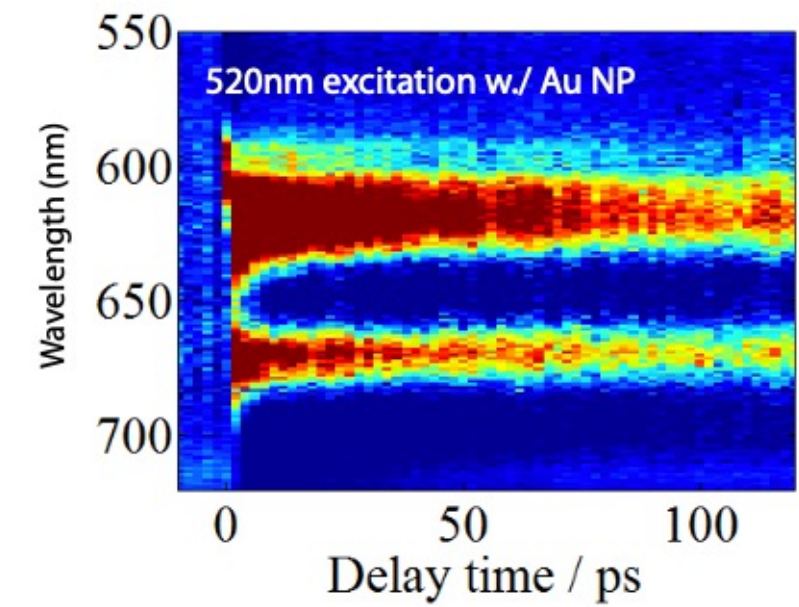
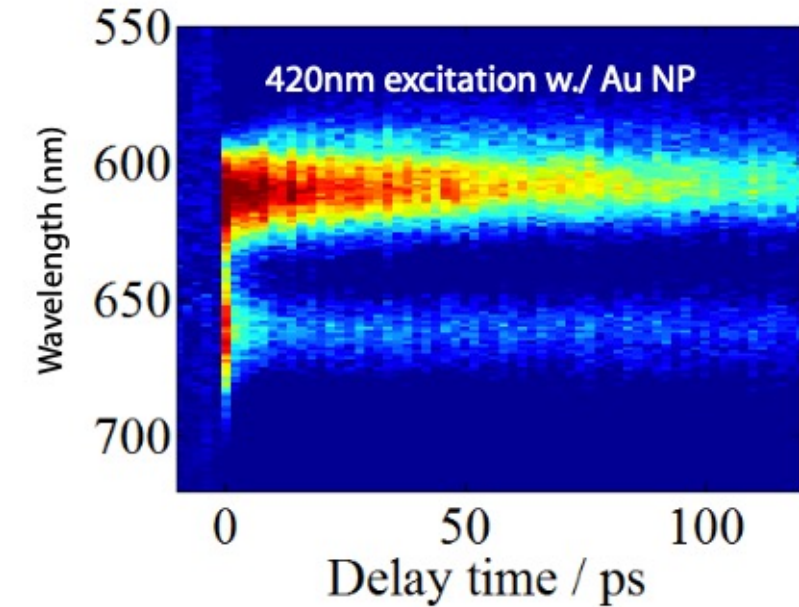
ABSTRACT Transient reflection measurements have been carried out to demonstrate that silver nanoprisms can be utilised in the enhancement of the absorption of atomically thin molybdenum disulphide. The broad resonance range of the silver nanoprisms support a localised surface plasmon resonance which increases the optical absorption efficiency by a 5-fold.

INTRODUCTION Owing to the lack of inversion symmetry, molybdenum disulphide (MoS_2) has a direct bandgap when atomically thin. Monolayer MoS_2 have thus attracted a great amount of attention especially in the fields of optoelectronics and valleytronics research. Due to its inherently thin structure, light absorption is relatively weak in atomically thin MoS_2 . This fundamentally limits the potential of the many conceived applications using this material. In our study, transient reflection spectroscopy technique is used to investigate the changes in optical properties of CVD grown mono-layer MoS_2 after spin-coating with silver nanoprisms.



- Large high quality monolayer MoS_2 grown by CVD on SiO_2/Si substrates
- Chemically synthesized silver nanoprisms were suspended in acetone





- With Ag nanoprisms, $\Delta R/R$ increase with both excitation sources
- A pump creates excited carriers, probe will decrease in absorption (bleaching) leading to an increase in $\Delta R/R$
- Therefore, a larger $\Delta R/R$ means more pump beam energy is being absorbed
- Significant enhancement in absorption of 520nm pump beam
- Similar transient behaviour within the 120ps timeframe for both laser
- Variation of exciton peak positions (PL and absorption) across sample

