

# **CPT208 Human-Centric Computing**

# **01. Introduction**

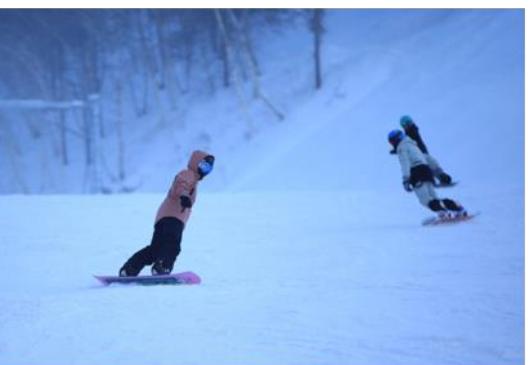
Dr Yue Li and Dr Teng Ma

# **Outline for today**

1. About us
  - Dr Yue Li
  - Dr Teng Ma
2. About you
3. About CPT208
  - Aims
  - Mode of delivery
  - Teaching assistants
  - Learning outcomes
  - Syllabus
  - Books and readings
  - Assessments
4. About Group Projects

# About us

Dr Yue Li and Dr Teng Ma



# Dr Yue Li 李月

- Born in Hefei
- Studied in Ningbo and Nottingham UK
- Graduated from University of Nottingham
- Joined XJTLU in January 2021
- Lives in Suzhou



# Dr Yue Li 李月

- Research interests include but not limited to
  - Human-Computer Interaction
  - Virtual Reality and Augmented Reality
  - Cultural Heritage
  - Education and Learning



# Selected Research Projects @ XJTLU

1. PI, Industrial Internet XR Education Lab, Ministry of Education University-Industry Collaborative Education Program. 231104276200911. 200,000 RMB. 01/05/2024 – 31/12/2024. 教育部产学合作协同育人项目: 工业互联网XR教育实验室.
2. PI, Virtual Reality Education Technology for Smart Museums, National Natural Science Foundation of China (NSFC): Young Scientists Fund. 62207022. RMB 300,000. 1/01/2023 - 31/12/2025. 国家自然科学基金青年科学基金: 面向智慧博物馆的虚拟现实教育研究.
3. PI, Extended Reality Collaboration Technology for Metaverse, The Natural Science Foundation of the Jiangsu Higher Education Institutions of China: General Programme. 22KJB520038. RMB 30,000. 1/07/2022 - 30/06/2024. 江苏省高校自然科学研究面上项目: 面向元宇宙的扩展现实协作技术研究.
4. PI, Engaging Spectators in Virtual Reality, XJTLU Research Development Fund. RDF-20-02-47. RMB 97,700, 1/09/2021 – 31/08/2024.
5. PI, Engaging Students in Exploratory Modules Using Virtual Reality, XJTLU Teaching Development Fund. TDF20/21-R22-142. RMB 50,000. 1/09/2021 – 31/08/2023.
6. PI, Intelligent Embodied Artifacts in Virtual Museums, XJTLU Summer Undergraduate Research Fellowship, SURF-2024-0137. RMB 6,000. 1/06/2024 – 31/08/2024.
7. PI, Playful Virtual Museums: Exploring the Digital Affordances, XJTLU Summer Undergraduate Research Fellowship, SURF-2023-0011. RMB 6,000. 1/06/2023 – 31/08/2023.
8. PI, Selection and Manipulation Techniques for Object Observation in Immersive Virtual Reality, XJTLU Summer Undergraduate Research Fellowship, SURF-2022055. RMB 6,000. 1/06/2022 – 31/08/2022.
9. PI, Presenting Cultural Artefacts Using Virtual and Augmented Reality, XJTLU Summer Undergraduate Research Fellowship, SURF-2021045. RMB 10,000. 1/06/2021 – 31/08/2021.

# Student Research Projects

- I have supervised
  - 30 postgraduate student projects
  - 23 undergraduate student projects
  - 18 national & international student competition awards
    - Finalists in ISMAR'23, CHI'23, MobileHCI'22
    - 10+ national student competition prizes
  - 4 SURF projects
    - Group winner of 2022
- To date, I have supervised **30+ student papers.**
  - More information on my webpage: <https://imyueli.github.io/projects.html>
  - and my research lab page: <https://hiherlab.github.io>

# SURF 2021



18:31

X ...

把文物“带回家” | 西浦团队两项文创应用获中国虚拟现实大赛一等奖

原创 XJTLU 西交利物浦大学

2021-11-01 17:13

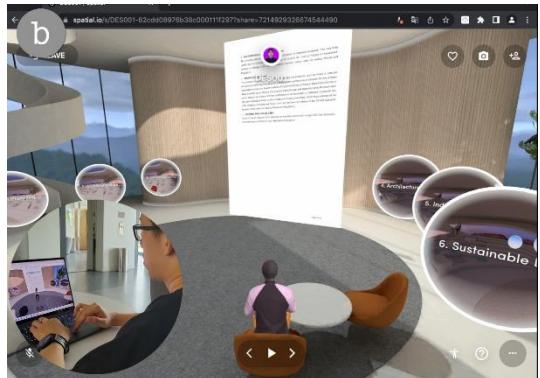
收录于话题

#西浦动态 219 #西交利物浦大学 299  
#西浦奖杯陈列馆 21

X J T L U

为提高博物馆参观的互动性和趣味性、助力文化遗产的保护与传播，西交利物浦大学智能工程学院的两支学生团队分别使用 AR（增强现实）和 VR（虚拟现实）技术，设计了两款文化创意型应用。他们的作品“方块博物馆”和“共临其境”从全国六百余个高校作品中脱颖而出，获得第四届中国虚拟现实大赛一等奖。

# SURF 2022



# SURF 2023



# CPT208 @ XJTLU SRLLS

## Student Research-Led Learning Symposium



Grand Prize, 2022  
CPT208 Group 5



Grand Prize, 2023  
CPT208 Group C2

# SURF 2024



# SURF 2025

Not started yet... BUT

I always welcome **self-motivated** and **technically solid** students to join my team.

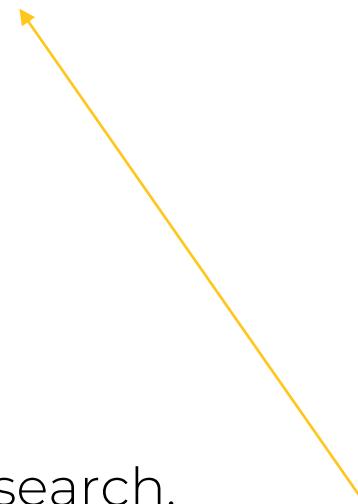
**Must-have skills:**

1. Unity / C# programming (show me your demo)
2. Good academic reading and writing
3. Familiar with HCI research methods



# Contact

- Email: [yue.li@xjtu.edu.cn](mailto:yue.li@xjtu.edu.cn)
  - Always email me for module-related inquiries.
- Office: SD457
  - Office hours: Friday 2-4pm
  - Better email first, but feel free to drop in.
- Xiaohongshu: @imyueli & @hiherlab
  - Welcome to follow if you are interested my research.
  - ... but please, *DO NOT* pm me questions for lectures or coursework!





