



(Mine)crafting student projects into public engagement and teaching experiences

Richard Fitzpatrick, Siobhan Vickerstaff, Perrin Grant,
Kate Duggan, & Zimo Liu



Workshop Details

Intro

(10 mins)

Reflections and insights

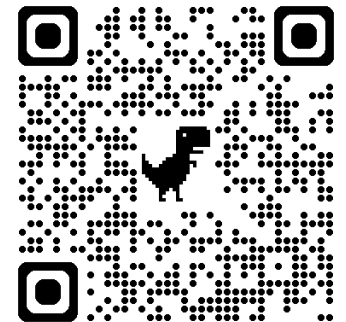
(4 x 6 mins)

Q & A and hands on stations

(25 mins)

Email follow ups: **rfitzpa2@ed.ac.uk**

More info:



For self-study & creative assessment

(Okuk Takon, Srivatsan Rajagopalan, Simon Parker, Connor Schlemmer)

For science communication

(4273π, SBS Public Engagement, Neuron Safari, Jessica Mitchell)

For AR prototyping

(EdAR, Simon Parker)

MINECRAFTED
(2019 -)

For Honours & MSc Projects

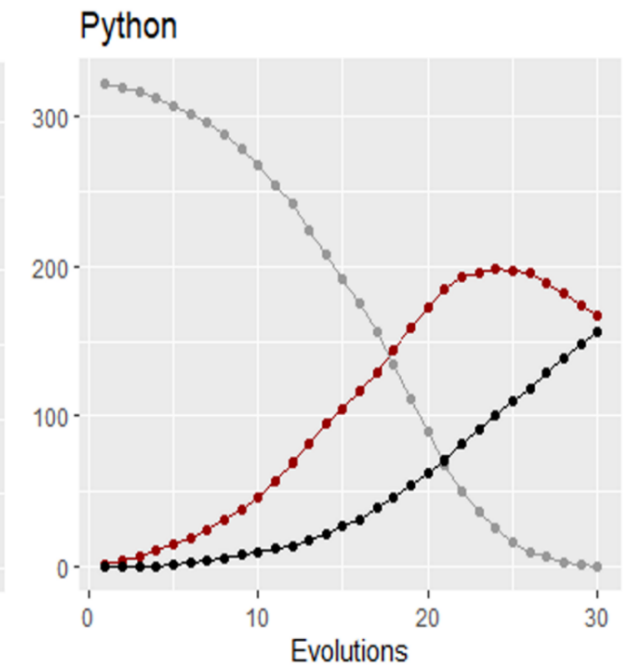
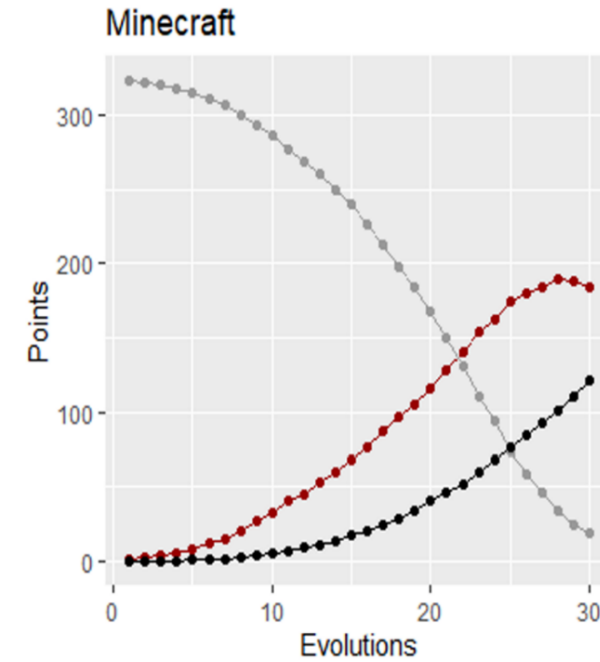
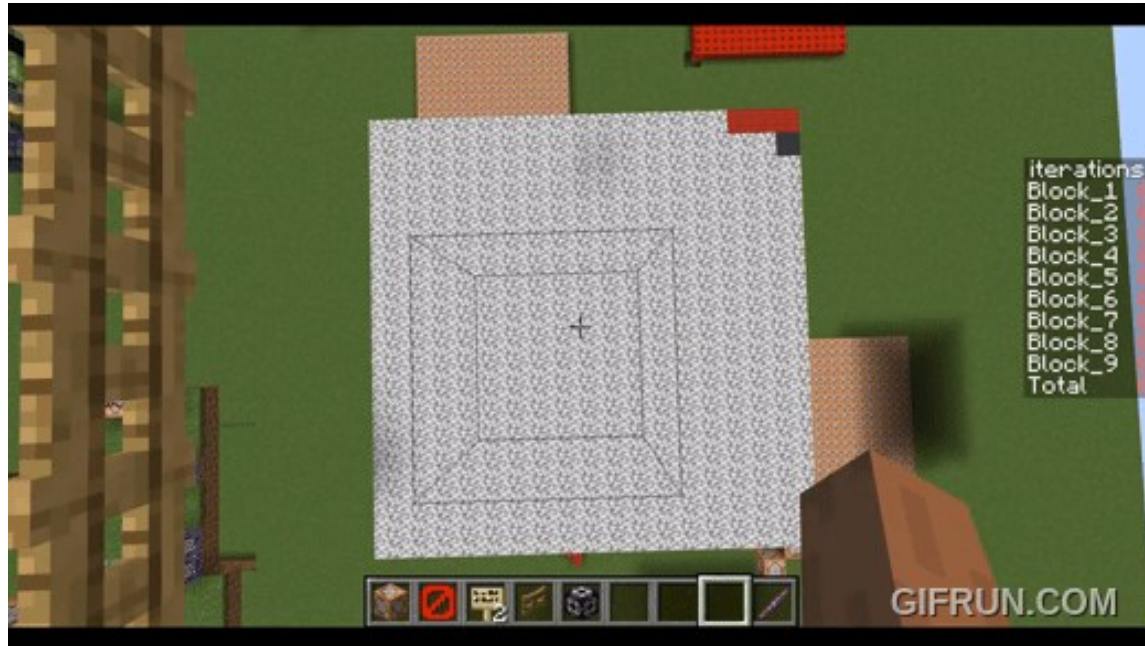
(Siobhan Vickerstaff, Perrin Grant, Chenxi Zhang, Kayla McAvinney, Zishan Jin, Zimo Liu)

