



CS377E | Spring 2019  
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OUR MISSION IS...

To expose language learners to  
nuanced practice environments  
through an immersive virtual cultural  
language experience.



# PROBLEMS



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 with traditional methods (i.e. classes and apps) leaves users **underprepared for real-world interactions, which leads to embarrassment and miscommunication.**

# SOLUTION



## MULTI**VR**SE

A VR world that immerses a user in **realistic, culturally aware**, scenarios with **AI-powered** language support tools that evoke nuanced and goal-oriented language learning experiences.

BUT... ASSUMING WE CAN BUILD MULTIVERSE ,  
THERE ARE SOME UNANSWERED QUESTIONS...

# SOLUTIONS OR QUESTIONS?

WOULD USERS FEEL MORE ENGAGED OR ANXIOUS?

DO PEOPLE WANT TO ENGAGE WITH AI?

WOULD THEY FEEL LESS EMBARRASSED ABOUT MAKING MISTAKES?

WOULD THEY TRY HARDER OR LESS HARD TO COMMUNICATE WELL?

# MAJOR CHANGES



- DESIGNING A SOLUTION -> DESIGNING EXPERIENCES TO TEST RESEARCH QUESTIONS
- TASK -> EXPERIMENTAL DESIGN
- TASK FLOWS -> EXPERIMENT PROCEDURES

# TARGET USERS



Beginner

Intermediate

Advanced

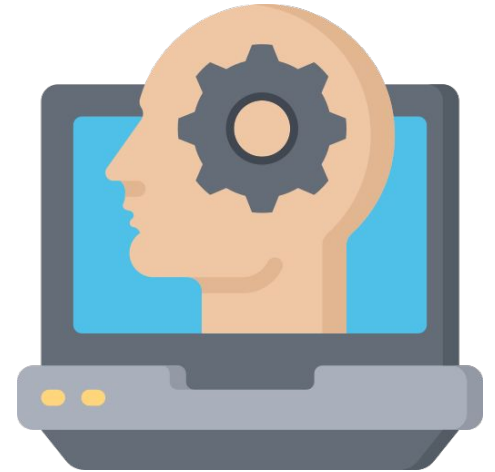


# EXPERIMENT DESIGN



## HUMAN V.S. AI ON THE OTHER SIDE

(In both conditions, users are allowed to use any technologies, such as their phone or dictionary, they would normally use to help them communicate)



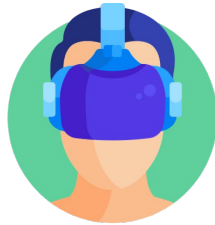
# EXPERIMENT DESIGN



Instructions  
(AI or not AI)



Situational  
Prompt Video



Goal-oriented  
conversation in VR

[BEHIND THE SCENES]



Skill level adaptive  
script

# RESEARCH QUESTIONS => TASKS

When engaging with AI, would users feel more engaged or anxious?

Would they feel less embarrassed about making mistakes?

Would they try harder or less hard to communicate well (operationalized by usage of language support tools)?

# BEFORE

Do you want to  
ACCEPT THE QUEST

BUY AN APPLE ?

RETURN A PHONE

YOU WILL  
BE THE  
TEACHER

REWARD: \$1000

YES NO

YOU WILL  
BE THE  
LEARNER

COST: \$500.



QUESTION

YOU ARE THE  
TEACHER. YOUR  
PARTNER WANTS TO  
BUY AN APPLE FROM  
YOUR STORE. NEGOTIATE  
A GOOD PRICE AND SELL  
THE APPLE TO YOUR  
PARTNER.

YOUR PARTNER IS  
BEGINNING LEVEL  
USE SIMPLE PHRASES  
SUCH AS:

SUCCESSFUL  
FINISH!

GIVE UP!

YOU ARE THE  
LEARNER. YOU  
WANT TO BUY AN  
APPLE FROM THIS  
STORE. NEGOTIATE  
A GOOD PRICE AND  
BUY THE APPLE.