- 1 or 2 fonts only 1-2 種字體

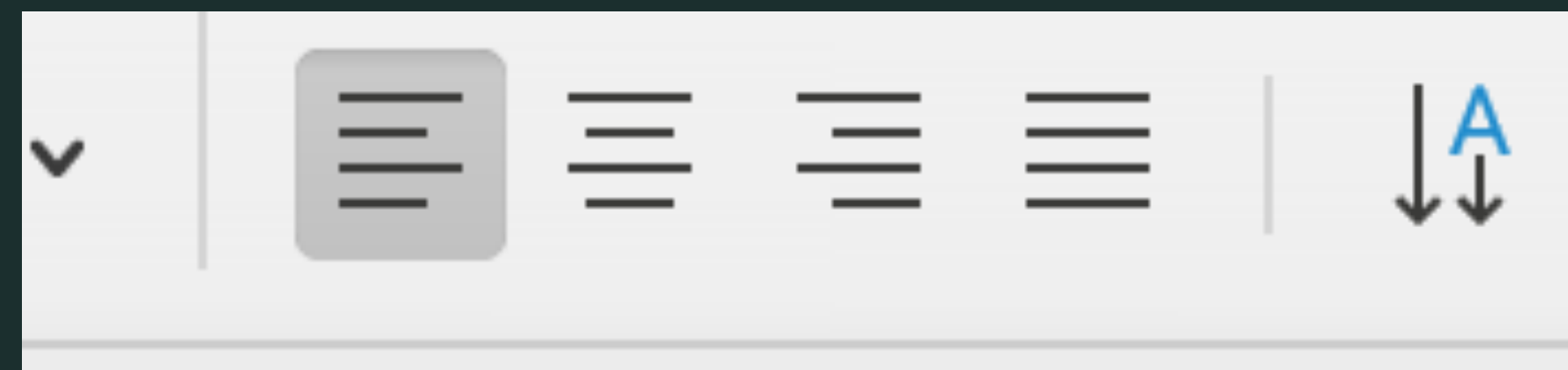
- Keep it readable 容易閱讀

- *No weird fonts*

- Different sections have different size fonts 不同部分可用不同字體大小

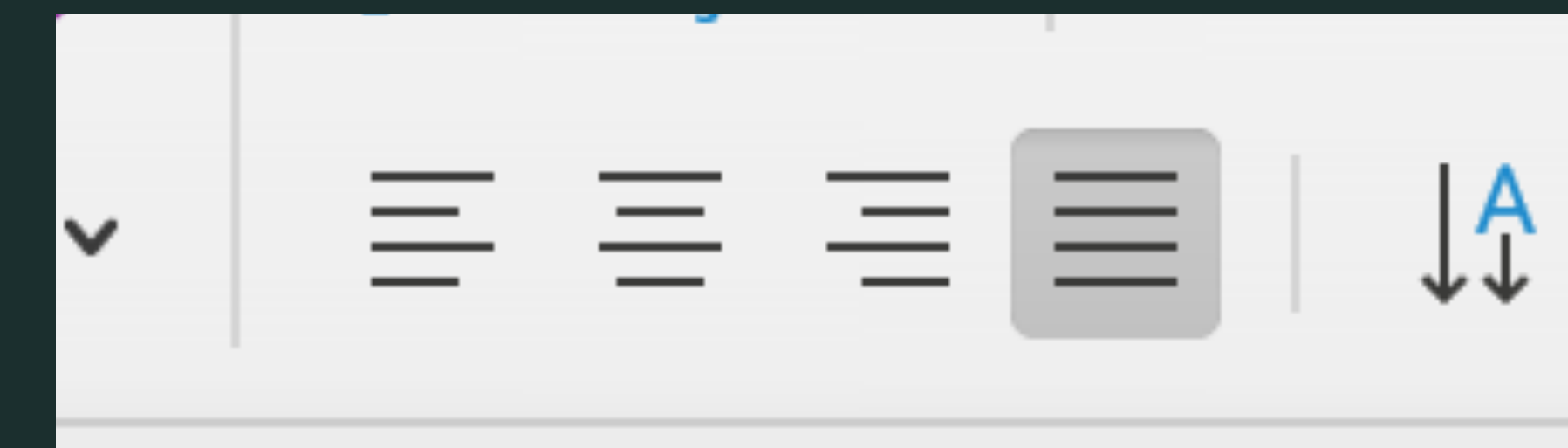
Texts in your poster – middle or left?

海報中的文字



It is the great prerogative of Mankind above other Creatures, that we are not only able to behold the works of Nature, or barely to sustain our lives by them, but we have also the power of considering, comparing, altering, assisting, and improving them to various uses. And as this is the peculiar privilege of humane Nature in general, so is it capable of being so far advanced by the helps of Art, and Experience, as to make some Men excel others in their Observations, and Deductions, almost as much as they do Beasts.

偏左 Left aligned looks easier to read



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置中 Justified fits in rectangles, harder to read, contains large spaces

Pictures and images 海報中的圖片

- Remember when printed large, pictures need to be good quality
- Check the images!



Pictures and images 圖片的出處

If you found the image on the internet, please reference where you found it!



Wikipedia: https://upload.wikimedia.org/wikipedia/commons/7/71/Wolfsburg_VW-Werk.jpg

Colours 顏色

- Keep to 2 or 3 colors vs many colours
- Don't use bold colours that CLASH
- <https://paletton.com/> Try using a colour wheel online to help you select colours that match
- Keep same colour scheme throughout

- Avoid using pictures as backgrounds



It is the great prerogative of Mankind above other Creatures, that we are not only able to behold the works of Nature, or barely to sustain our lives by them, but we have also the power of considering, comparing, altering, assisting, and improving them to various uses.

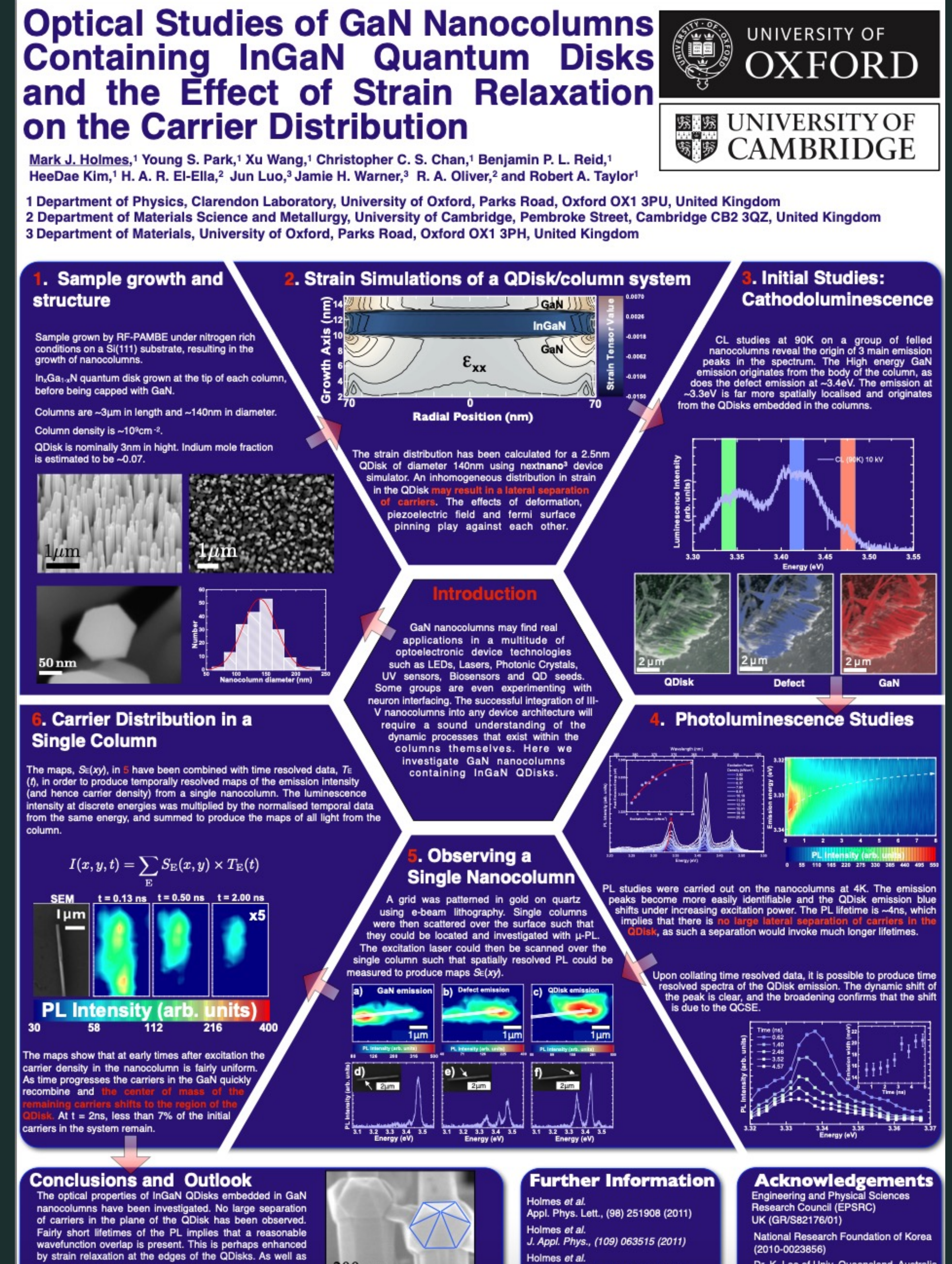
Light text on dark ?

It is the great prerogative of Mankind above other Creatures, that we are not only able to behold the works of Nature, or barely to sustain our lives by them, but we have also the power of considering, comparing, altering, assisting, and improving them to various uses.

Dark text on light?

