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 **metaiintw** More advanced interactive avatar with ChatGPT.

1.Create\_A\_Simple.Avatar

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2.Avatar\_With\_ChatGPT

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README.md

Co

## Build an avatar with ASR, Sentence-transformer, Similarity Search, and ChatGPT

### Project Description

I'll show you how I used several Python packages and NVIDIA's Omniverse Audio2Face to quickly implement an avatar that can answer questions and have a conversation with you.

### Demo



### How It Works



#### **Automatic Speech Recognition, ASR**

Upon receiving user's request, the [SpeechRecognition API](#) records the frequencies and sound waves from user's voice and translates them into text.

#### **Language Understanding**

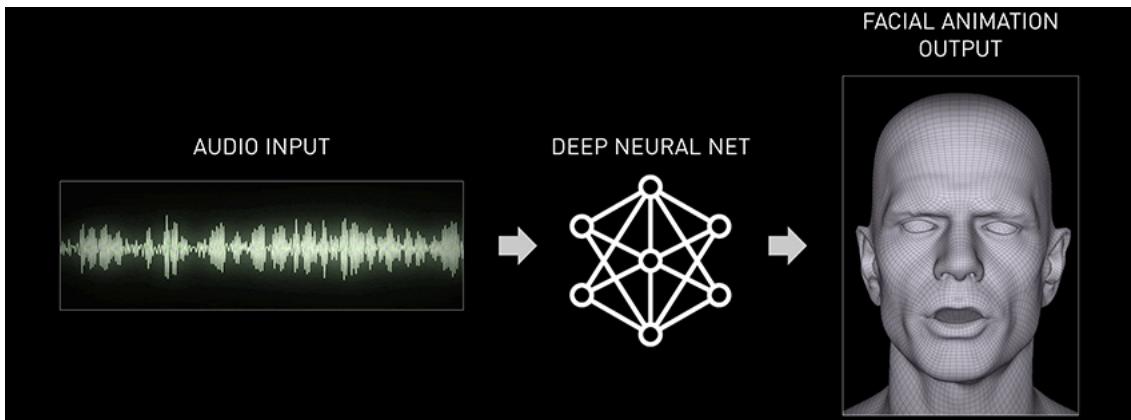
[Sentence-Transformer](#) is for state-of-the-art sentence, text and image embeddings that can encode input questions into feature vectors. The feature vectors are used to find the most similar questions in a database.

We'll conduct a similarity search, comparing a user input question to a list of FAQs and return the most likely answers by [Facebook's Similarity Search API](#).

#### **Text To Speech**

The avatar's voice is fully synthesized by the [Gtts API](#), which turns text into natural-sounding speech. The synthesized voice is also used to drive the mouth movements of the 3D face.

#### **Omniverse Audio2Face**



Omniverse Audio2Face is an application brings our avatars to life. With [Omniverse Audio2Face](#), anyone can now create realistic facial expression of 3D characters in real-time.

## System Requirements

Element	Minimum Specifications
OS Supported	Windows 10 64-bit (Version 1909 and above)
CPU	Intel I7, AMD Ryzen 2.5GHz or greater
CPU Cores	4 or higher
RAM	16 GB or higher
Storage	500 Gb SSD or higher
GPU	Any RTX GPU
VRAM	6 GB or higher
Min. Video Driver Version	See latest drivers <a href="#">here</a>

## How to Install and Run the Project

Before you begin, you'll need to clone the repository with the template code used in this repo. Open your Terminal app and find a directory wh

```
$ git clone https://github.com/metaintw/build-an-avatar-with-ASR-TTS-Transformer-Omniverse-Audio2Face.git
```

### Creating an environment from an environment. yml file

Make sure Anaconda is installed on your local machine. Use the following command to install packages included in requirements.yml:

```
$ conda env create -f /path/to/requirements.yml
```

### Download and Install Omnipaverse Launcher

[NVIDIA Omnipaverse](#) is a development platform for 3D simulation and design collaboration, it is free for individual, you can download Omnipaverse

I also recommend you to watch this [video tutorial](#), which guides you through the installation process.