SUGGESTED PHRASES:

YOU ARE THE  
LEARNER. YOU BOUGHT  
A PHONE FROM THIS  
STORE BUT IT IS  
DEFECTIVE. RETURN IT  
OR GET IT REPAIRED.

SUGGESTED PHRASES:

THIS IS YOUR  
RESPONSIBILITY! (1))

I HAVE AN  
EXTENDED WARRANTY! (1))

YOU ARE THE  
TEACHER. YOUR  
PARTNER WANTS TO  
RETURN A DEFECTIVE  
PHONE. FIND OUT  
WHAT IS WRONG WITH  
THE PHONE AND OFFER  
TO REPAIR IT FOR  
YOUR PARTNER IS  
ADVANCED LEVEL.  
USE COMPLEX PHRASES  
SUCH AS:

USER PANEL.

SPEAKS: [red flag]

LEARNING: [red flag]

CURRENT MONEY

\$300

CURRENT MONEY

\$1300

CURRENT MONEY

\$800

CURRENT MONEY

\$1800

SPEAKS: [UK flag]

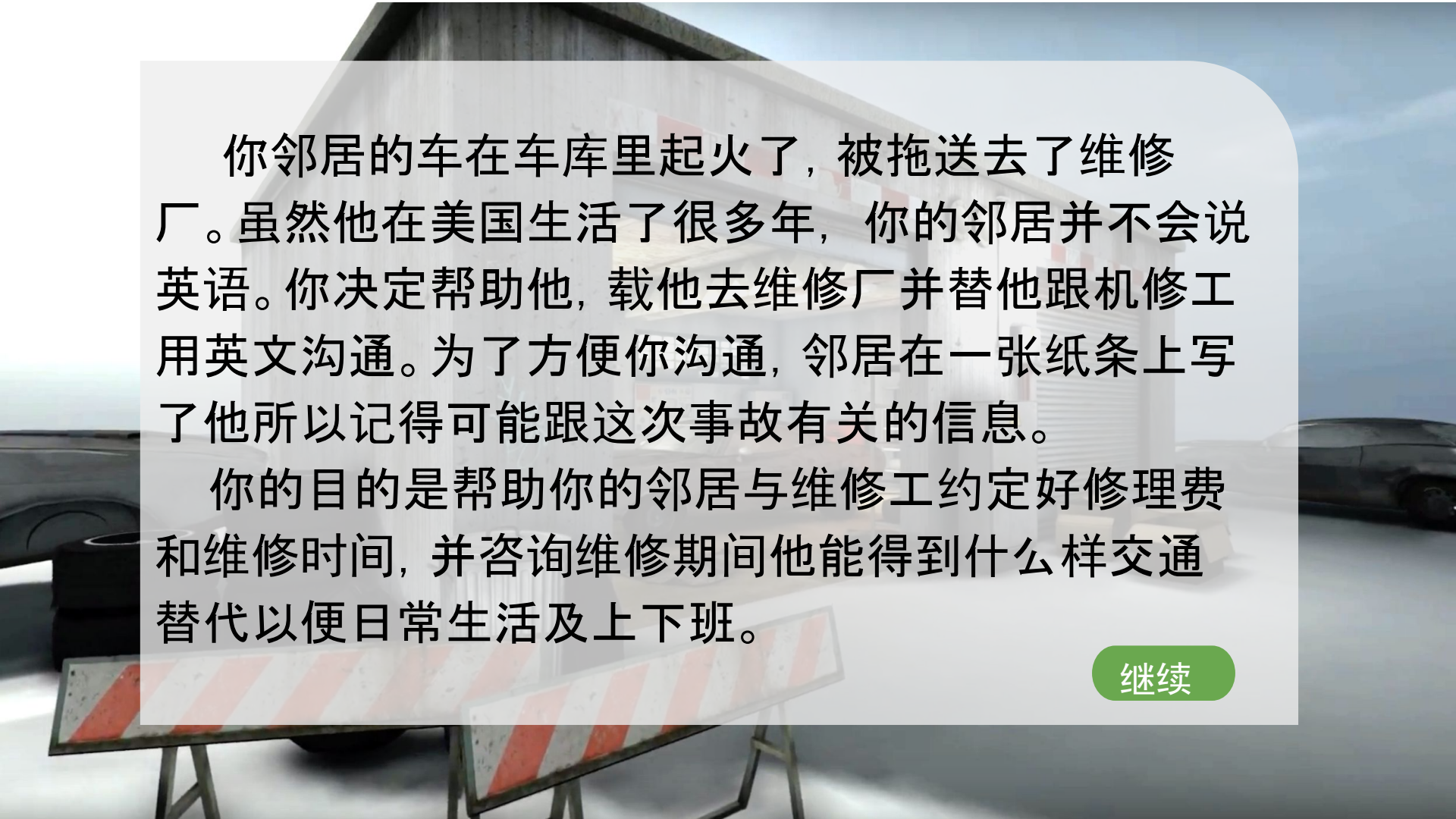
LEARNING: [red flag]