Layouts 佈局設計

- Keep sections spaced out with “white space”
- Clear sections and flow from top to bottom, and Left to right
- Separate sections have titles



Presenting your poster 如何匯報你的海報



The elevator pitch 電梯演講 – quick explanation 簡單解釋

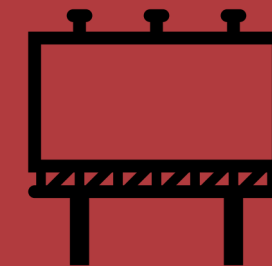


You want to be able to explain the key-points of your idea in the amount of time to ride an elevator

短時間就可講你所想



60 to 90 seconds 60-90秒



When someone comes to your poster and seems interested, give them your “elevator pitch”

可立即解釋給有興趣的人



Make eye-contact, speak to the person interested

眼神



Use the poster as TOOL to describe the key points -> pictures are worth a thousand words! 以海報及圖片為輔助

Your poster is a marketing device

你的海報係要引人來看的

- Your poster tells people about you / your team

海報要講你的隊伍

- You want the people to buy/support your idea

你希望籍海報使人支持你的想法

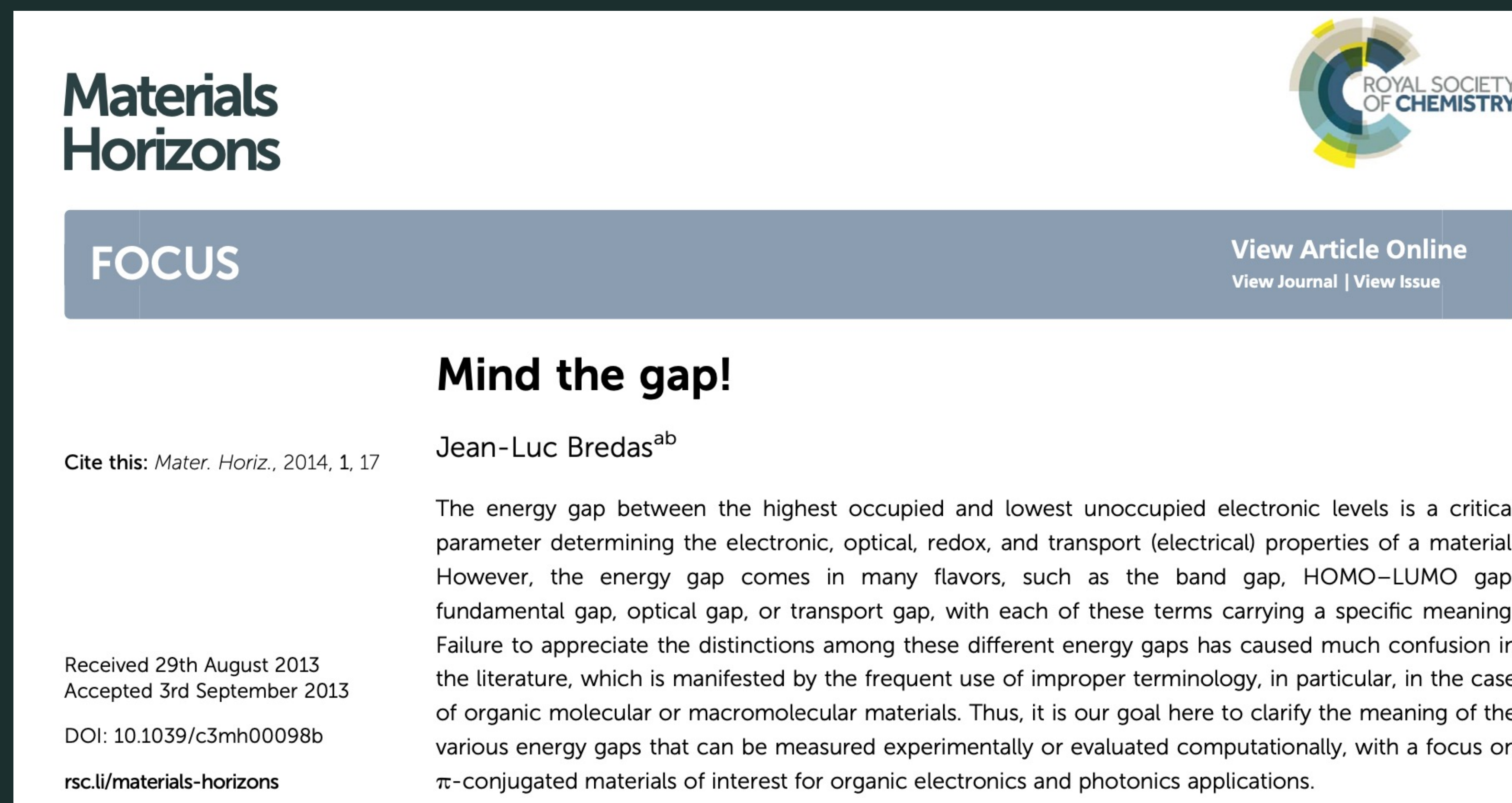
- What are your favourite adverts and why?



What makes a good poster

什麼是最好的海報？

- 觀眾注意！
- Grab viewers attention
- Get the people to read on
- Title short, but informative GRABS ATTENTION
 - **Creative titles (創意標題) are good**
- You do not want them to get confused or bored