2017 ➡



2023 ➡

# Dr Teng Ma 马腾

- Mixed background from both Computer Science and Management
- Graduated from University of Nottingham
- Joined XJTLU in January 2022



# **Dr Teng Ma 马腾**

- Research interests include but not limited to
  - Social computing
  - Business analytics
  - Data visualization
  - Fintech

# Contact

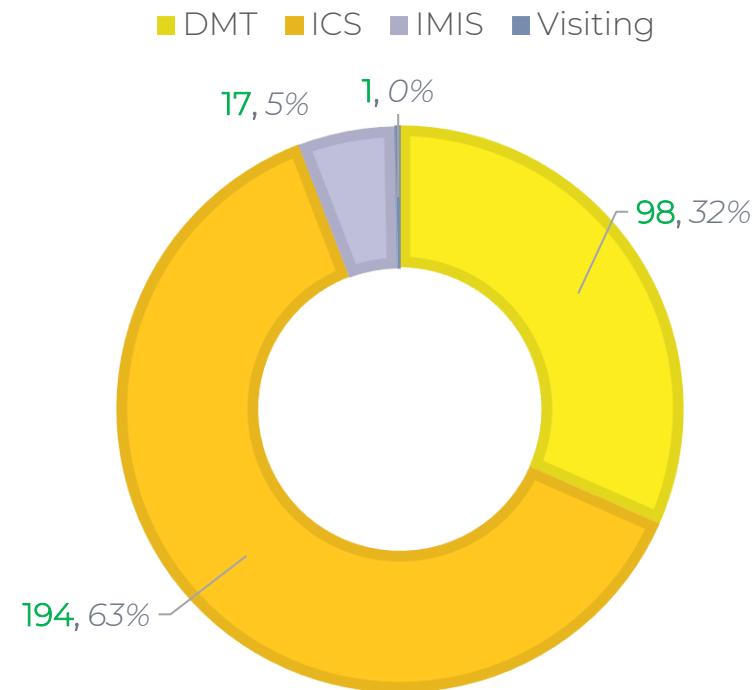
- Email: [teng.ma@xjtu.edu.cn](mailto:teng.ma@xjtu.edu.cn)
- Office: SD459
  - Office hours: Friday 1-3pm

# About you

253 students -> 310 students

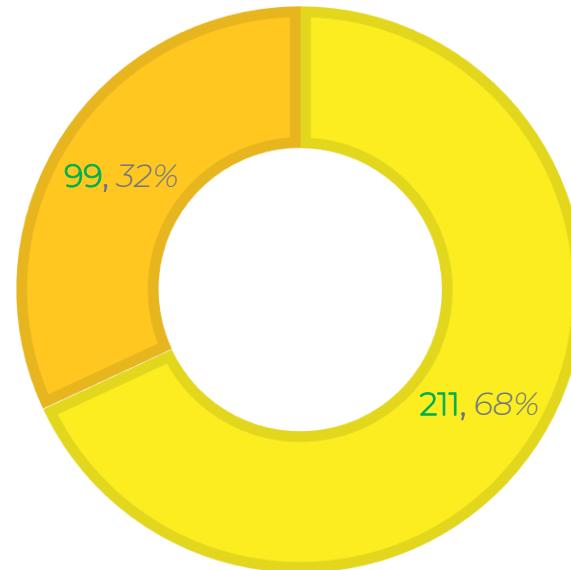
# About you

MAJOR



GENDER

Male Female



# About you

- Who are you?
- Where is your hometown?
- What is your major?
- What do you know about this module?
- What do you expect to learn from this module?
- One thing that makes everyone remember you?
- ...

I have some names here: Mingxuan Hu 胡铭煊, Tonghui Wu 吴桐辉, Peiling Tu 涂珮翎, Xueying Kuang 匡雪莹, Gengyuan Zeng 曾庚源, Jiayue Kou 寇嘉玥, Adrián Muñoz Atienza

# About CPT208

Human-Centric Computing

# **CPT208 – Basic Information**

## Human-Centric Computing

- Programme
  - BEng Digital Media Technology
  - BSc Information and Computing Science
  - BSc Information Management and Information Systems
- Module credits
  - 5 credits

# **CPT208 – Aims**

- To enable students to take a systematic approach to the specification, implementation, and evaluation of user interfaces in contemporary computing systems.

# CPT208 – Mode of Delivery

- Lectures
  - Classroom: BSG02
  - Time: Monday 11:00-13:00
- Seminars
  - Classroom: SA169
  - Time: Monday 14:00-16:00
- Onsite teaching
  - Live lectures will still be recorded
  - Please remind us to open BBB if we forget to do so

# Recording Policy

- Recordings of lectures are a resource to help study for the exam and not a substitute for attending class.
- Lectures should not be broadcast as all students (except retake students with timetable clashes) are required to attend on-site.

# CPT208 – Teaching Assistants



Bingqing Chen



Jiachen Liang



Siyue Yao



Junyi Zhang



Peihong Zhang



Shuhao Zhang

# CPT208 – Learning Outcomes

- A. Recognize the issues involved in designing computer systems for people including an understanding of the relevant legal, social, ethical and professional issues.
- B. Demonstrate an understanding of the basic formal methods and techniques for interaction design.
- C. Develop technical skills required for the implementation of interactive systems.
- D. Critically evaluate interactive systems.
- E. Demonstrate an understanding of the methods and issues involved in deploying interactive systems to meet business goals.

# CPT208 – Syllabus

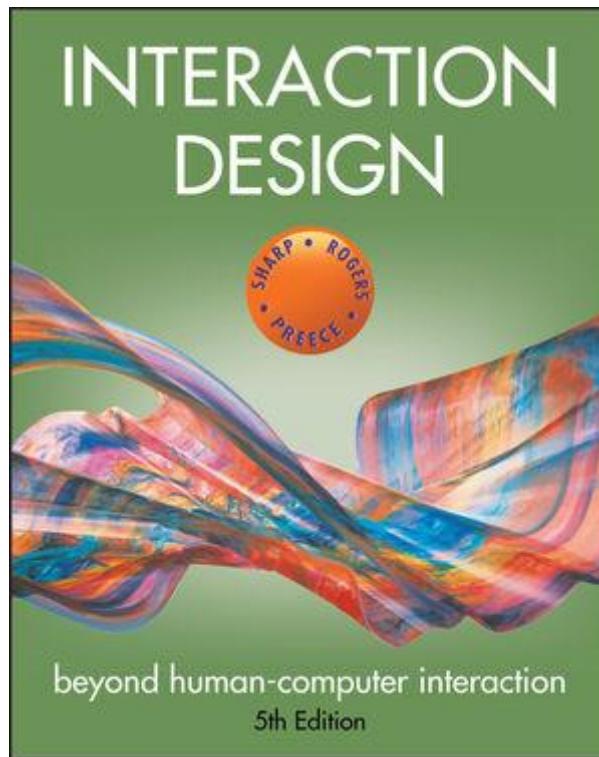
## Lectures

1. Introduction
2. Discovering requirements
3. Conceptual Prototyping and Practical Guide
4. Heuristic Evaluation, Questionnaire, and interview
5. Design Principles and Design Alternatives
6. Prototyping Fidelity and Dimensions
7. SAT reading week
8. **Group Project Demonstration Day**
9. Usability Testing & Experimental Design
10. Interfaces and Research Considerations
11. Field Study and Analytics
12. **Flipped Classroom: Selected Coursework Demonstration**
13. Revision

