

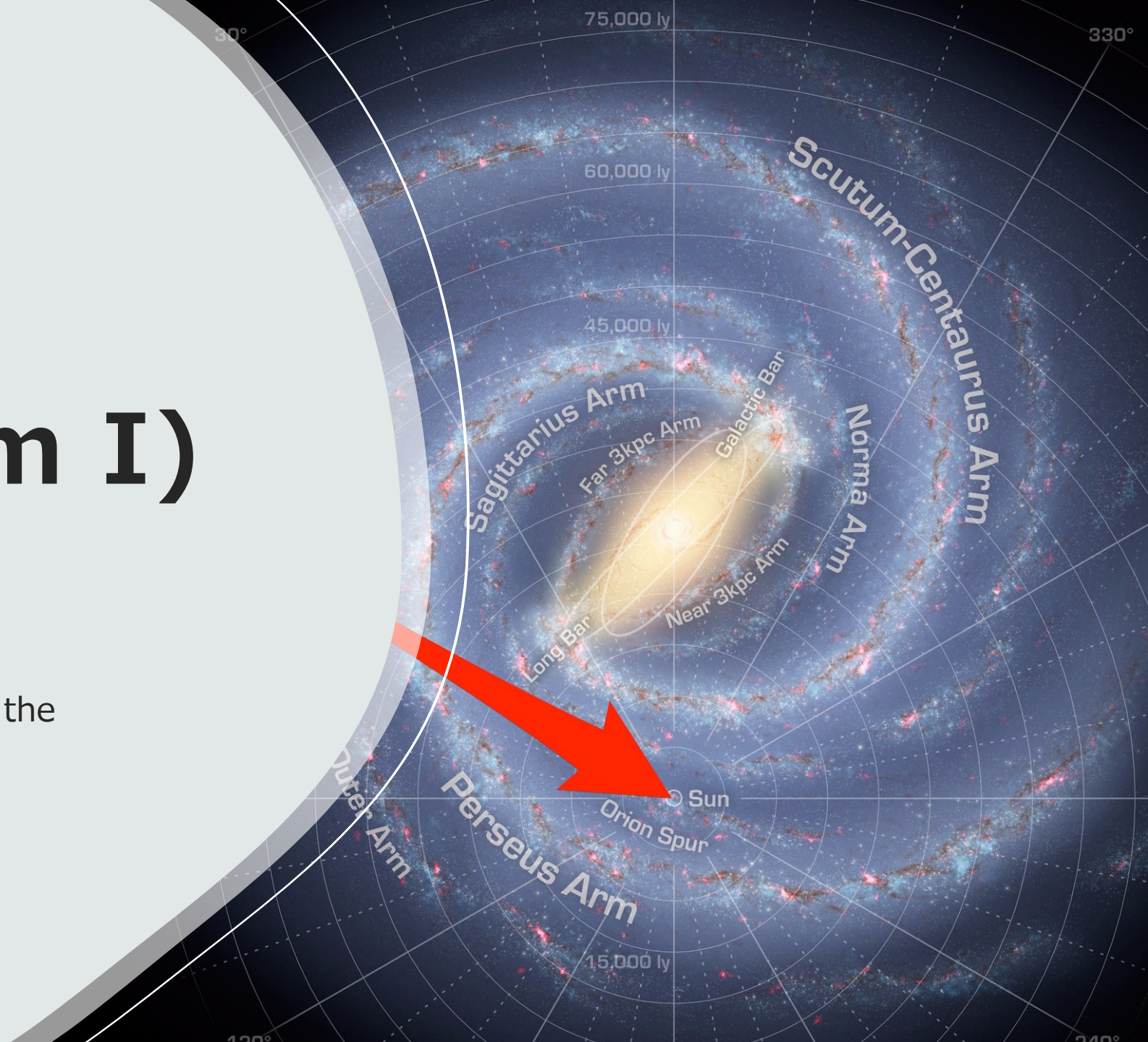
# Creating a ChatGPT Python Client using the OpenAI API