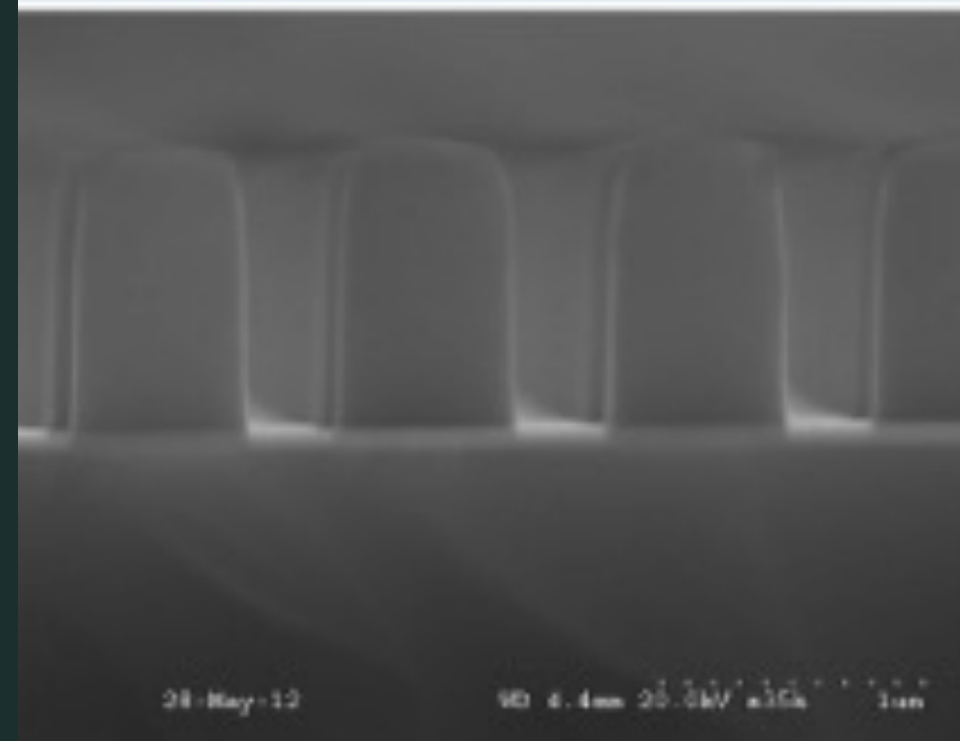


Poster Flow 海報風格

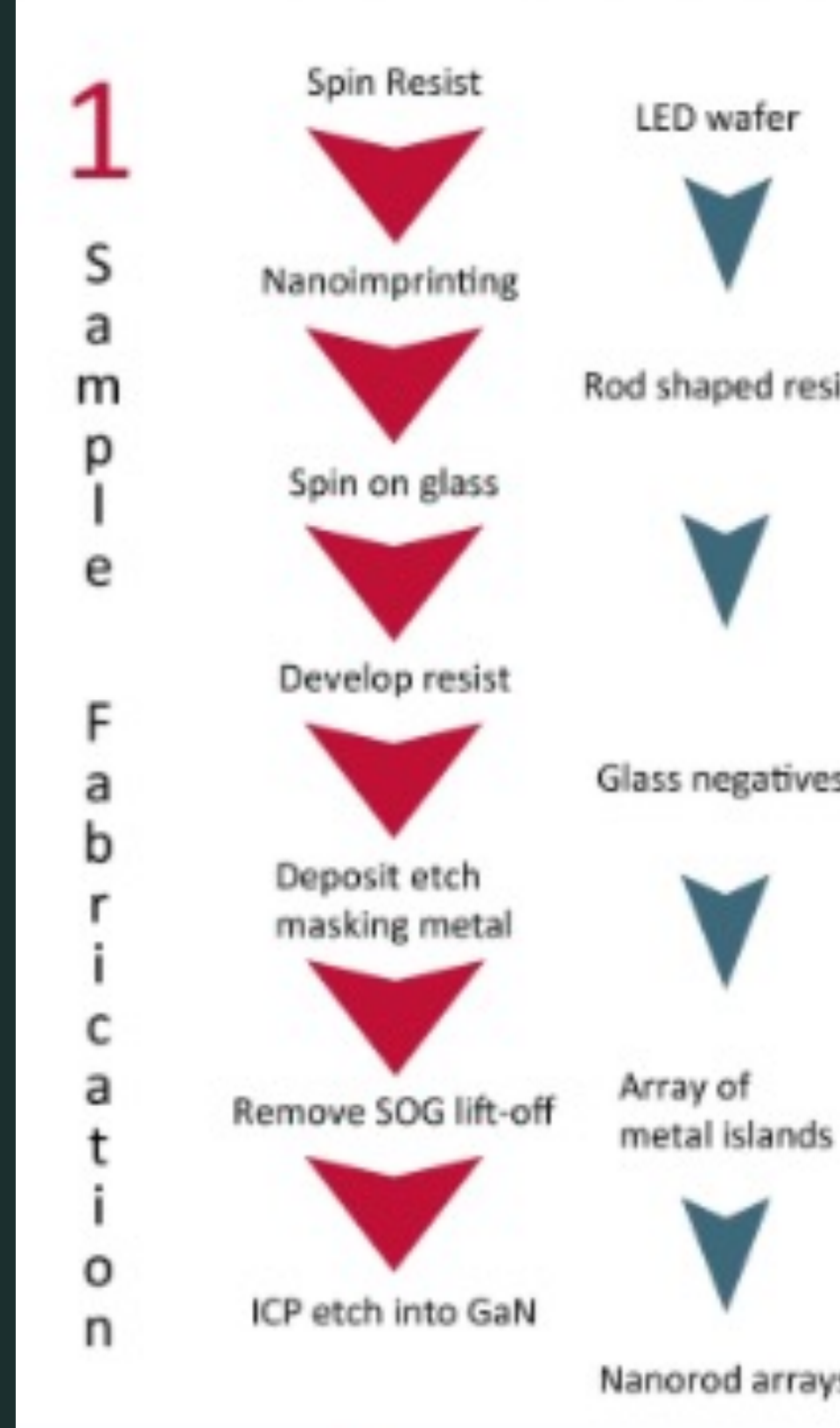
- Easy to follow 容易理解
- Clear label 清楚
- Number sections if messy
- Practice!!! 練習
- Read it out aloud yourself!
- Ask friend to read it to you

Carrier dynamics of single InGaN/GaN nano-LED fabricated on a wafer-scale nanorod array

Christopher C.S. Chan,^{1,*} Benjamin P.L. Reid,¹ Mark J. Holmes,¹ Wei Jia,¹ Robert A. Taylor,¹ Shingo Nakazawa,¹ Heedae Kim,¹ Yi Ding Zhuang,² Philip A. Shields,² Duncan W.E. Allsopp²
¹Department of Physics, University of Oxford, Clarendon Laboratory, Parks Rd, Oxford, UK
²Department of Electronic and Electrical Engineering, University of Bath, Bath, UK



Abstract Single nanorods fabricated on a wafer scale on an LED wafer have been studied using micro-photoluminescence. Nanorods have been attracting great interest as a means to increase extraction efficiency and to reduce the effect of strain induced complex recombination dynamics, enhancing radiative recombination efficiencies in LEDs. Wafer-scale fabrication of these nanorod arrays on pre-existing LED wafers by using nanoimprint lithography means that the technology can be imported to pre-existing manufacturing methods at much lower costs than for grown nanorods. Specific patterns can be made repeatedly at a very precise level, realising cost effective photonic crystal based LEDs for future applications not only as energy efficient lighting, but light sources tailored for polarisation, and wavelength.



2 Micro-Photoluminescence (PL)

- 400nm doubled Ti:Sapphire laser
- 1/3m spectrograph, CCD collection
- Helium flow cryostat mounted T=4.2K
- 100x 0.7NA apochromatic objective
- Confocal PL collection
- Piezo mounted with 10nm precision

Raster scanning on sample
Integrating PL generating spatial map
High contrast ratio ~ 200:1
Single nano-LED PL study is possible



Fig.1 Farfield PL image

SEM image

Confocal Microscopy PL Map

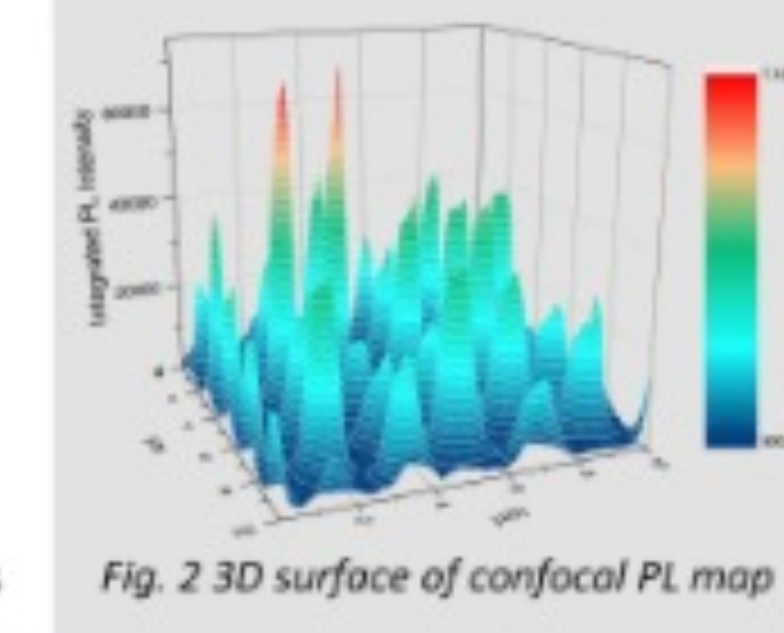


Fig. 2 3D surface of confocal PL map

4 Time Resolved Photoluminescence (TRPL)

- Time correlated single photon counting (TCSPC)
- Carrier lifetime is longer in nanorod (Fig.4)
- Non-monoexponential dynamic decay

Carrier dynamics examined:

- 1) Red shift in carrier emission as delay time increases
- 2) Emission peak becomes non gaussian-like after 75ns
- 3) Sharp peaks apparent at times above 200ns