For teaching

(Field Zoology 3, Infection & Immunity 3, Infection 3 @ZJE)

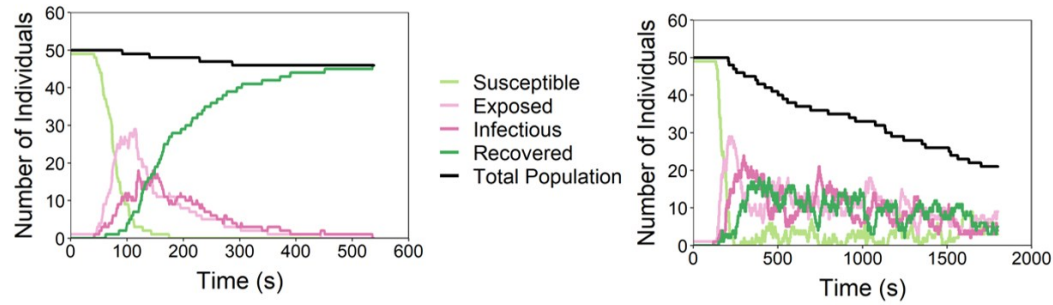
For research & community science

(Dr Dorothy Tse, Dr Antonis Asiminas)

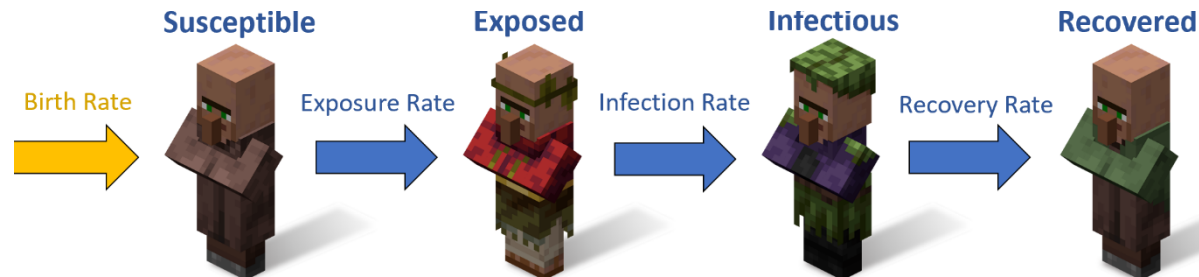
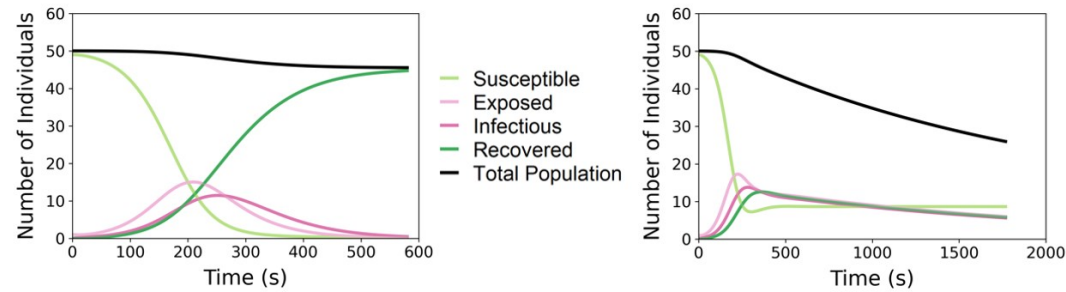


Siobhan
(2020)

