Virtual Experiences Research Group

🌱 **VERG New Student Challenge 2023** 🌱

Last Updated: 3/6/2024

Purpose. To familiarize yourself with how the VERG lab uses various technologies & tools (machine learning, virtual humans, etc.) to develop virtual human interactions.

The Project. A virtual human web-based platform where a user can converse with a virtual human about a health-related topic.

Overview. These are the general steps you will complete to build this project.

- Find a health-related topic that interests you.
- Write a simple script regarding this topic that educates the user.
- Create virtual human videos based on the conversation.
- Develop a web-based platform to host the virtual human interaction.
- Screen record yourself demo-ing your project!

If you get stuck at any point, please be sure to try googling the issue to see if you can resolve it! These instructions are not meant to teach you everything you need to know about the technologies we use. That's part of the research process! Go wander off on your own and get to know these technologies!

That being said, do reach out if you get super stuck. Please be very specific about your issue, and include solutions you have already tried, and any useful screenshots. Send an email to rashighosh@ufl.edu, and expect a reply within a few days!

Step 1. Find a health-related topic that interests you.

✏️ **Description**

You can choose a topic you are already very familiar with, a topic you want to learn more about, or a topic that's currently really relevant! Just make the **importance of knowing about this topic is clear** to the user during your virtual human interaction.

Step 2. Write a simple script regarding this topic that educates the user.

✏️ **Description**

This doesn't need to be super lengthy or cover every little thing there is to know about your health topic. Choose the **top 5-7** things someone should know about your health topic. Also, your script can branch; it doesn't have to be a linear conversation! (Example script at the end of this document).

You'll need to use a program like **Google Dialogflow** in order to implement this conversation. Click the button below for instructions for setting up and building a conversational agent in Dialogflow:

Google Dialogflow Instructions

NOTE You only need to follow the **first two steps** on that page (**Creating Dialogflow Agent** and **Basic Intro/Steps to Create Agent**).

Step 3. Create virtual human videos based on the conversation.

✏️ **Description**

To do this step, we will use a lip syncing tool that allows you to lip sync any video with an audio file.

1. Find/choose who will be your virtual human. This can even be an image of you!
   - If you use an image, "stretch" it out and make it into a video using a simple video editing software.

2. Generate audio files of your virtual human responses from your Dialogflow script. You can either record your own voice or use a text-to-speech service (Here's an example of a free service)
   - **NOTE** The audio files must be in .wav format for the lip syncing program in the next step

3. Follow the documentation on this Github repo to lip sync your videos to each audio file!
   - **NOTE** This program requires video & audio file to be the same length. Therefore, you will need to crop each video to the audio file length in order for it to work.

4. Name each video to match each Dialogflow intent name.

Step 4. Develop a web-based platform to host the virtual human interaction.

✏️ **Description**

Click the button below to find steps on how to complete this step:

Web Platform Instructions

Step 5. Screen record yourself demo-ing your project!

✏️ Description

If you've made it here, congrats!!! 🥳Now you're ready to show off your project and teach us a thing or two about our health. :)

Screen record yourself giving a demo of your project. Then, send your demo to Dr. Lok and set up a time to meet with him! Follow these steps to do so:

1. Email Dr. Roshan Venkatakrishnan (rvenkatakrishnan@ufl.edu) to set up an appointment to present your demo. **Be sure to also include your demo video in this email.**
2. Be on time for your demo day!

Example Script

Example: The importance of sunscreen.

Script:

VH: Hi, I'm Sunny, nice to meet you! Today we're going to talk about the importance of sunscreen. I can talk about a few things. What would you like to start with?

User Selects: [Why should I use sunscreen?] [When should I use it?] [Does everyone need sunscreen?] [What should I consider when buying sunscreen?] [Where can I buy it?]

VH [Why should I use sunscreen?]: There's plenty of reasons to wear sunscreen! According to the Skin Cancer Foundation, some of the benefits include preventing premature skin aging and decreasing your risk of skin cancers and skin precancers.

VH [When should I use it?]: You should apply sunscreen everyday, not only when it's sunny! Even on overcast, cloudy day, 80% of the sun's UV radiation can reach you. Therefore, skin damage can still happen if you aren't wearing your sunscreen.

VH [Does everyone need sunscreen?]: Yes! All skin tones and all skin types benefit from sunscreen. Having a darker skin tone or not burning easily doesn't mean you aren't at risk for sun damage. If you're exposed to the sun, your skin can get damaged. The only exception is babies under 6 months, as their skin is very sensitive!

VH [What should I consider when buying sunscreen?]: You should look for broad-spectrum, which protects against all kinds of UV damage. For everyday use, look for sunscreen with SPF 15. If you're going for a run or a hike, or work outside, bump up the SPF to 30. If you want more specific details regarding what's best for your skin, I've provided a link for you to learn more! https://www.skincancer.org/blog/how-to-choose-the-best-sunscreen-for-your-skin/

VH [Where can I buy it?]: You can buy sunscreen just about anywhere! You can get it at Walgreens, Publix, CVS, Walmart, Target, and Amazon! Here's a Consumer Reports article on specific sunscreen brand suggestions to help you get started:

https://www.consumerreports.org/health/sunscreens/best-sunscreens-of-the-year-a7763432372/