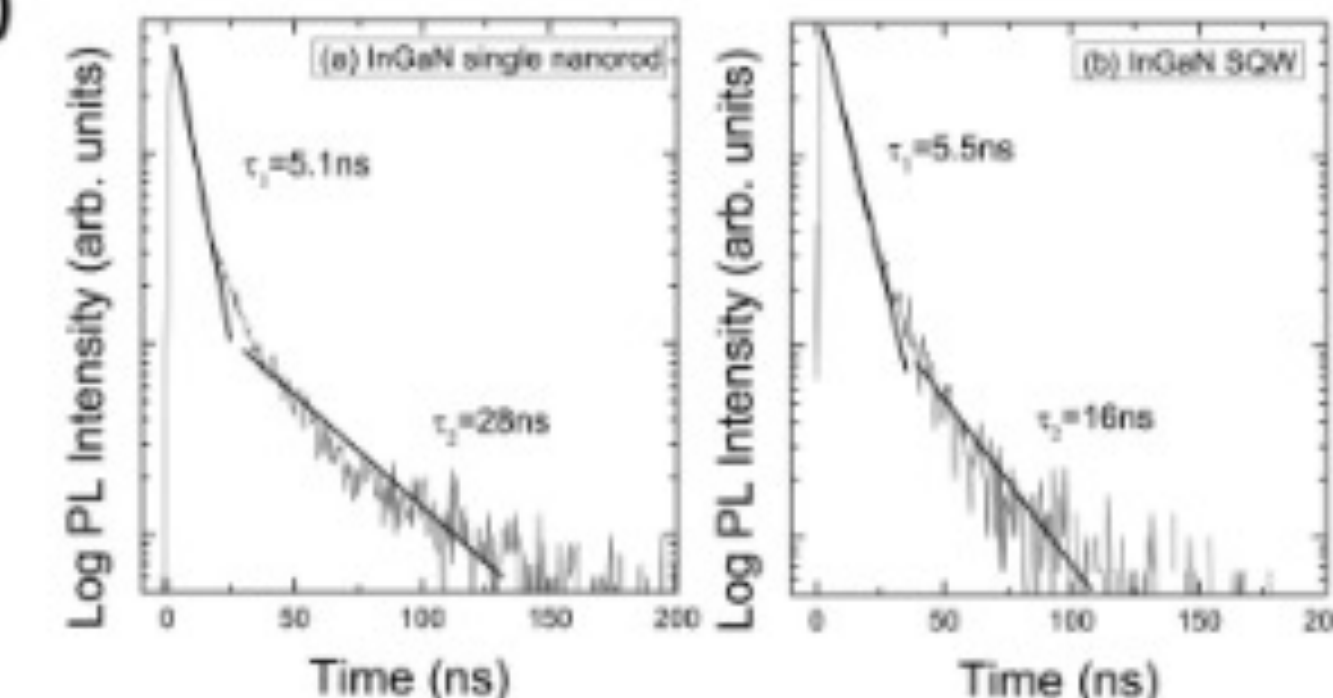


Fig.4 TRPL: (a) Single nanorod, (b) Unprocessed SQW

Energy (eV)

2.88 2.85 2.82 2.79 2.76 2.72 2.70

Effects in different stages of emission

0-20ns: Dominated by main well emission with quantum confined stark screened giving

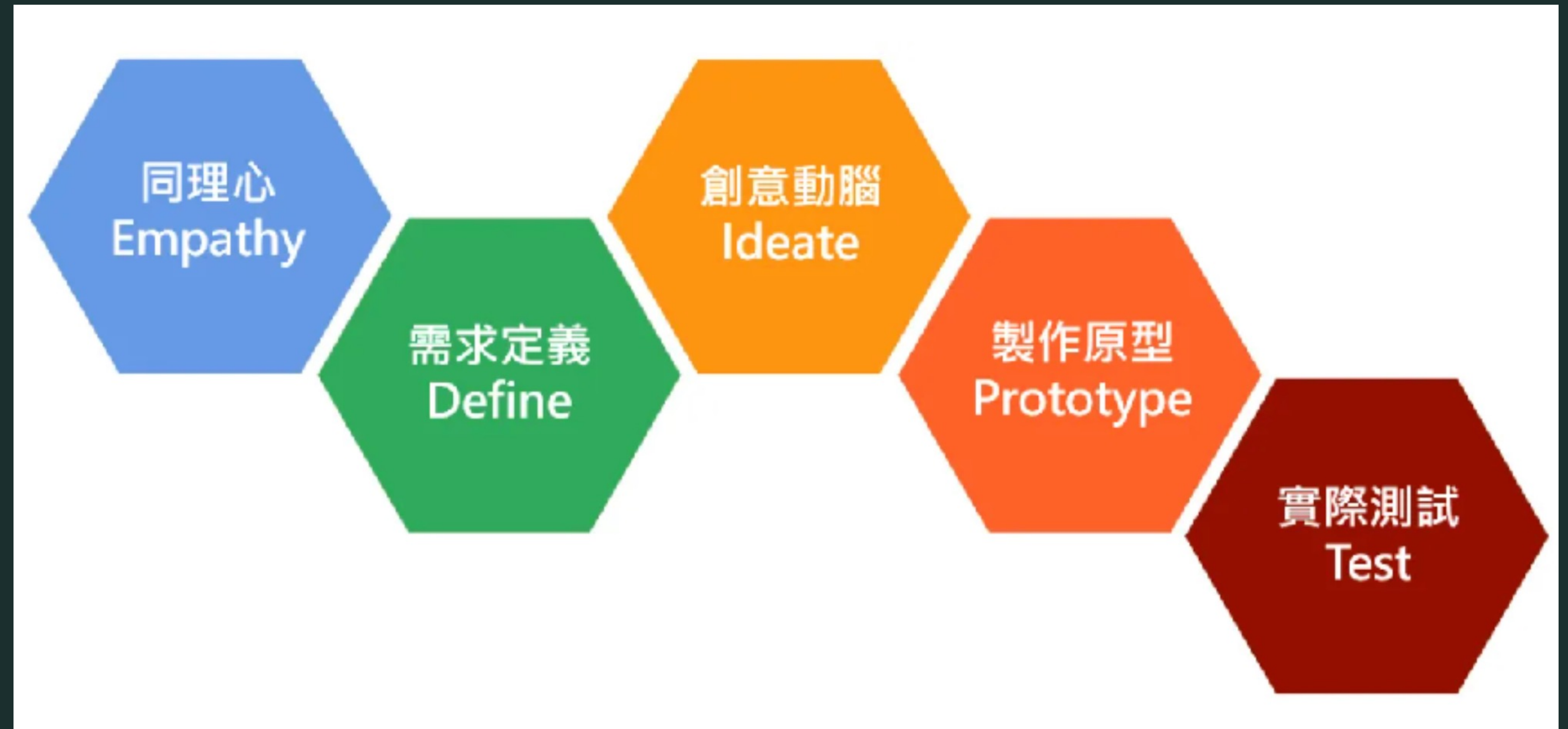
Think of your Audience

- Put yourself in their shoes!
- Easy to read?
- Think about what they would like to see



Poster sections

- Introduction 簡介
- Aims/Goals 目標
- Methods 方法
- Results 成果
- Discussion 討論
- Conclusions 總結
- References 參考資料