Minecraft
Stochastic



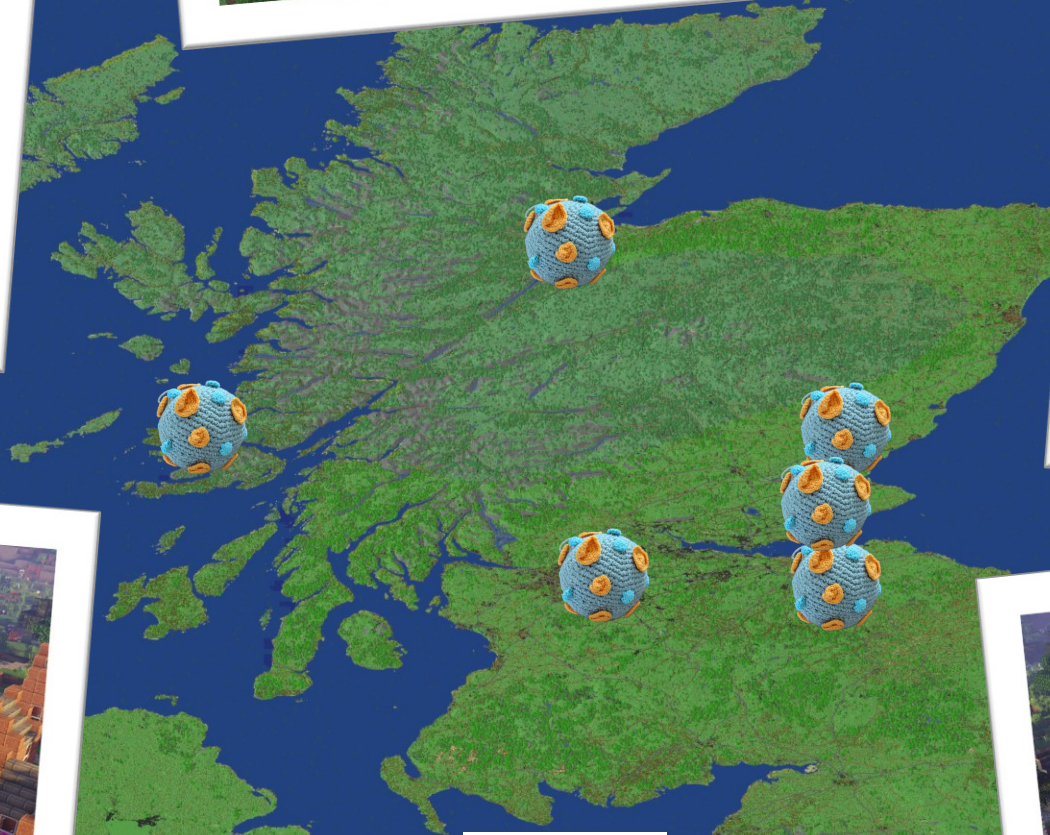
Python



Perrin
(2022 - 3)

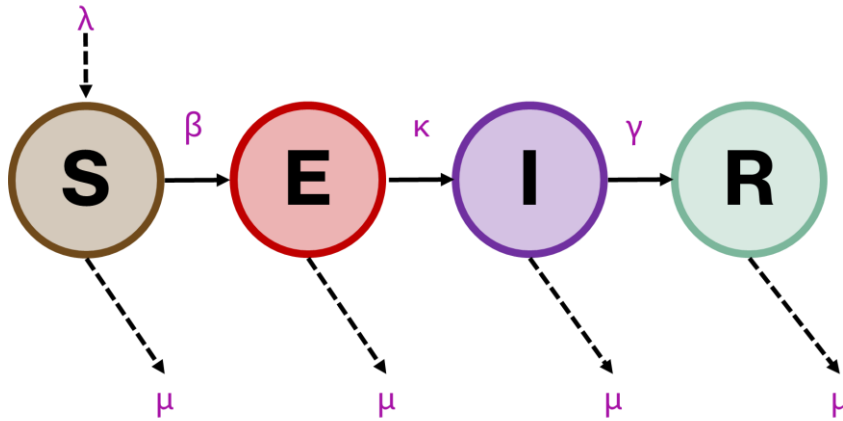
Maria & Kate
(2022 –)

Perrin 2.0
(2023 – 4)



Zimo (2026)

Me! (2025 -)



Genetic Sequences

Sequence
Analyser

VillagerID: 1036
Sequence:
CATACGAACCAAAAGTGTCCAGGCCAGATGGCTTCCCGGTCACTGGCCC
TCGTGATGGCAAAATTGCCAGTGTCTGATCGGCACCTGGCGGCAGCCCTGGATG
AGCAACCGCCGACCCTTGGGTAAAGCGCCCAATTCAAGCTGGC
UUID: 52F511
[INFECTIOUS]

ZJE 浙江大学爱丁堡大学联合学院
ZJU-UoE INSTITUTE



THE UNIVERSITY of EDINBURGH
School of Biological Sciences

Demographics of Scotland

Haematology data



Suite of intervention options

Immunocompromised status

Hygiene and other behaviour measures

Antibody
Titres

Some thoughts of mine

➤ I curate this project

➤ *the ownership of each stage is with the students*

➤ I cannot (and won't) dictate the direction

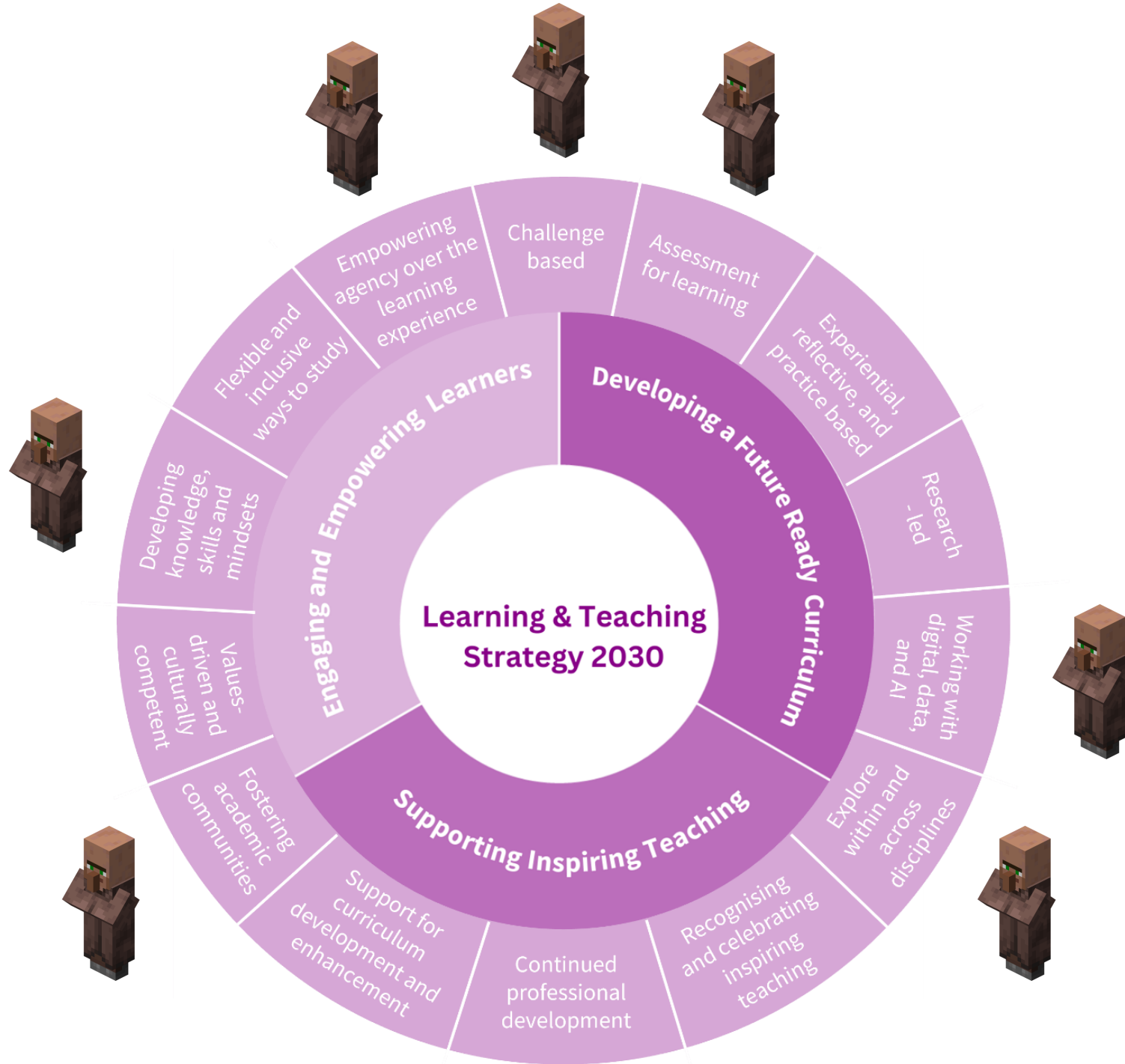
➤ *I do nudge it, to foster the creativity, skills, and interests of those involved.*