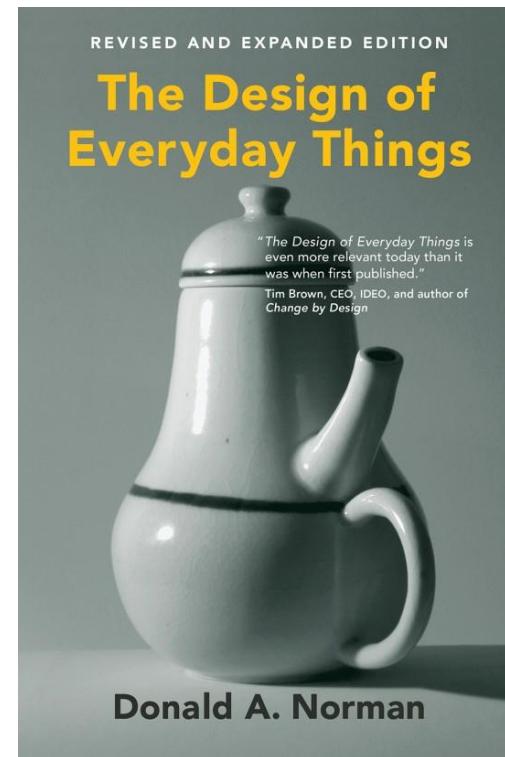
## Seminars

1. **Grouping and group discussion**
2. Grouping and group discussion
3. Group discussion and Q&A [Proposal submission]
4. Group discussion and Q&A [Prototype submission]
5. Group discussion and Q&A [Data analysis submission]
6. Group discussion and Q&A [Draft poster submission]
7. SAT reading week
8. **Group Project Demonstration Day** [Group work submission]
9. Group discussion / individual work and Q&A
10. Group discussion / individual work and Q&A
11. Group discussion / individual work and Q&A
12. **Flipped Classroom: Selected Coursework Demonstration** [Individual work submission]
13. Q&A