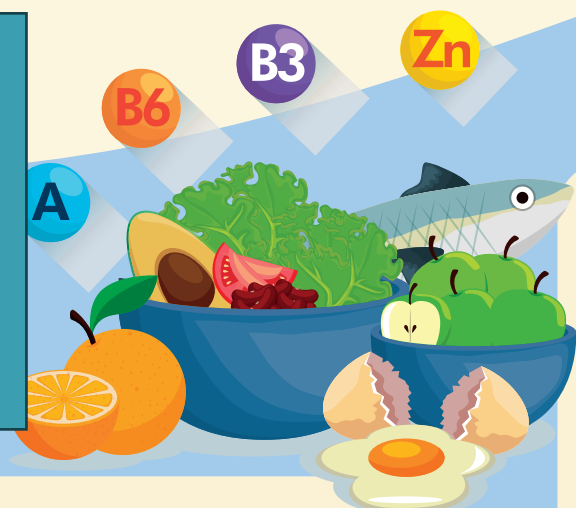


上年題目

- 同學設計一個使用光學/人工智能的實驗, 以解決/解答我們日常生活中遇到的問題
- 方向: 食品安全, 環境健康, 生理健康等
- 設計一個實驗, 並不需要同學實際完成該實驗, 如有初步結果為加分項



營養識別智能眼鏡



目標

我們目標是製作一副「營養識別智能眼鏡」，根據用戶的年齡、性別、職業、活動量和個人疾病等，如糖尿病、乳糖不耐症、透析、食物過敏患者，在飲食上有限制，需要小心選擇食物的攝取，智能眼鏡能識別食物內可以食用的物質，透過智能眼鏡快速了解食物嘅成分。



- 掃描儀 -
可以掃描出人體的身高和體重，作出較準的身高體重

例子1：掃描薯片 - 顯示
熱量 547 大卡；碳水化合物 49.74克；脂肪 37.47 克；蛋白質 6.56 克。



例子2：掃描麥片顯示
熱量 379大卡；碳水化合物 68克；脂肪 7 克；蛋白質 13 克。
非水溶性膳食纖維6.2克；水溶性膳食纖維是3.2克；

方法

出於健康原因，許多人必須在家接受監測，美國和歐洲的醫生開始看到愈來愈多的老年病患者配戴智慧手錶，我們預期下一件普及的智能穿戴物品將會是眼鏡。#2



鏡片：可以投影出各種食物的營養標籤註
這款眼鏡可以使用在原先有戴眼鏡的

成果

- 這個眼鏡可以分析該食物的原材料（例如：巧克力的原材料是咖啡豆）以及所包含的名稱、成分、含量、能量值及七種核心營養素例如：脂質（反式脂肪）（飽和脂肪）、碳水化合物（糖）、維他命等，並投影到鏡片，從而令使用者得知該食物是否符合本人每日的營養所需。
- 就着各種不同年齡層、性別、體質的人士提供均衡膳食餐單，顯示應攝取該食物的份量。

討論

- 需要物色不同年齡、性別、體重的人做測試
- 鏡頭會否錯誤識別食物，顯示不正確的營養成分
- 此設計/系統針對哪些人士？是否需要限制使用？（例如厭食症患者會否因眼鏡顯示食物是高脂高能量，而更抗拒進食？）
- 需要保留眼鏡主要功能（矯視）？近視/遠視/散光的人如果度數加深如何更換鏡片？

總結

我們的身體每天需要一定分量的營養素來維持最佳狀態。我們設計這副「營養識別智能眼鏡」，希望透過智能眼鏡快速識別系統，分析個人化數據，幫助使用者根據營養成份選擇食物。

適當的日常飲食維持或促進健康，降低患上因營養失衡引致的疾病風險，例如營養不良或肥胖，甚至貧血、骨質疏鬆、厭食症、腎功能受損、免疫力功能下降、高血壓、心臟病等。

參考資料

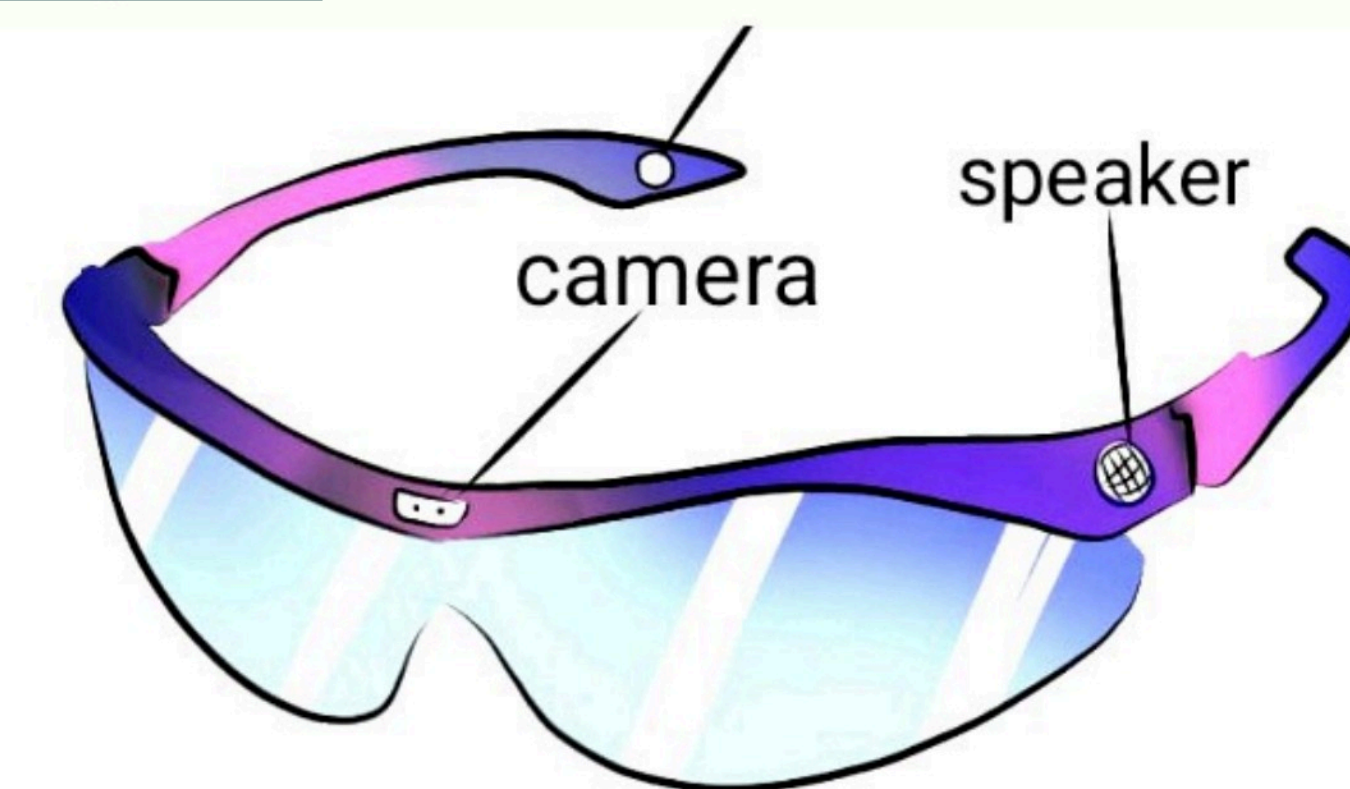
- #1. 青少年健康相關行為監測數字
<https://www.chp.gov.hk/tc/statistics/data/10/757/5513.html>
#2. 人人都有穿戴裝置的時代來臨？
https://www.schroders.com/zh-tw/tw/asset-management/insights/market-insights-index/20220525_is-wearable-device-age-coming/

HOPEFULSCOPE

Have you ever think about when your life be when being a disable?

