Research questions:

- Mission Statement:
  - To Expose language learners to Realistic Practice Environments through an immersive virtual cultural language experience.
- Problem:
  - The natural goal for learning a new language is connection and communication, but traditional language learning methods focus on the means to an end, and not the end goal itself. practicing a foreign language becomes tedious because intrinsic motivations are too abstract.
- **Some potential research questions:**
  - Use of language support tools: Will users spend more time looking up words and using tools if they're not "wasting the time of their partner"?
  - Foreign language anxiety: Is it lower when interacting with an AI partner? Can practicing with an AI partner build confidence and lead to lower anxiety when speaking with future human partners (i.e., does the lowered anxiety transfer to human partners)?
  - Language choice: How does interacting with an AI partner affect language choice? Will users attempt to use more difficult language patterns that they have not yet mastered?
- Solutions:
  - MultiVerse
  - A VR world that immerses a user in realistic, culturally aware, scenarios that evoke nuanced and goal-oriented learning experiences
  - Study 1:
    - Condition 1: user + tell them it's human
    - Condition 2: user + tell them it's AI
    - In one condition, users are told they are conversing with an AI. In a second condition, users are told they are conversing with a human behind the scene.
    - In both conditions, users are allowed to use any technologies, such as their phone or dictionary, they would normally use to help them communicate.
    - Compare 1&2: if the perception of the other person change how they interact with the system

Experiment:

- Goal - Chinese speakers learning English in an immersive environment; approach this in a research angle
  - For script testing and interactions
- Target participant - CEFR level A2 - B1;
- Recruiting strategy

- ○ Send messages to Chinese visiting scholars channel and Chinese New Students WeChat group
    - ■ "We represent a class-based research study at Stanford that is studying the opportunities of language learning for global impact. Our team Is looking for individuals who have been in the U.S. for less than 2 years to participate in a fun design thinking + AI role-playing experience tomorrow, Tuesday, May 14th. You can choose any 1-hour window between 1-3PM or 4-8PM tomorrow, or Monday or Tuesday of next week (The experience next week will be augmented reality focused). It will be fun, and participants usually find the research methods really interesting. We will provide a $20 gift card to participants to thank you for your time! Email arwillis@stanford.edu if you are interested."
    - ■ 1 participant from Chinese New Students WeChat group in our target language proficiency
  - ○ Friends and family in CEFR level A2 - B1 range
    - ■ 3 Native Chinese participants in our target language proficiency
  - ○ Chinese Tourists on campus;
  - ○ Local Chinese community
    - ■ One Chinese couple May 19 Sunday (confirmed)
  - ○ Chinese international students who are new to the country
- ● Data Collection:
  - ● what and how they are preparing for the conversation
  - ● # times they use language supports
    - ○ translator
    - ○ dictionary
    - ○ Maybe google translate speech
  - ● Time spent on the task
  - ● # times participant ask for repetition and clarification
  - ● Post-intervention survey - foreign language anxiety scale
  - ● Other observations - qualitative data

Test Plan/Experiment Design:

- ● For the experiment, get ready:
  - ○ Task Introduction; Soundboard
- ● References:
  - ○ Script
  - ○ Text-to-speech line
  - ○ User Testing interface V2

Experiment Set-up:

- Model real-life situations of conversing with a mechanic to describe car problems, schedule an appointment to fix it, and arrange transportation options such as car rental with the mechanic.
- Experimental procedure (should be done ideally by at least 2 experimenters)
  - 1. Debrief the participants about the goal of the experiment and tasks to expect, right to withdraw, and ask for informed consent.
  - [Ask for consent to record the session; Screen record the engagement if testing virtually]
    - For data collection:
    - If the virtual meeting, use zoom or hangout to record the entire session.
    - Ask the participant to share their screen and do screen recording.
    - Participants can hear the speech from the "AI" (pre-recorded)
    - Observer observes and notes:
      - if they understand the synthesized speech
      - The need to react quickly
      - If they use tech to help
  - 2. Tell the participants either they are conversing with a real person or an AI
  - 3. Give the participant the slides with the mechanic background and written instruction in Chinese; after the participants click "continue", they see the mechanic and a window with text of reminder information
    - Read and confirm if they understand the instruction in Chinese (if necessary)
  - 4. Conduct the task
  - 5. WoZ the AI and observe without interruption
  - 6. Debrief + Discussion Guide

MultiVRse Discussion Guide

All can be delivered in Chinese

Introduction

- My name is Joyce/Nathan/Glenn/Angelica
- I/we wonder if I/we can get some feedback on the task you just did.
- Do you understand the task?
- If not, what is confusing for you?
- Keep in mind there are no right or wrong answers. The only goal here today is to get your feedback on the experience of using the mobile app so it can be improved.

- It's not testing you in any way.
- Please be honest and as critical as you'd like - I didn't design this so you're not going to hurt my feelings if there's something you don't like. It is very helpful for us to know what you find confusing so it can be improved.
- Any questions?

Background Questions

- Can you tell me about your English learning experience?
- How would you evaluate your current English level?
- Have you had issues communicating with people in English?
- In what situations you have encountered challenges or issues communicating in English?
- What're your primary reasons for learning English?
- When having challenges communicating, what help or resources do you use?

Ok, now let's get started.
- I'm going to show you an early prototype of an AI English conversational tool and give you the instruction for a English conversation instruction.
- Just imagine you're in that situation yourself and talk to the person as you would in real life. I have provided the information you may find useful for this conversation in the instruction, and you will have access to the information during the conversation too.
- **Note that it's a rough prototype and some things don't work or aren't connected to anything.** If that happens, I might ask you to imagine that it works or tell me what you think would happen if that area works.
- You'll also notice that sometimes the **AI can be slow when responding**. If that happens, **think aloud what you are thinking at that moment**.
- Do you have any questions for me before we start?
- Let's get started.

Task 1: The task introduction script

Imagine that you downloaded an AI English learning software on your computer to practice communicating in English. You opened the software…

I'm going to show you a mockup of the first screen that comes up in the software. I'd like you to take a look at the instructions and tell me what you think. Try to think out loud but don't click on "start" yet.

<Give the subject time to look at it and don't say anything for a while…let them start talking first>

Overall

- Do you understand the task instruction?
- What do you think of this task?
- What's your overall impression?
- Given your next step would be to conversing with the AI, **what would you do next?**

Task 2: The simulated conversation flow

<let the subject click the "start" button and conduct the task. Stop the conversation simulation when both the subject and you think the conversation is over>

Now you have conversed with an AI as described in the instruction. How do you think it went?
Can you walk me through your experience?
What was your thought process?
How did you feel about talking to the AI?
What did you think of the AI's responses?
Were you nervous? Why?
What do you think the AI can do and what they cannot do?

Wrap-up

- **What's your overall impression of this practice?**
- **What worked and what didn't?**
- **Anything confusing?**
- **Anything you like?**
- **Any more thoughts about what we did today?**
- **What do you think is the goal of this software?**
- **Do you find it helpful?**
- **If not, what would be helpful [in doing what the subject thinks it's about]?**
- **Anything else you'd like to add?**

Debrief:

Thank you very much for your time! Your feedback is very helpful. For this particular experience design/experiment, we are trying to see how human would interact with an AI agent when conversing in a foreign language and how they interact with other language supporting tools.

From time to time, if we have more questions about this app, would you be interested in a follow-up study?

We are looking for more people to test our product. If you have friends who are also English language learners and have lived in the US under two year, whom you think can be helpful to us, we would really appreciate you help us spread the words. Please do not disclose what we did today, but feel free to recite the recruiting message you've received from us. Thank you!