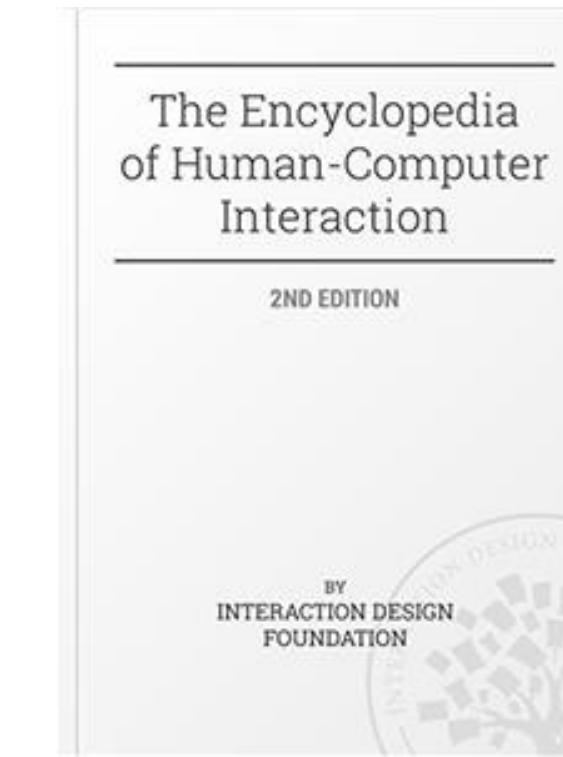
# CPT208 – Textbooks and Readings



<http://www.id-book.com/>



<https://www.interaction-design.org/literature>



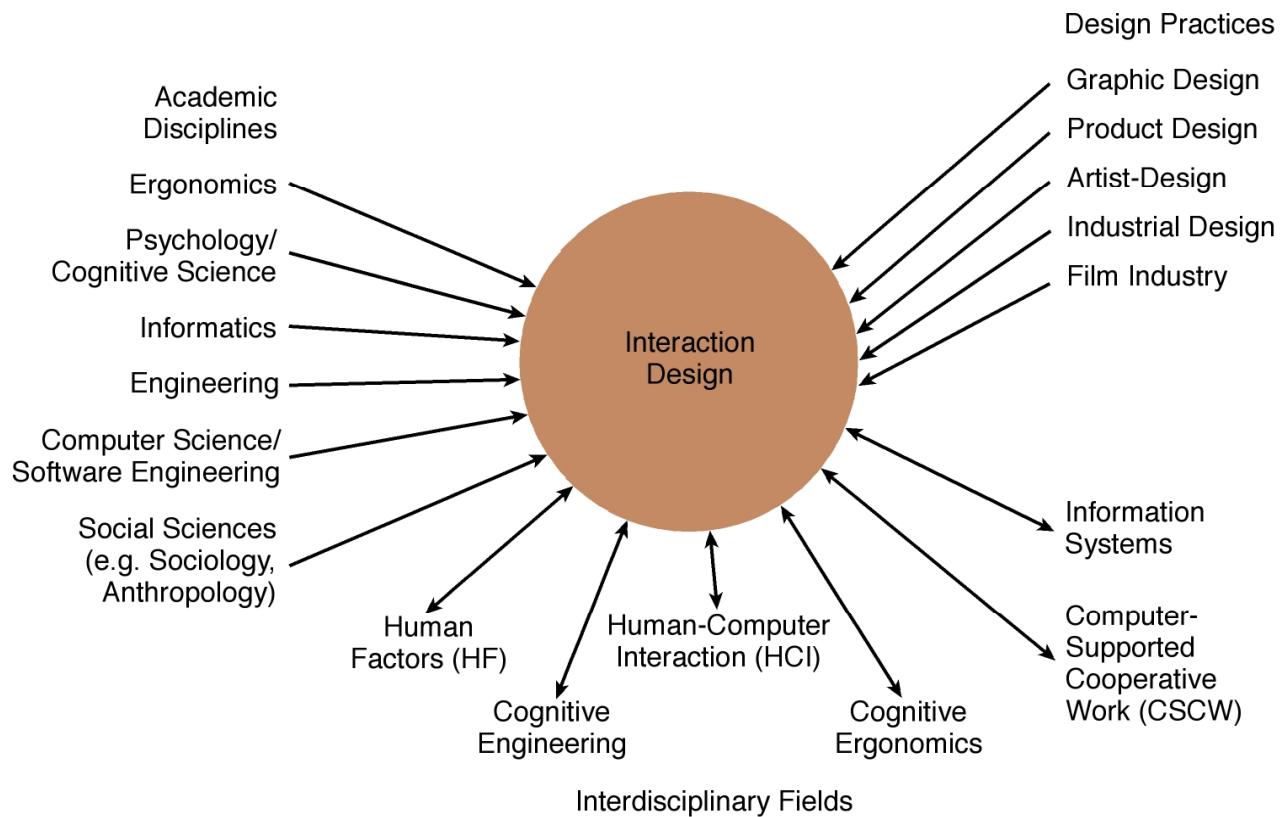
# **CPT208 – Assessments**

1. Report (Group work) 15%
2. Portfolio (Individual work) 15%
3. Final Exam 70%

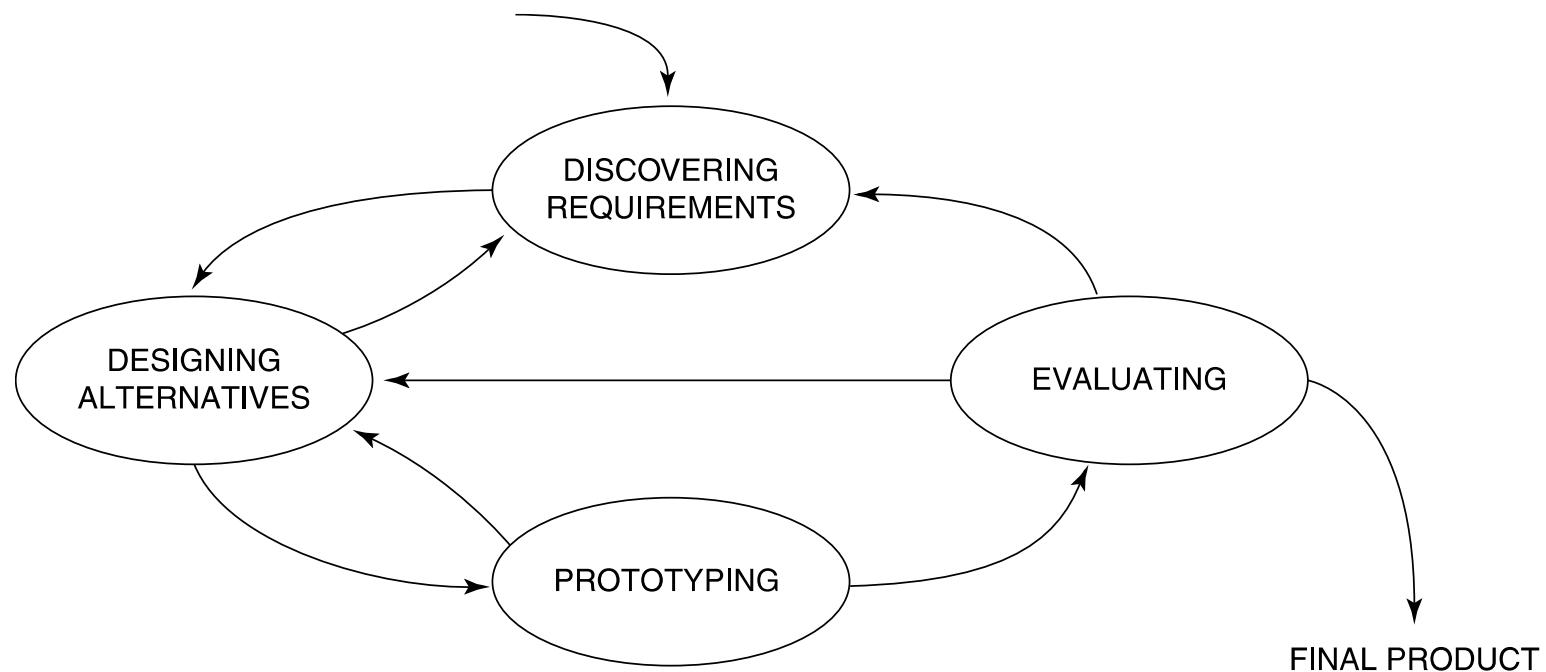
# Interaction Design

*“Designing interactive products to support the way people communicate and interact in their everyday and working lives.”*

(Sharp, Rogers, and Preece, 2019)



# Interaction Design Lifecycle



# CPT208 – Report (15%)

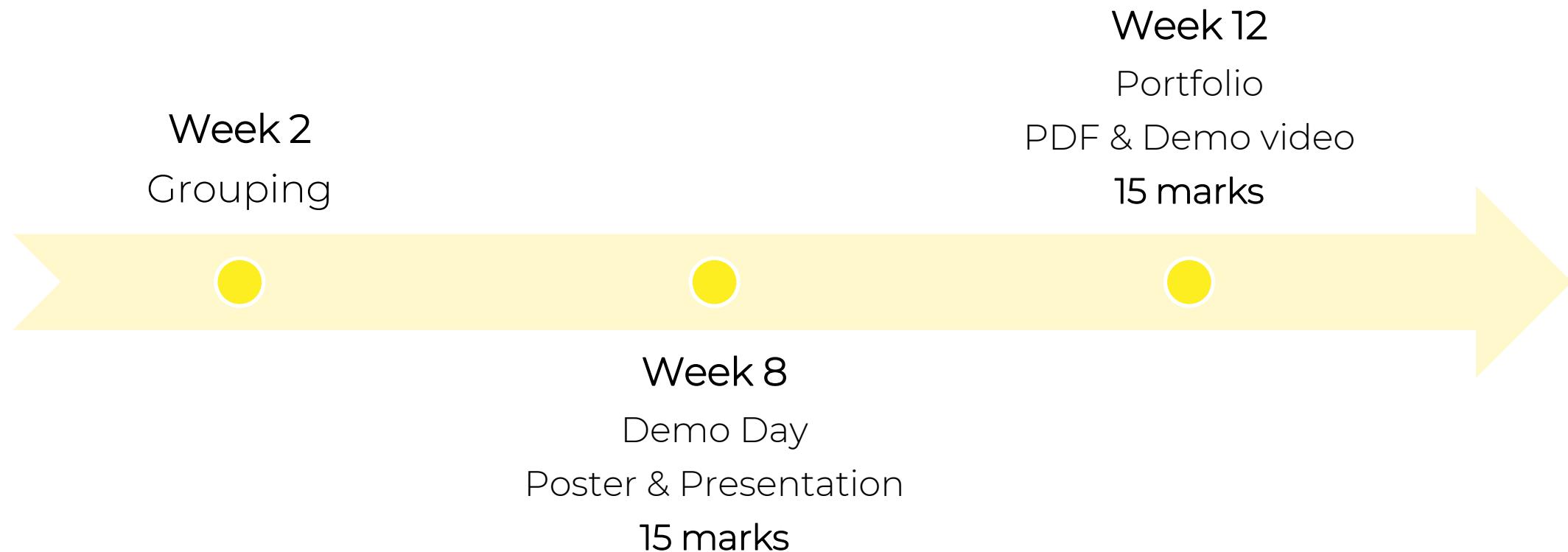
- Throughout the semester, you will complete a project as **a group of 5 students.**
- During Week 1, you will register your groups on Learning Mall.

Once you have registered for a group, the change of groups is **NOT ALLOWED**. Please be careful with your selection and take responsibility for your group work.

# When forming a group, try to ...

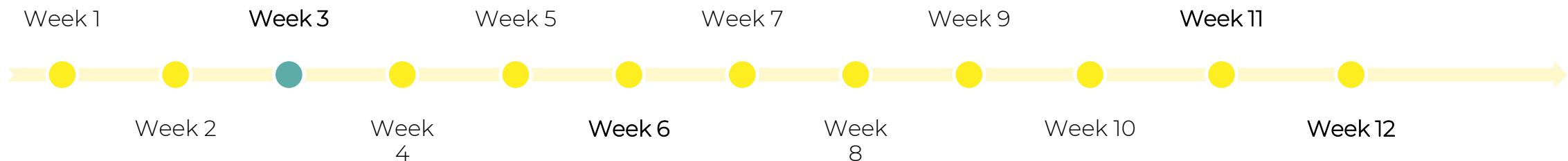
- be **diverse** and **inclusive**
- obtain different perspectives
- share **skill sets**
- be open to meet new people and **make friends**
  
- How?
  - Email, forum, WeChat group, Zhitiao...
  - The grouping deadline is **Monday, Week 2**.
  - Students with no selection will be randomly allocated.