➤ I assume iteration and growth in how I speak of and advertise these projects

➤ *It might take time, but you make it so it can be reused, remixed, or reimaged*

Edinburgh Student Vision

- **Confident in their discipline**
- **Ready to thrive in a changing world**
- **Highly employable**
- **Valued collaborators**



MINECRAFT

Mineology and Epidemicraft





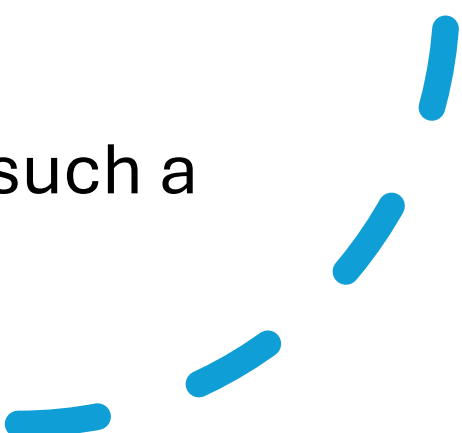
The Beginning

Undergraduate dissertation project, starting Jan 2019, for my Biomedical Sciences degree (specialisation in Infectious Diseases)

Not looking for specific specialisation, unlike other projects

Meant in certain situations I was the expert

First experience of control over such a significant project



```
1 # -*- coding: utf-8 -*-
2 # import necessary libraries
3 import numpy as np
4 import matplotlib.pyplot as plt
5
6 runs = 1
7 for i in range(runs):
8     # make array of all susceptible cells
9     population = np.zeros(100)
10
11     # random disease outbreak
12     outbreak = np.random.choice(
13         population, 1)
14
15     plt.figure(figsize=(6,4))
16
17
18     plt.imshow(population, cmap='magma')
19
20
21
22
23
24     # plt.show()
25
26     path="/C:/Users/Dell/OneDrive/
27     #filename=path+"spatial_
28     #plt.savefig(filename, t
29
30     # model parameters: beta
31     beta = 0.3
32     gamma = 0.05
33
34
35     # at each time point:
36     # infected cell can infect
37     for time in range(30):
38         # find infected points
39         infectedIndex = np.where(
40             population > 0)
41         for i in range(len(infectedIndex[0])):
42             # get x, y coordinates
43             x = infectedIndex[0][i]
44             y = infectedIndex[1][i]
```



susceptible

immune

dead



Struggles experienced

- Making the python model for comparison
- Confidence in my decision making and creative direction
 - Especially in a project with minimal history
- Pandemic-associated pressures



Takeaways

- It was an intense experience which had an outcome entirely dependant on the guidance and support I was given
- The work feels like my own – even now 6 years after my dissertation was submitted I am talking about it
- It has provided me with confidence in my capacity for decision making, creative direction and ability to work under pressure
 - These skills, as you can imagine, serve me well.

Perrin Grant

Infectious Disease Modeller (in Minecraft)