Introduction

Have you ever think about being a disable person? Without doubt, their daily life are not easy and different from what normal people do everyday. Therefore, we think technology could help to deal with their daily problems. So that we designed an electronic device to provide them daily life convenience. We name it "Hopefulscope" which gives hope to those disables.



Aims

The aim of our design is to give the disables assistive technology to help them have an easier life. Also, this design tells blind people where they are going and what objects and things they see. As well to help wheelchair users to travel easier.

Discussion

Since our target user are wheelchair-bound and blind people, we can approach some NGO such as the Hong Kong Society For The Blind, and to get the feedback from the users.
Advantages:
It's a typical personal belongings, and it is easy to be accepted by public.
Disadvantages:
Our product needs to be tailor-made for those who have vision problems such as being short-sighted.

Methods

Our method of testing this "Hopefulscope" is to observe the wheelchair user schoolmate and ask about her feelings in the wheelchair. Also, we asked different teachers and classmates about their view of this "Hopefulscope" to collect more information.

Results

In our proposal, we hope this "Hopefulscope" we designed are useful to disabled people according to the interviews of others.

Conclusion

In conclusion, we introduced about our design of "Hopefulscope" and we hope this design could truly help the disabled people to live easily.

目標

我們目標是製作一副「營養識別智能眼鏡」，根據用戶的年齡、性別、職業、活動量和個人疾病等，如糖尿病、乳糖不耐症、透析、食物過敏患者，在飲食上有限制，需要小心選擇食物的攝取，智能眼鏡能識別食物內可以食用的物質，透過智能眼鏡快速了解食物嘅成分。

而女生從16%增加到17%從這裡可以看得出超重和肥胖的問題一直在增加。#1

每個人的膳食需求和吸取營養素的份量各不同，食物物質攝取不足會引致各種營養缺乏病，而攝取過量也會增加出現冠心病、高血壓和糖尿病等的健康問題的風險。

因此我們希望能發明一副「營養識別智能眼鏡」，降低患上各種疾病的風險和建立健康生活模式。



- 掃描儀 -
可以掃描出人體的身高和體重，作出較準的身高體重

方法

出於健康原因，許多人必須在家接受監測，美國和歐洲的醫生開始看到愈來愈多的老年患病者配戴智慧手錶，我們預期下一件普及的智能穿戴物品將會是眼鏡。#2



鏡片：
可以投影出各種
食物的營養標籤註

這款眼鏡可以使用
在原先有戴眼鏡的上

例子1： 掃描薯片 -
顯示
熱量 547 大卡；碳水化合物 49.74克；脂肪 37.47 克；蛋白質 6.56 克。



例子2： 掃描麥片
顯示
熱量 379大卡；
碳水化合物 68克；脂肪 7 克；
蛋白質 13 克。
非水溶性膳食纖維6.2克；
水溶性膳食纖維是3.2克；

成果

- 這個眼鏡可以分析該食物的原材料（例如：巧克力的原材料是咖啡豆）以及所包含的名稱、成分、含量、能量值及七種核心營養素例如：脂質（反式脂肪）（飽和脂肪）、碳水化合物（糖）、維他命等，並投影到鏡片，從而令使用者得知該食物是否符合本人每日的營養所需。
- 就着各種不同年齡層、性別、體質的人士提供均衡膳食餐單，顯示應攝取該食物的份量。

討論

- 1.需要物色不同年齡、性別、體重的人做測試
- 2.鏡頭會否錯誤識別食物，顯示不正確的營養成分
- 3.此設計/系統針對哪些人士？是否需要限制使用？(例如厭食症患者會否因眼鏡顯示食物是高脂高能量，而更抗拒進食？)
- 4.需要保留眼鏡主要功能(矯視)？近視/遠視/散光的人如果度數加深如何更換鏡片？

總結

我們的身體每天需要一定分量的營養素來維持最佳狀態。我們設計這副「營養識別智能眼鏡」，希望透過智能眼鏡快速識別系統，分析個人化數據，幫助使用者根據營養成份選擇食物。

適當的日常飲食維持或促進健康，降低患上因營養失衡引致的疾病風險，例如營養不良或肥胖，甚至貧血、骨質疏鬆、厭食症、腎功能受損、免疫力功能下降、高血壓、心臟病等。



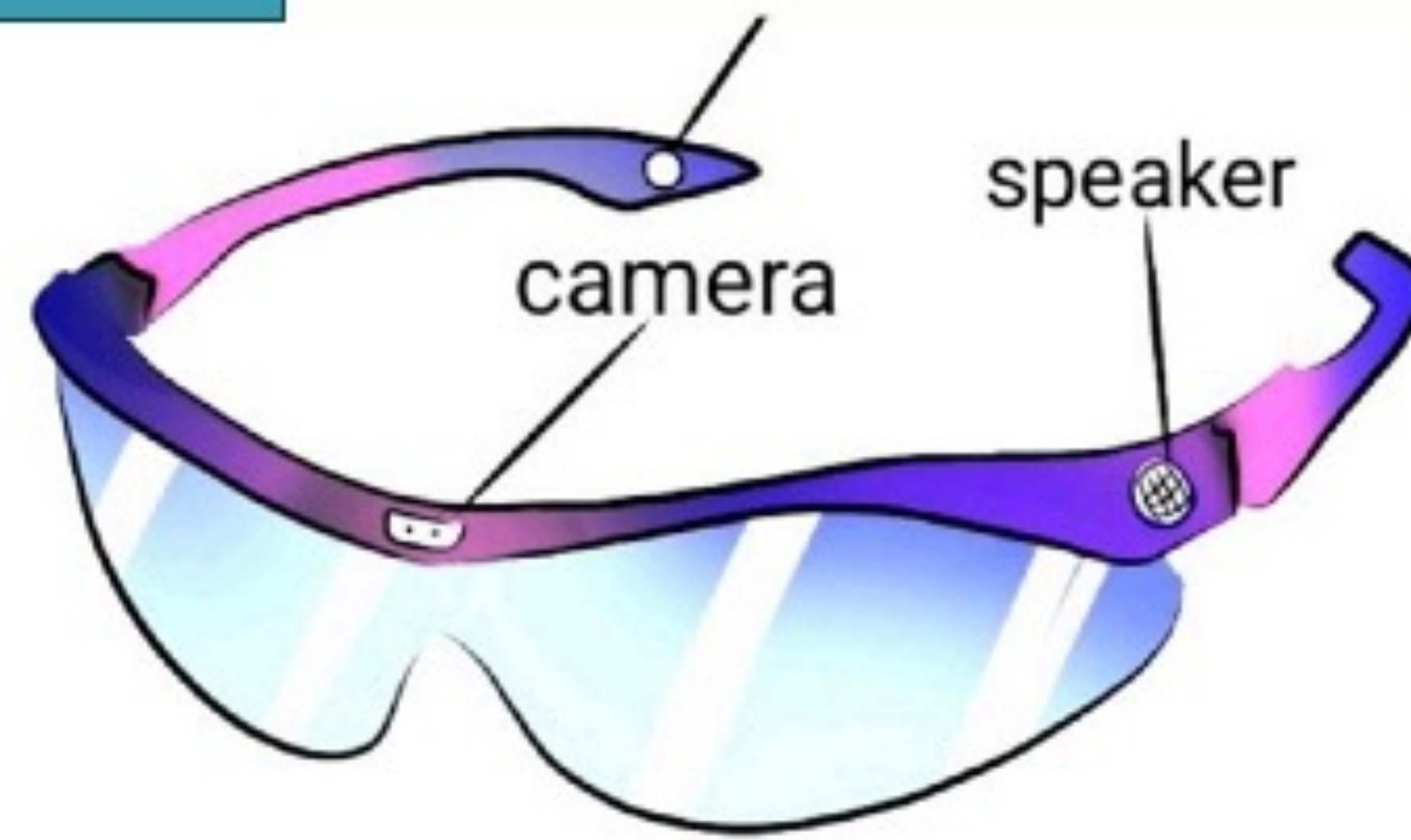
參考資料

- #1. 青少年健康相關行為監測數字
<https://www.chp.gov.hk/tc/statistics/data/10/757/5513.html>
#2. 人人都有穿戴裝置的時代來臨？
https://www.schroders.com/zh-tw/tw/asset-management/insights/market-insights-index/20220525_is-wearable-device-age-coming/

Have you ever think about when your life be when being a disable?