# CPT208 – Important Deadlines



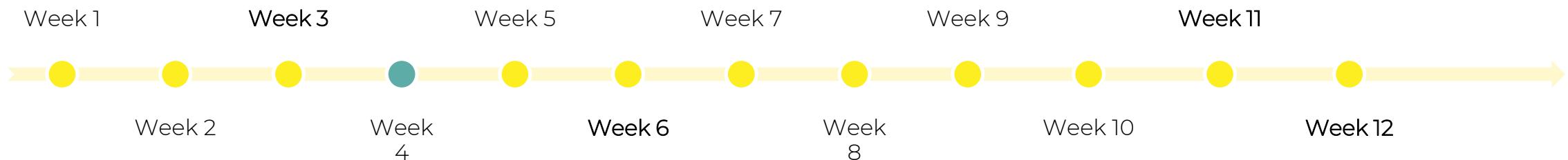
## Week 2 & 3 – **Proposal (not marked)**

- One page: a title + some descriptions + a Gantt chart
- Propose a concrete project idea related to the given topic
- Demonstrate a reasonable project plan
- Only one submission is needed from each group.



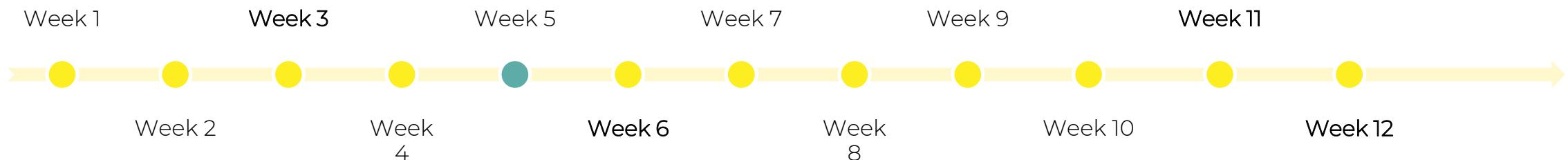
# **Week 3 & 4 – Prototypes (not marked)**

- Present your prototyping progress
- Only one submission is needed from each group.



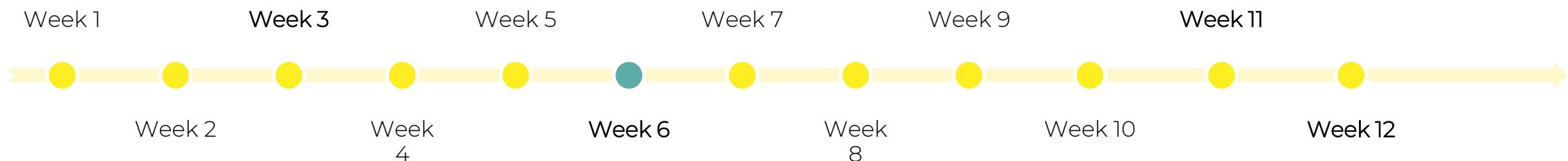
# **Week 4 & 5 – Data Analysis (not marked)**

- Try to do some evaluations on existing works & your own work
  - Present your data collection and analysis results
- 
- Only one submission is needed from each group.



# **Week 5 & 6 – Draft Poster (not marked)**

- A1 size, to be printed out and presented at the EE lobby / tunnel (TBC)
- You should prepare your presentation based on the poster
- Detailed instructions in the coursework sheet
- Only one submission is needed from each group.

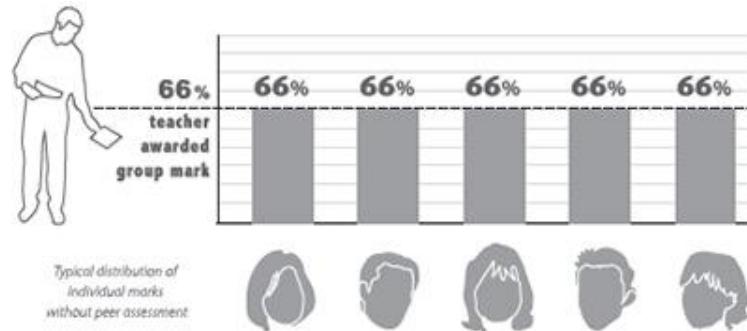


# **Week 8 – Demo Day (15 marks)**

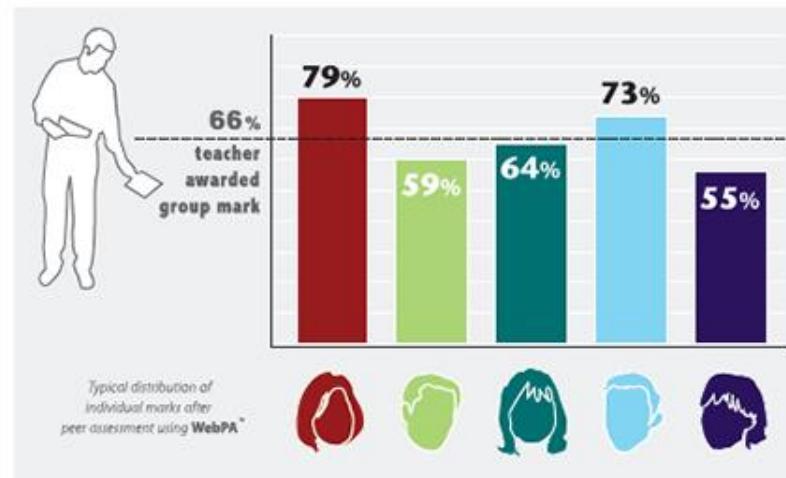
- Your poster & presentation will be assessed based on the following aspects:
  - Content and delivery (30%)
  - Task fulfilment (30%)
  - Clarity and organization (20%)
  - Answer to questions (20%)

# Group Work Peer Assessment

A well known criticism of assessed group work is that each student receives the same team mark, regardless of individual performance.



By using WebPA™ to peer assess group work, each student receives an adjusted mark.

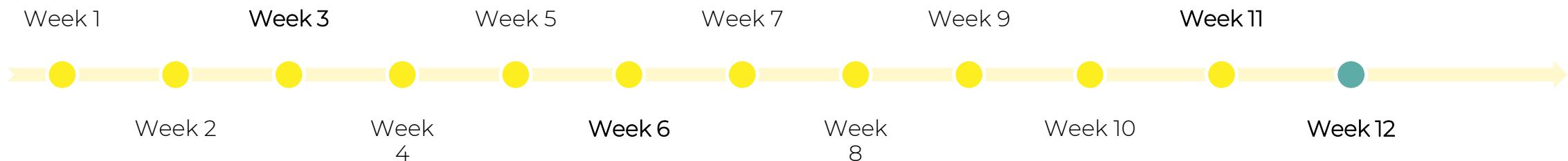


→ <https://webpaproject.lboro.ac.uk/>

Marked by the people that know!

# Week 12 – Portfolio (15 marks)

- Up to 10 pages PDF & Up to 3 minutes video
- Keep developing your group project
- Use your own way to present the project
- Everyone should make an individual submission.



# **Week 12 – Portfolio (15 marks)**

- Your portfolio will be assessed based on the following aspects:
  - Task fulfilment (70% of 10 marks)
  - Clarity and organization (30% of 10 marks)
  - Demo video (100% of 5 marks)

# About Group Projects

Generative AI in X

# Topic this year: Generative AI in X

X is a placeholder for any appropriate terms...

For example:

**Place** – museum, cinema, restaurant, etc.

“What if GAI could enable visitors to talk with Li Bai (李白) in the museum?”

**Industry** – gaming, education, healthcare, creative arts, tourism, etc.

“How GAI could facilitate the creation of games?