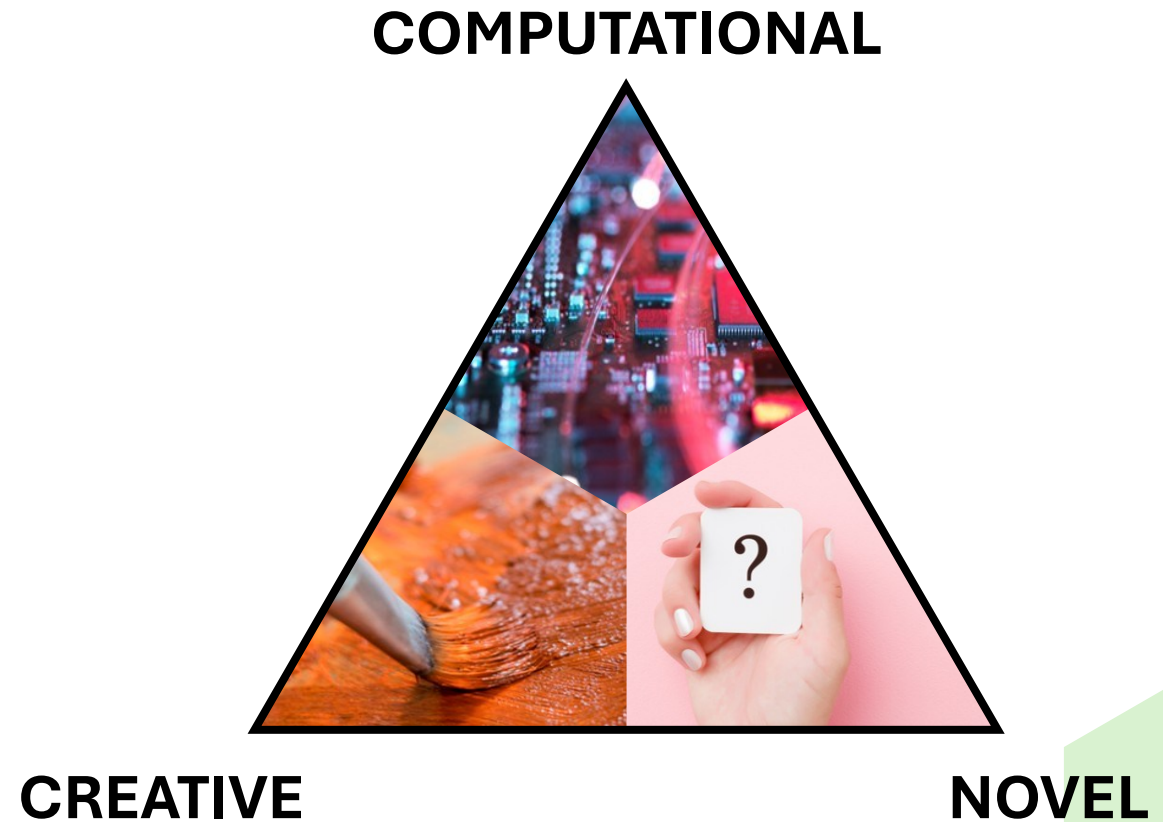
Current MSc Student

Starting PhD in Biomedical Sciences in September

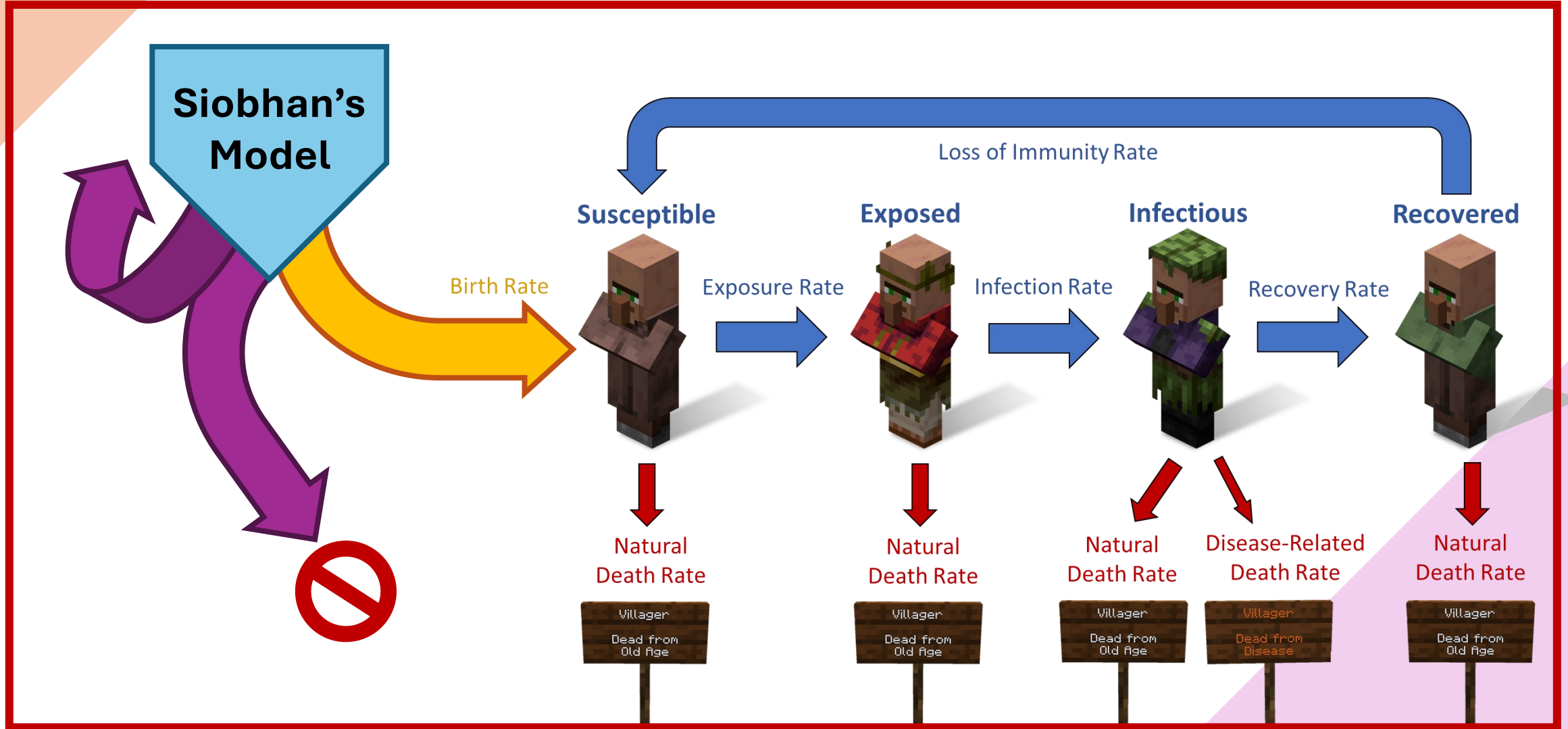
How I Started

2022 – 2023
Senior Honours Project

Something I could
make my own



Development



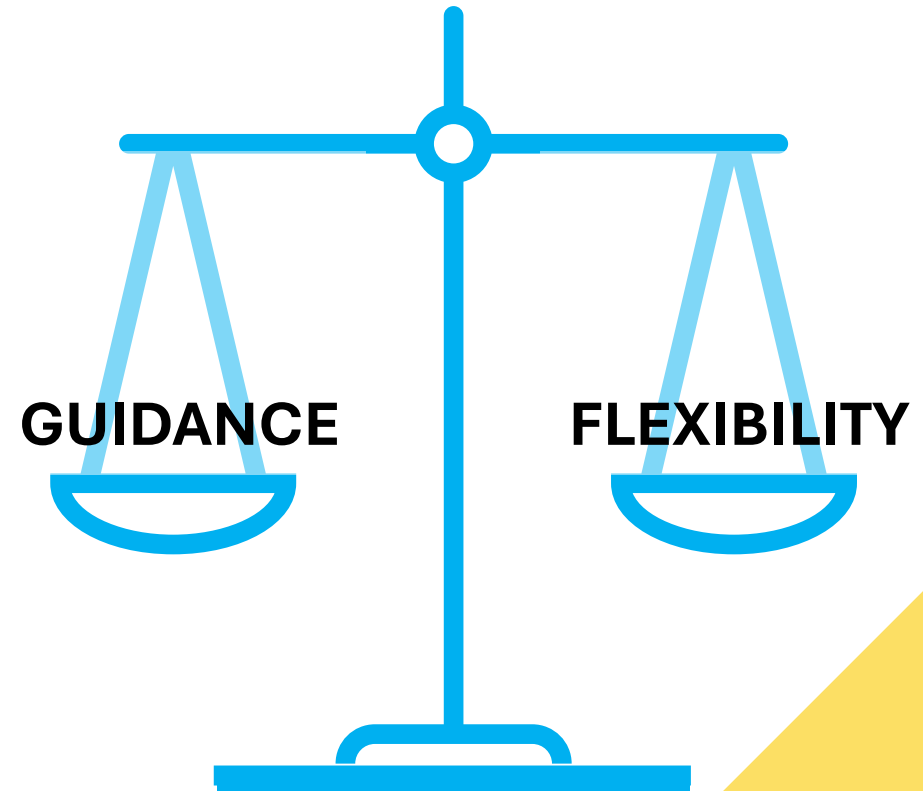
Supervision

Project had **strong foundation idea**

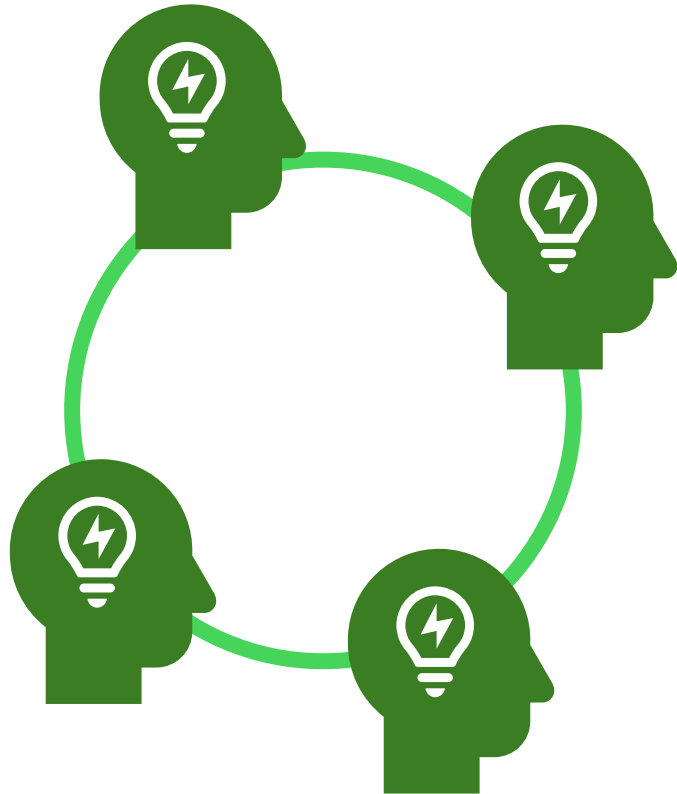
BUT

specifics decided by **me**

**Gave me power to control
project without feeling lost**



Expanding the Team



Summer 2023

Started working with Kate and Maria
to create outreach workshop

Collaboration between students
improving project for everyone

**Scientific
Model**

**Something
Educational and FUN**

What I Gained

Ownership of project → **Confidence** in own ability and ideas

Teamwork → **Collaboration** to do cool things

New experiences → **New skills** (especially computing)

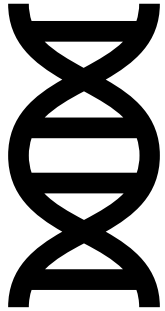
New knowledge → **Career development**

Involvement in public engagement

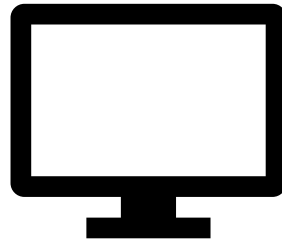
- Existing SBS programmes
 - More general in scope
- Developing new activities
 - Edinburgh Science Festival
 - Disease Detectives Workshop