Introduction

Have you ever think about being a disable person? Without doubt, their daily life are not easy and different from what normal people do everyday . Therefore, we think technology could help to deal with teir daily problems. So that we designed an electronic device to provide them daily life convenience.We name it "Hopefulscope" which gives hope to those disables.



Aims

The aim of our design is to give the disables assistive technology to help the have an easier life.Also, this design tells blind people where they are going and what objects and things they see.As well to help wheelchair users to travel easier.

Disscussion

Since our target user are wheelchair-bounded and blind people , we can approach some NGO such as the Hong Kong Society For The Blind,and to get the feedback from the users
Advantages:
It's a typical personal belongings, and it is easy to be accepted by public
Disadvantages:
Our product needs to be taulor-made for those who has vision-problem such as being short-sighted

Methods

Our method of testing this "Hopefulscope" is to observe the wheelchair user schoolmate and ask about her feelings in the wheelchair.Also, we asked different teachers and classmates about their view of this "Hopefulscope" to collect more information.

Results

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Conclusion

In conclusion, we introduced about our design of "Hopefulscope" and we hope this design could truly help the disables to live easily.

近年香港社經發展受挫，試以光學或混合現實解決

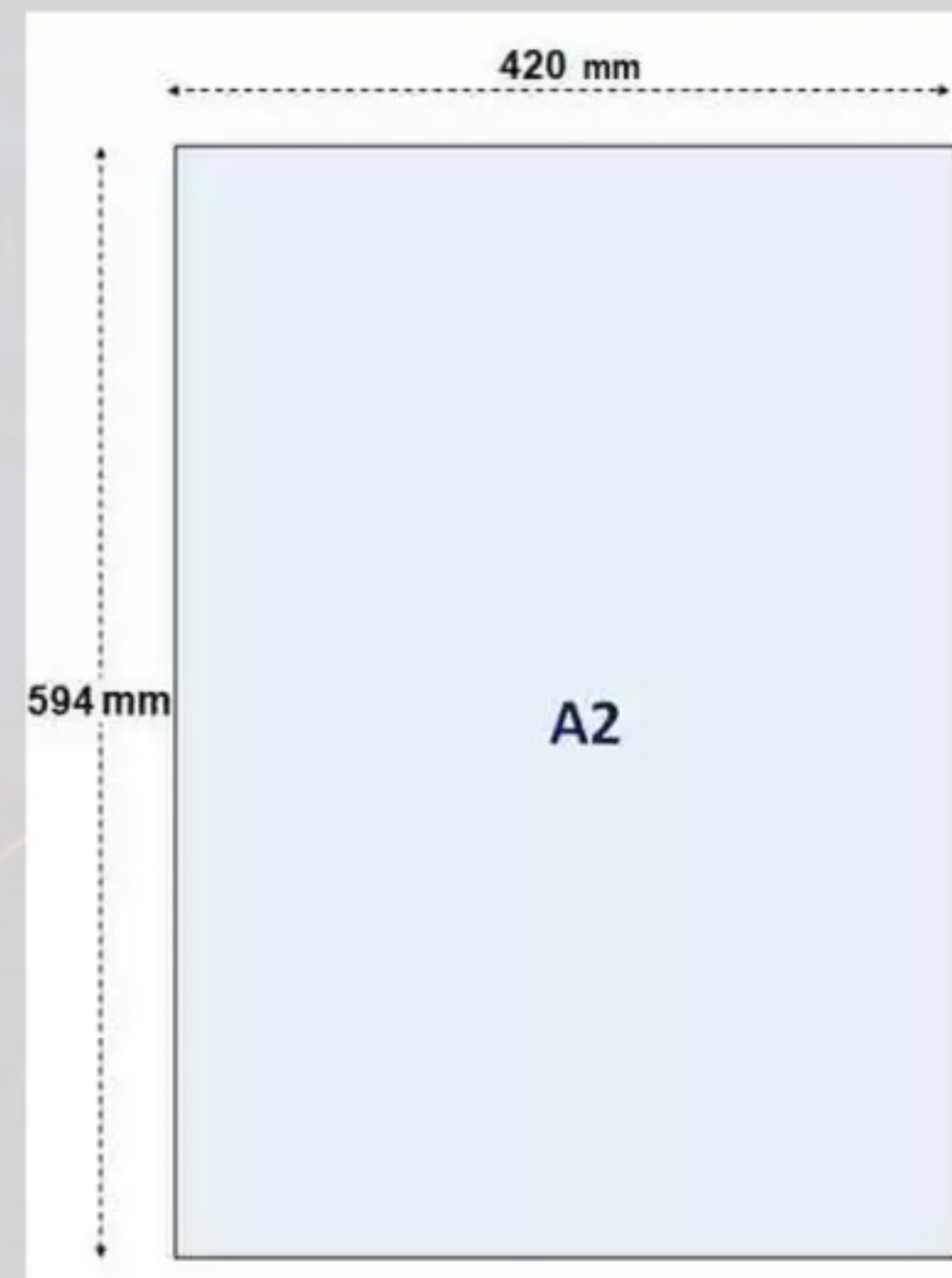
1. 旅遊業
2. 居住問題
3. 醫療問題
4. 老年化
5. 環境與能源

In recent years, Hong Kong's socio-economic development has been hindered. Use optical or mixed reality to solve the following issues:

1. Tourism industry
2. Housing problem
3. Healthcare problem
4. Aging population
5. Environment and energy

格式

- A2 sized poster
- Rectangular portrait “tall” poster
- Include all the elements which make up a scientific poster
- Clear list of classmates who are in team
- School name and logo
- Deadline: 15/09 23:59 (software)



科學海報比賽及頒獎儀式

科學海報比賽及頒獎儀式將於2023年9月23日上午舉行。如需主辦方協助印刷，參與同學需要在9月15日中午前提交參賽海報電子版；否則請在9月23日上午比賽開始前預留足夠時間於比賽場地懸掛參賽海報。

9月23日上午 9:00-12:00 生產力大樓(九龍塘達之路78號),

主辦方將邀請大學教授、資深科技行業從業者、教育工作者等作為比賽評判，並於賽後做出獎項評比。

"The Science Poster Competition and Award Ceremony will be held on the morning of September 23, 2023. Participants who require assistance from the organizers for printing their posters should submit the electronic version of their poster by noon on September 15; otherwise, please reserve enough time to hang the posters at the competition venue before the start of the competition on September 23.

Date and Time: September 23, 9:00-12:00, at the Productivity Building (78 Tat Chee Avenue, Kowloon Tong).

The organizers will invite university professors, senior professionals in the technology industry, and educators to serve as judges for the competition, and awards will be announced after the competition."