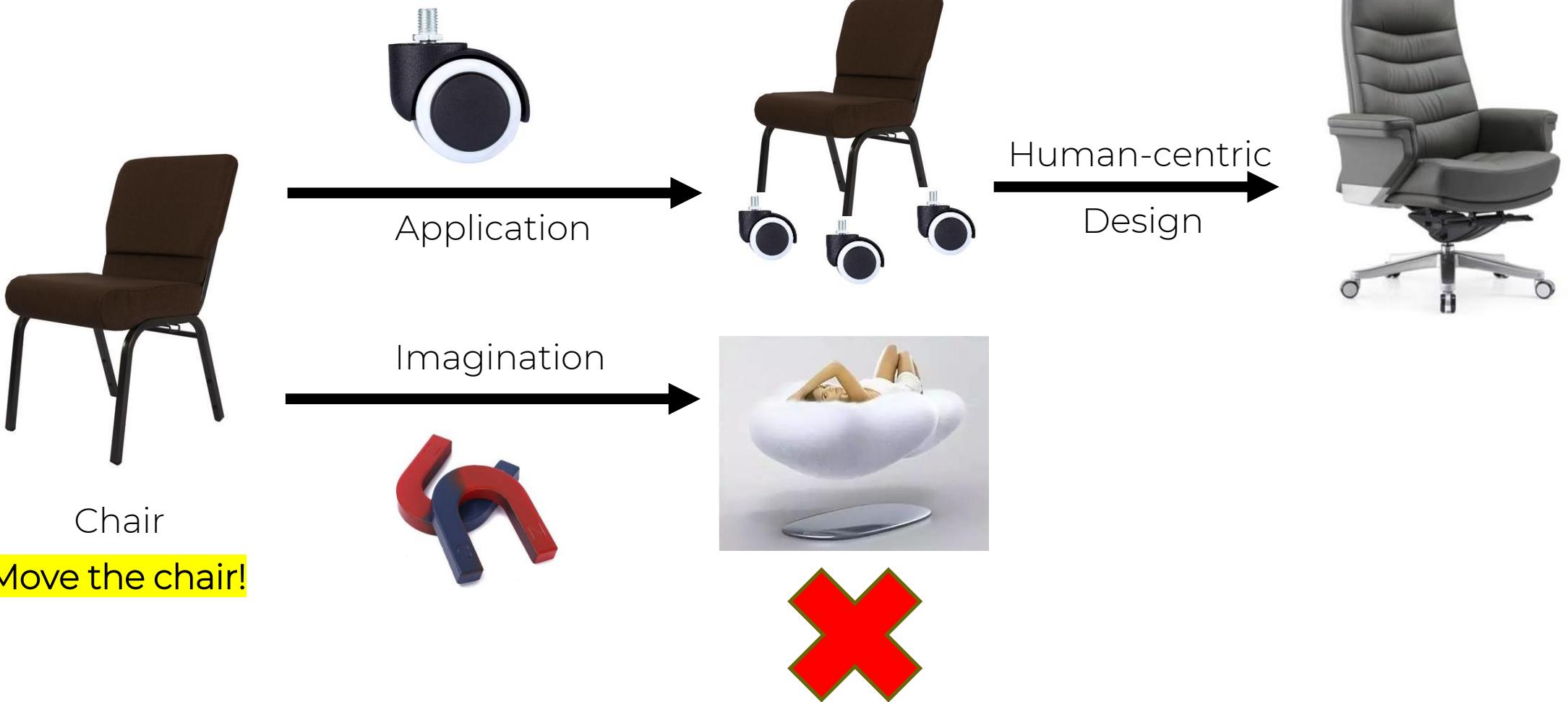
**Function** – accessibility, automation, translation, etc.

“How GAI could generate alternative information to enhance the accessibility of online contents?”

# Please keep in mind

- Your portfolio should focus on the design (in a broad sense)
- The technical development for the prototype is not the key part,  
your design & prototyping & evaluation process is the key
- Your creativity, thoughtfulness, justifications, reflections and evaluations are more important than your technical development in this module
- Make the most of your time in class (especially the seminars)

# A simple example



**Need a break?**

# Before we start...

We have a limited number of hardware support:

- Arduino (standard set)
- Oculus Quest 2 VR headset
- Nreal Air AR glasses



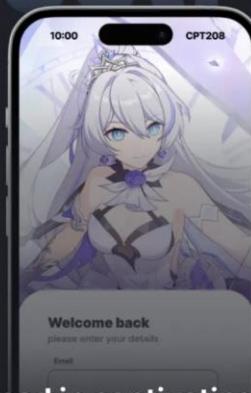
If you need these, [please write us an email](#) and indicate