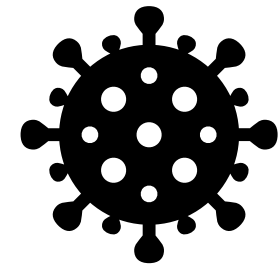
Challenges in communicating research



Background knowledge



Computational-based



Impact of COVID-19 pandemic

Disease Detectives



Sequence minigame

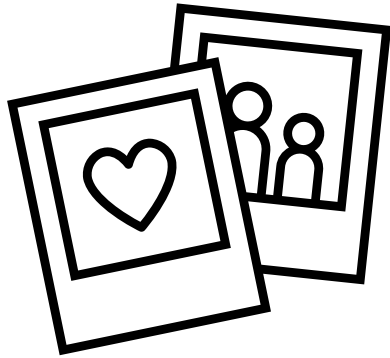


Outbreak investigation

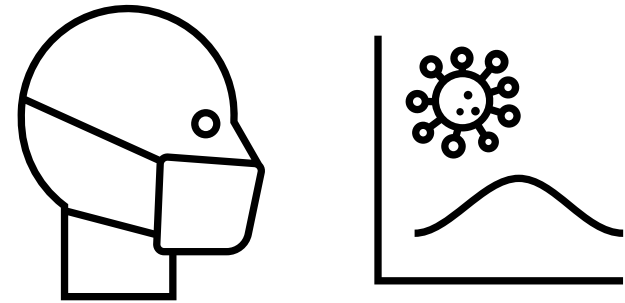


Discussing interventions

Reflections: Lived experience of COVID-19



Links to participant experiences



Open discussions about
pandemic restrictions



As a China-UK Dual-degree Programme Student in MinecraftEd

2026 University of Edinburgh Learning & Teaching Conference



浙江大学爱丁堡大学联合学院
ZJU-UoE INSTITUTE



University of Edinburgh

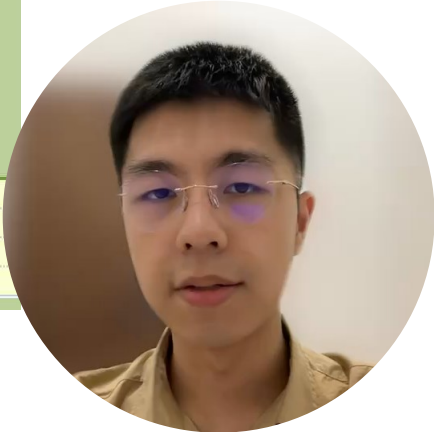
Zhejiang University



浙江大学爱丁堡大学联合学院
ZJU-UoE INSTITUTE



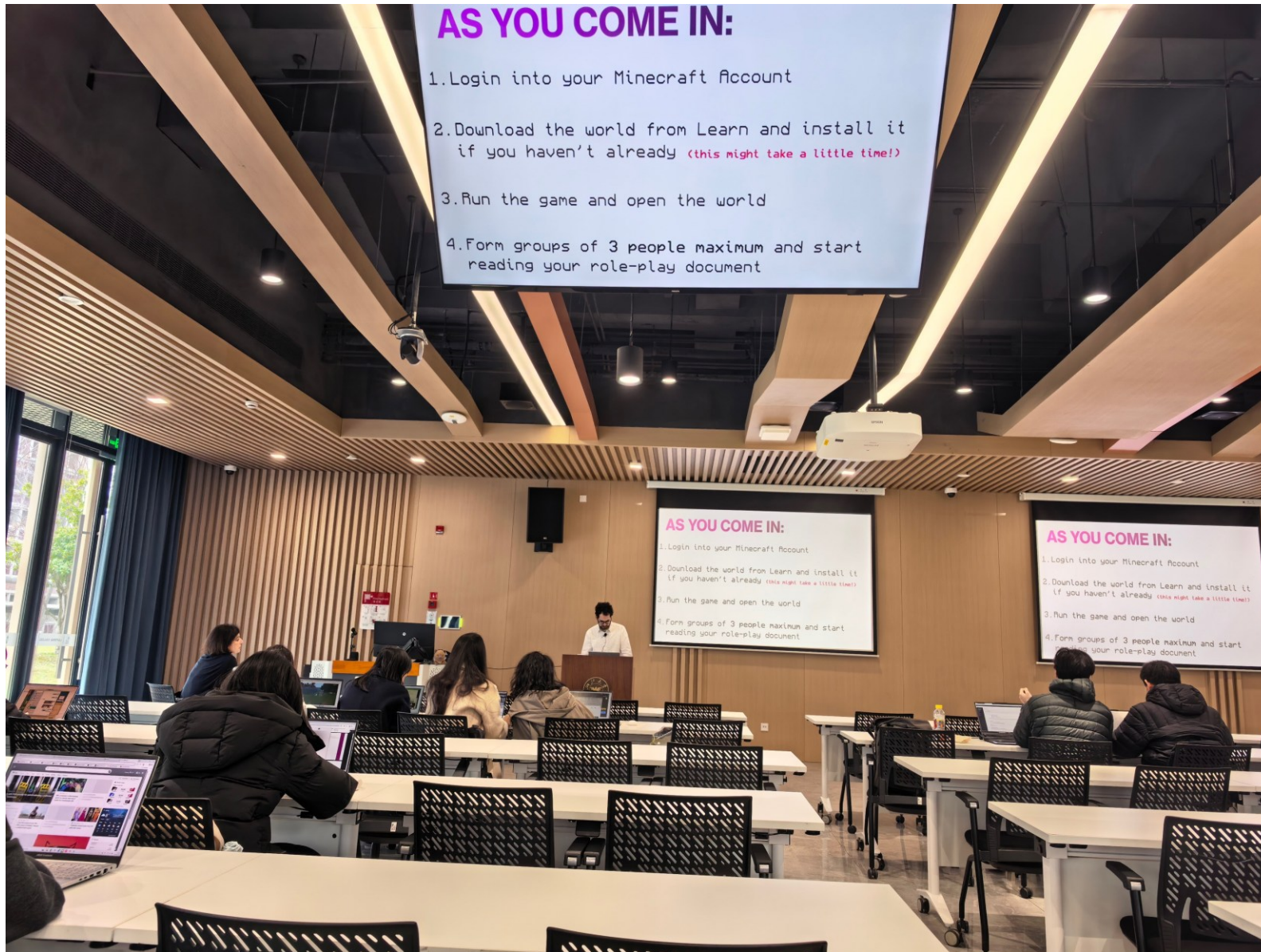
9:00AM	IBMS 8009B - LE1 IFBS2 Lecture 9:00AM - 9:50AM No.1 Residential College RC-1 101 Instructors: Joanne Murray	IBMS 8010B - LE1 ABMS2 Lecture 9:00AM - 11:50AM No.1 Residential College RC-1 101 Instructors: Vasso Makrantonis	IBMS 8009B - LE1 IFBS2 Lecture 9:00AM - 9:50AM No.1 Residential College RC-1 101 Instructors: Joanne Murray	IBMS 8007 - TUB MI2 Tutorial 9:00AM - 9:50AM LT Building North B 325/326 Instructors: 汪洌	IBMS 8009B - WKB IFBS2 Workshop 9:00AM - 9:50AM LT Building North B 323 Instructors: 邱爽
10:00AM	IBMS 8008B - LE1 BaO2 Lecture 10:00AM - 10:50AM No.3 Residential College RC-3 101 Instructors: 白戈		IBMS 8007 - LE1 MI2 Lecture 10:00AM - 10:50AM No.1 Residential College RC-1 101 Instructors: Aaron Trent Irving	IBMS 8008B - TUC BaO2 Tutorial 10:00AM - 10:50AM LT Building North B 322 Instructors: 白戈	
11:00AM	IBMS 8008B - LE1 BaO2 Lecture 11:00AM - 11:50AM No.3 Residential College RC-3 101 Instructors: 白戈		IBMS 8007 - LE1 MI2 Lecture 11:00AM - 11:50AM No.1 Residential College RC-1 101 Instructors: Aaron Trent Irving		
12:00PM					
1:00PM	IBMS 8007 - LE1 MI2 Lecture 1:00PM - 1:50PM No.1 Residential College RC-1 101 Instructors: Aaron Trent Irving		PHIL 2002 - LE1 Introduction to the Principle Lecture 1:00PM - 3:50PM Lecture Theater West LTW102/103 Instructors: 方瑞	IBMS 8009B - LE1 IFBS2 Lecture 1:00PM - 1:50PM Lecture Theater West LTW102/103 Instructors: Joanne Murray	IBMS 8007 - PRA MI2 Practicum 1:00PM - 3:50PM Laboratory Building D407/408 Instructors: Aaron Trent Irving
2:00PM		IBMS 8007 - TUB MI2 Tutorial 2:00PM - 2:50PM LT Building North B 325/326 Instructors: 汪洌			
3:00PM	IBMS 8009B - TUD IFBS2 Tutorial 3:00PM - 3:50PM LT Building North B 323 Instructors: 邱爽				
4:00PM				PE 2002 - PR2 Physical Education IV Practicum 3:00PM - 4:50PM Gymnasium GYM-B211 Instructors: 蓝天宇	