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## SHOW US WHAT YOU #MADEINOMNIVERSE

Submit your work created with NVIDIA Omniverse to be showcased in the Omniverse Gallery.

[LEARN MORE](#)

### JUST ANNOUNCED

NVIDIA Omniverse ecosystem expands 10x, amid new features and services for developers, enterprises and creators.

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OMNIVERSE AUDIO2FACE



BLENDER 3.1 ALPHA USD  
BRANCH



OMNIVERSE CREATE BETA



OMNIVERSE DRIVE



ISAAC SIM



OMNIVERSE KAOLIN

LINK TO DRIVERS

Omniverse apps

Once you got Omniverse Launcher installed, you can immediate access to all the apps, including [Omniverse Audio2Face](#). Next, simply install Or

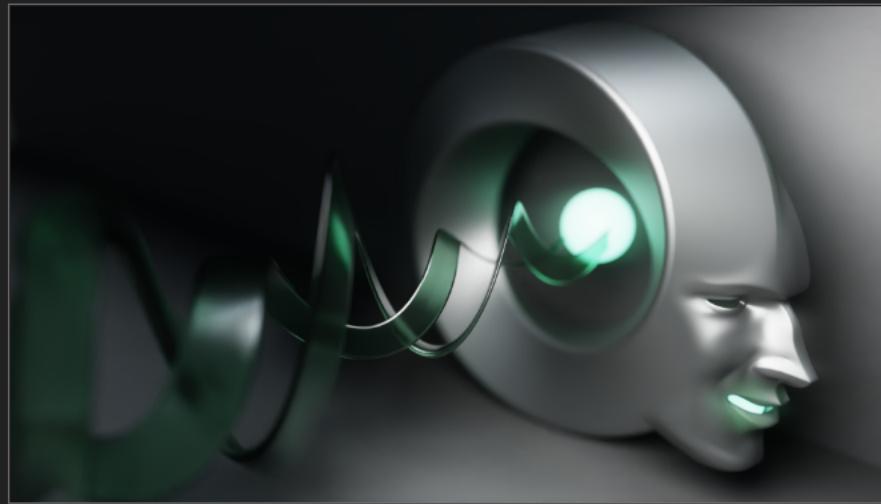


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OMNIVERSE | AUDIO2FACE



## About Omniverse Audio2Face

NVIDIA's Audio2Face is an Omniverse application that uses a combination of deep learning and real-time processing to enable real-time facial animation and dialogue lip-sync from an audio source input.