- Why do you need it
- How do you plan to use it
- How long do you need it

# **Examples from Previous Years**

# Crush on English

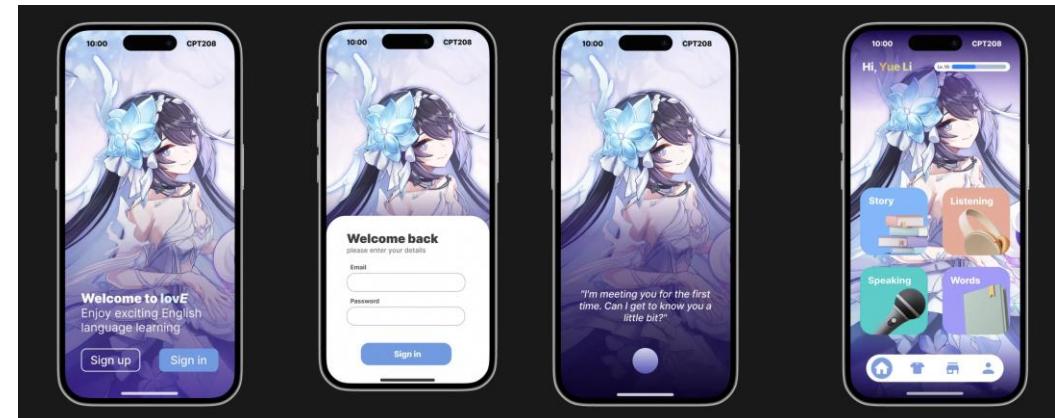
## Our project: lovE



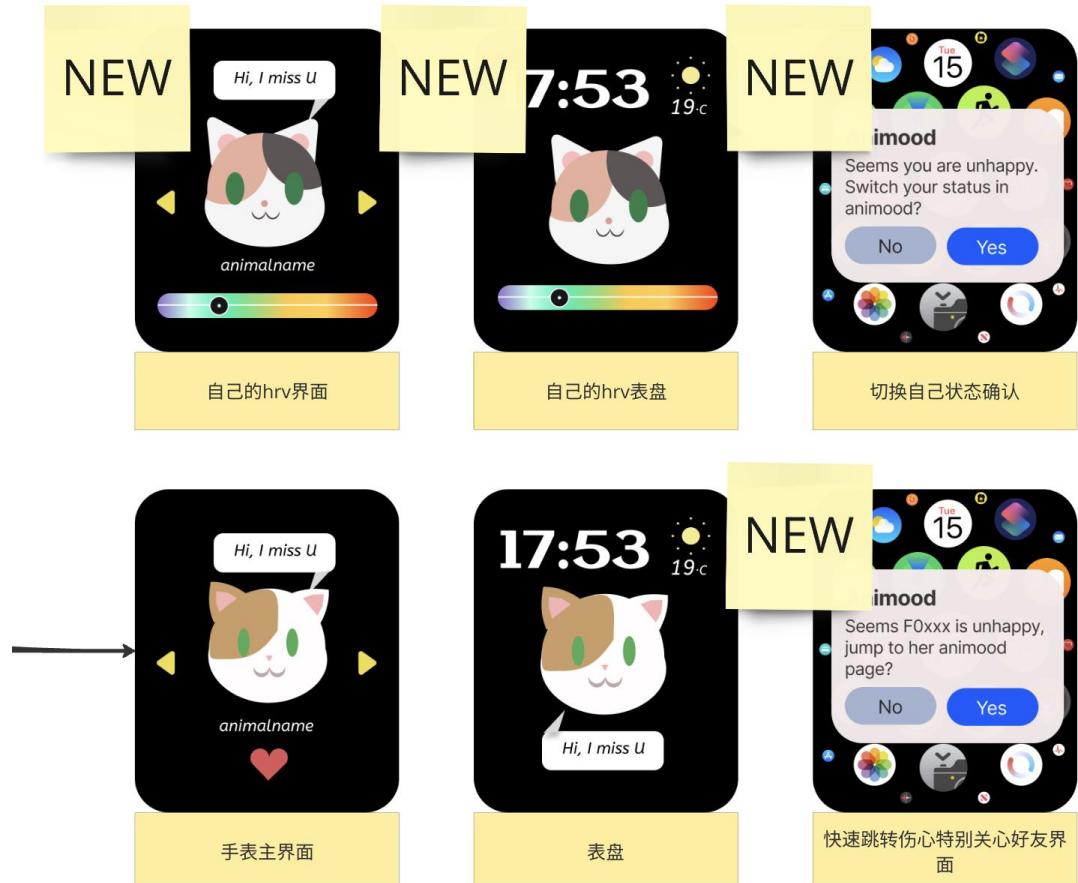
In lovE, you may find yourself immersed in captivating storylines (reading) where you experience ups and downs and happiness with your beloved characters.

You can engage in heartfelt conversations (speaking) with an emotionally rich character.

Through diligent study, you can cultivate your favorite character (gaming), enabling you to learn actively and even become engrossed in the process, eliminating the burden of learning English.



# Animood



Not only detect  
and visualize the  
mood  
But to share it  
with others

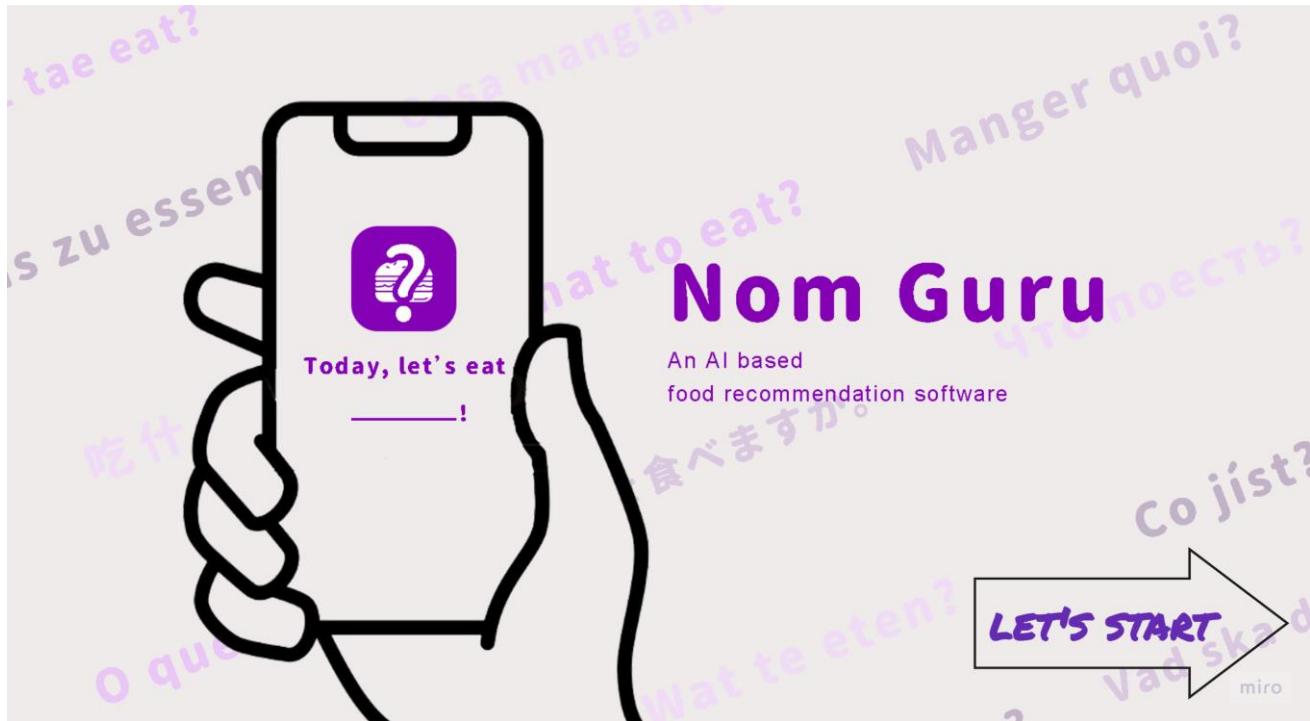
# MindEscape



## A Virtual Odyssey for Personal Unwinding

This project is aimed at enhancing participation and data accuracy in psychological questionnaires through streamlined design and implementation processes, ultimately fostering mental health assessment and intervention.

# NomGuru



*NomGuru* or 知本味 is an app that helps people solve the dilemma of making dietary decisions in their daily lives.

A Chinese proverb says, “**富由天，小富由勤，民以食为本。**” It illustrates the importance of food to our happiness in life. “**知本味**” means that the app will tell you the true answer to the important tastes you want.

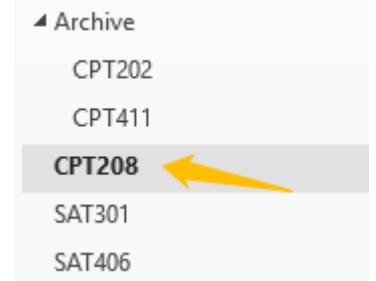
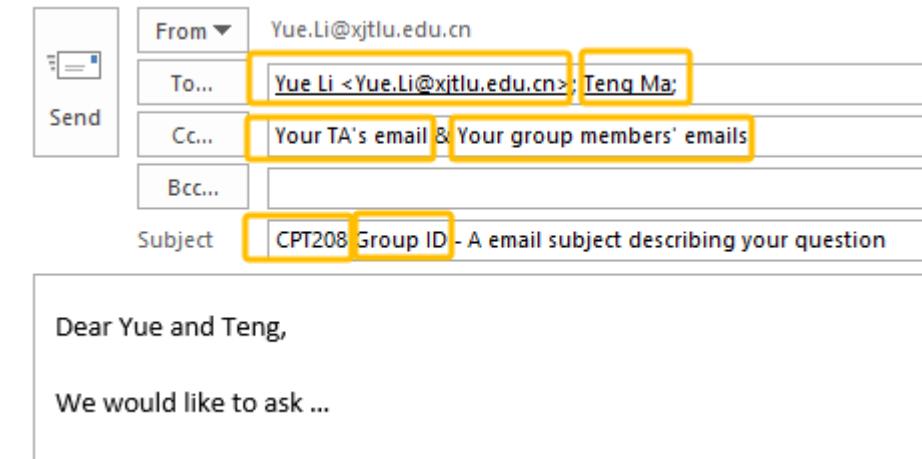
**Group Selection  
Open Now?**