Project Title

(Project provided by Richard Fitzpatrick) Adapting a Minecraft-based Infectious Disease public engagement activity for Chinese audiences





AS YOU COME IN:

1. Login into your Minecraft Account
2. Download the world from Learn and install it if you haven't already (this might take a little time!)
3. Run the game and open the world
4. Form groups of 3 people maximum and start reading your role-play document

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Group16_Liu_Zimo — Saved to my Mac

Search (Cmd + Ctrl + U)

HomeInsertDrawDesignTransitionsAnimationsSlide ShowRecordReviewViewAcrobat

PasteNew Slide

B I U x² x₂ AV Aa

Convert to SmartArt

PictureArrangeQuick StylesSensitivityAdd-insDesignerCreate PDF and share link

Default Section

1
Minecraft-based SEIR Model Transfer,
Validation and Localization
Presenter: Liu Zimo
2026/04/15

2
CONTENTS

- 1 Introduction
- 2a Methods (Line 1)
- 2b Results & Discussion
- 3a Methods (Line 2)
- 3b Progress & Future Perspective

3
CONTENTS

- 1 Introduction
- 2a Methods (Line 1)
- 2b Results & Discussion
- 3a Methods (Line 2)
- 3b Progress & Future Perspective

4
Introduction: SEIR, an infectious disease model

Compartmental or individual-based

5
Introduction: Minecraft, a Popular Sandbox Game

Minecraft-based SEIR Model Transfer, Validation and Localization

IBMS10008: Integrative Biomedical Sciences Research Project

Presenter: Liu Zimo
2026/04/15

浙江大学爱丁堡大学联合学院
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NotesComments

Slide 1 of 48 English (China) Accessibility: Good to go



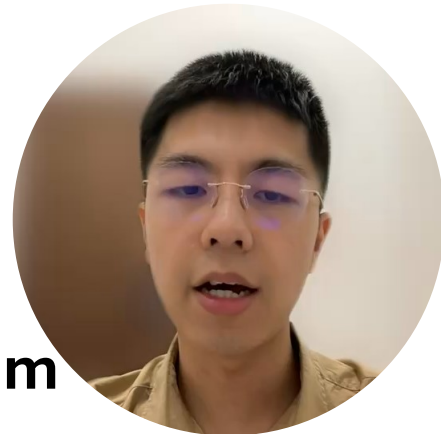
Presentation mark and feedback	Apr 17, 2026 4:25 PM GRADED	 88.00 /100
Dissertation (English) Submission DUE: APR 20, 2026	May 18, 2026 3:11 PM GRADED	90.00 /100



Many thanks for your time!



Email address:
zimoliu_Philosophy@outlook.com



Stations and suggested topics

Richard

Disease Detectives: Reloaded

Siobhan

Epidemicraft

Free Parking

Chat, Wooclap,
zone out

Perrin

Disease Detectives

Kate

Disease Detectives (with props!)



Go to wooclap.com

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Event code

EAQYIEY



**For Feedback,
Reflections and
ways to contact us!**

 Copy participation link





Thanks for listening!