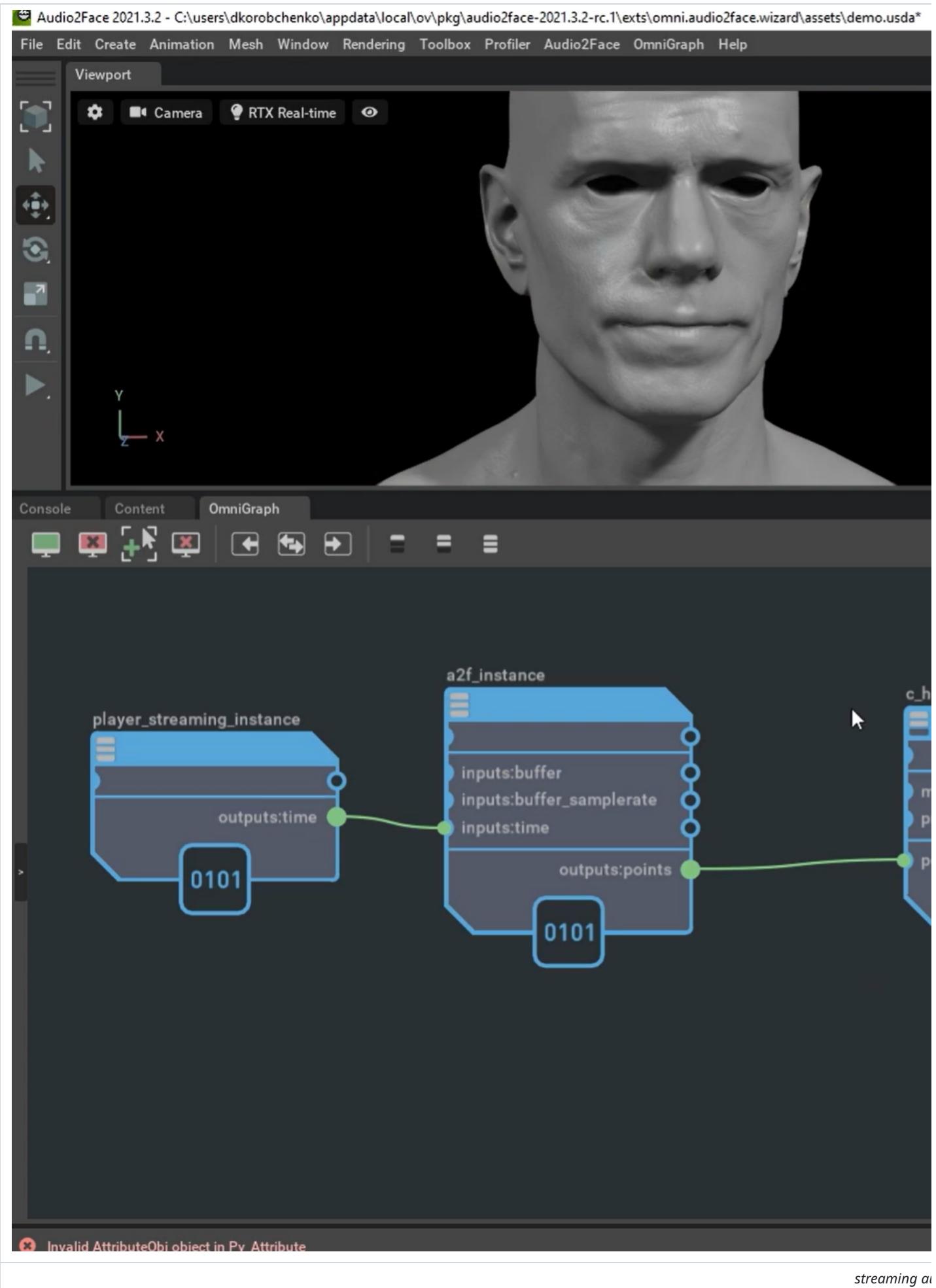
The application provides an array of pre- and post-processing options to refine the performance before exporting the result as a geometry cache.

[LINK TO DRIVERS](#)

Omniverse Audio2Face

### Omniverse Audio2Face setup

To get our Python program interacts with Omniverse Audio2Face, you should use streaming audio player that allows developers to stream aud



This [tutorial](#) showcases how to create an audio player and connect it to the audio2face instance using the omnigraph editor.

## Bring Your Avatar to life

Now we're ready to bring our avatar to life, simply enter the following commands into your terminal.

```
$ cd path_to_the_project_folder  
$ conda activate avatar  
$ jupyter lab
```

Execute the .ipynb notebook file named **1.Creating\_a\_simple\_avatar.ipynb**, start building your first avatar!

File Edit View Run Kernel Tabs Settings Help

+ ↗ ⌂ ⌄

Filter files by name

/

Name	Last Modified
data	an hour ago
• 1.Creating_...	16 minutes ago
audio2face...	an hour ago
audio2face...	an hour ago
Y: requiremen...	an hour ago

Launcher

Build a Similar Audio2

I'll show you h  
an avatar that

The image shows a Jupyter Notebook environment. On the left, there's a file browser window with a dark theme. It displays a directory structure starting with a root folder, followed by 'data', and several other files and folders like '1.Creating\_...', 'audio2face...', and 'requiremen...'. A search bar at the top of the browser allows filtering files by name. On the right, the main workspace shows a large title 'Build a Similar Audio2' and a subtitle 'I'll show you h... an avatar that'. Below the titles, a 3D rendering of a human head is partially visible. At the bottom of the screen, there's a toolbar with buttons for 'Simple' mode (which is selected), cell counts (0, \$, 1), and a kernel icon. The status bar indicates 'Python 3 (ipykernel) | Idle'.

## Creators

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### Renton Hsu

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