# CPT208 and CPT202

- Module Name: Human-Centric Computing vs. Software Engineering Group Project
- Subject: Human-Computer Interaction vs. Software Engineering
- Module Aim: The design of the computing system vs. Agile development
- Both modules are about the process, not only the final product

# CPT208 – Email Inquiries

- **From:** Please ask **a representative** to send inquiry emails, don't bombard us with duplicated emails
- **To:** Always include both **Yue Li** and **Teng Ma** so we are aware of the questions you have
- **Cc:** Always **cc your group members** and **your TA** in your email to us
- **Subject:** Always include **CPT208** and your **group ID**
- **Content:** Check the **LMO announcement and forum** for Q&As to see if your question has been answered



# Dos and Don'ts

- Do **communicate** frequently and **collaborate** effectively
- Do observe, think, and reflect on a **daily** basis
- Do **read** extensively and keep updated with the recent literature
- Do **enjoy the process**
- Don't expect to learn everything in the classroom
- Don't wait till the deadline to start the work
- Don't count on others to do all the work
- Don't disappear

# Homework 1 (Individual)

- Take a picture of a good or bad design (interface/product/...) in your daily life.
- Explain your reason in one sentence:
  - *This is a good/bad design because ...*
- Leave your name and ID to claim your credit.

Post on Padlet: <https://padlet.com/imyueli/cpt208-ay202425-78sn35c2h2jdq8t2>



This is a good design because my workout performances are visible and clear.  
Yue Li (1234567)



This is a bad design because it is hard to locate the floor number.  
Teng Ma (7654321)



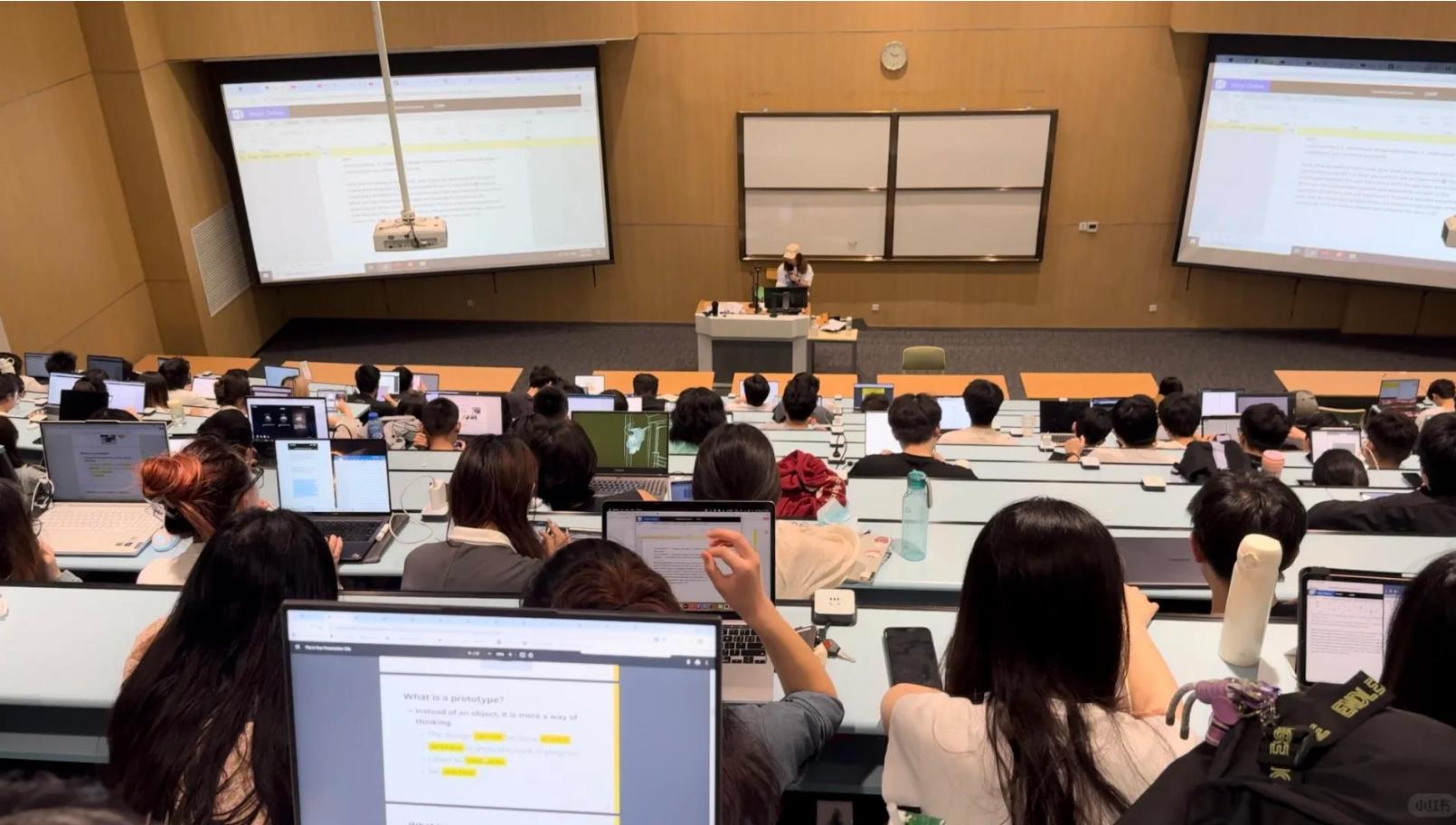
This is a bad design because I am not sure how to open it.  
Teng Ma (7654321)

# Homework 2 (Group)

- Talk to 5 people around you (ideally the target users of your system) and try to get some inspirations for your project idea.
- Identify one typical scenario they describe and answer the following questions:
  1. Briefly describe the user(s) (gender, age group, profession, etc.).
  2. What kind of difficulties or issues do they have in their work / life (pain points)? Give an example picture of the scenario.
  3. What are the existing solutions (no matter technical or not) they use?
  4. Are the existing solutions good / bad? Why?
  5. Can any of the issues be addressed by the use of GAI?
  6. Will the use of GAI be an improved solution or an additional burden?
- Leave your name and ID of your group members to claim your credit.

Post on Padlet: <https://padlet.com/imyueli/cpt208-ay202425-78sn35c2h2jdq8t2>

# An Example



# An Example

1. Female, 25-35, College teacher
2. Pain Points: Engaging 320 students in real-time is overwhelming. Many students are passive, and it's hard to gauge their understanding during lectures.
3. Scenario: During a lecture, the teacher asks a question, but only a few students respond. The rest seem disengaged, making it difficult to assess if they comprehend the material.
4. Current Methods: Walk around and ask a random student to answer a question.
  1. Good: Can get some immediate feedback and student engagement.
  2. Bad: Does not engage all students; may create anxiety.
5. GAI Opportunities: If there is a GAI assistant for students to enter real-time feedback and for the teacher to see synthesized results (sentiment, Q&A, etc.), this could facilitate personalized engagement by analyzing student responses and suggesting tailored questions or activities.
6. Improvement or Burden? The use of GAI would likely be an improved solution, as it can enhance engagement without adding significant workload, allowing the teacher to focus more on teaching.

**Any Questions?**