# Scenario #1

# MULTIVERSE

A visit to the mechanic

START



你邻居的车在车库里起火了，被拖送去了维修厂。虽然他在美国生活了很多年，你的邻居并不会说英语。你决定帮助他，载他去维修厂并替他跟机修工用英文沟通。为了方便你沟通，邻居在一张纸条上写了他所以记得可能跟这次事故有关的信息。

你的目的是帮助你的邻居与维修工约定好修理费和维修时间，并咨询维修期间他能得到什么样交通替代以便日常生活及上下班。

继续

A man with short brown hair, wearing a tan utility vest over a light blue long-sleeved shirt and blue jeans, stands in front of a weathered wooden garage. The garage has a large open bay door revealing a brown classic car inside. To the right, there is a closed metal roll-up door and a grey electrical cabinet with a yellow warning symbol. Several cardboard boxes are scattered on the ground near the roll-up door. In the foreground, there are two orange and white striped construction barriers. A red speech bubble points to the man.

Hi there. How  
can I help you?



字典



离开



字典



离开

### 我车子信息：

- 一周前，我车子的风扇开始有奇怪的噪音。一般噪音出现一分钟左右，“检查引擎”的提示灯会出现。
- 踩油门时，引擎过热的等也会亮。
- 我车子之前没有电池放了两个月。我自己装的电池。在那都好好的。
- 我在车50,000里程时候送去经销商那里保养，换了水泵。一般大家说换了水泵时候也要换恒温调节器。我经销商处理的保养，我不是很清楚他们换了没换恒温调节器。
- 我的车上了保险。



# WIZARD OF OZ PROTOTYPE

Check it out: <http://angelic.ai/multivrse.html>



# INSIGHTS

A stylized globe with a light blue and teal color scheme, showing continents. Several red speech bubbles are scattered around the globe, some overlapping it. The globe is partially cut off by the right edge of the frame.

- User spoke aloud the text from "Joe the Mechanic"
- Errors introduced by speech detection were very frustrating. Sometimes the learner was not sure if the error was theirs, or a tech failure.
- "I know what happened, but it is hard to convey the message with my limited vocabulary, it **felt a little bit like a charades game**"
- **"A car 'Hood' is an American thing, a colloquial term, even if I do know the word for the hood [in French], it might actually mean like a coat hood."**
- "I usually check in to make sure the person understand what I am saying, or If they are looking confused" -> **Facial expressions are important**

# PROGRESS



## **Prep work:**

- Pilot tested our scripts and user task
- Getting ready to setup the experiment using VR

## **Next steps:**

- More detailed data collection and analysis set up
- Pilot the experience with VR, revised script and Google Text-to-Speech with target users

안녕

CIAO

HOLA

HALLO

HELLO

你好

สวัสดี

BONJOUR

こんにちは



THANKS!

[IN ADVANCE, FOR YOUR FEEDBACK]