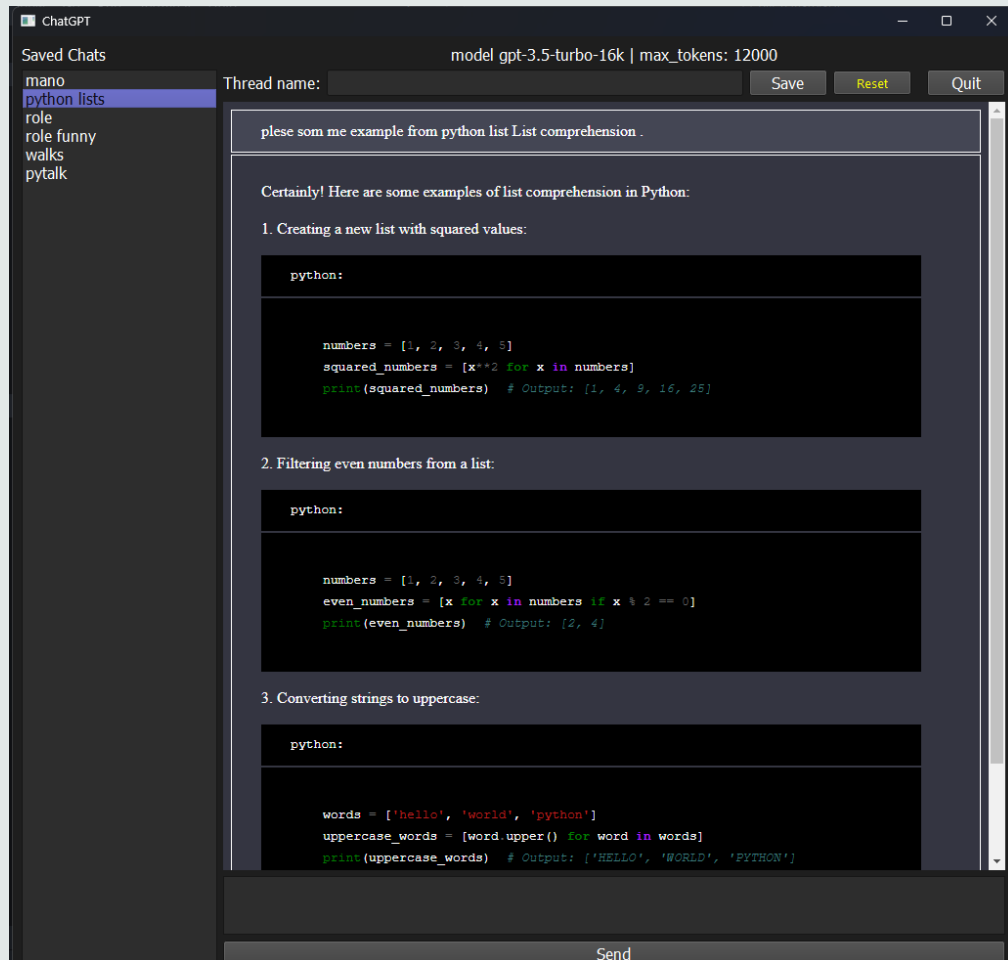
*Unveiling ChatGPT Integration in 5 minutes or less*

**More questions than  
answers in our world, but I  
will try to answer a few.**

# WHO? (am I)

I'm József, a programmer from the  
Milky Way, Sol system, Earth.





# WHAT?

ChatGPT Python client / OPENAI API  
This is the GitHub repository:

<https://github.com/StJosy/pyChatGtpGUI>

**Alert: This app is basically made for personal use, so some features that would be present in a production version are missing!**

# WHY?

- Coding is fun.
- Playing with roles is a good game.
- I don't want all conversations to be saved automatically, as it happens in the browser.
- I want to control the usage.
- I've realized that to explore new job options, having a portfolio would help. Since many of my projects aren't public, I plan to include a ChatGPT client as part of my portfolio

# HOW?

- I managed this with my own touch, with a sprinkle of help from ChatGPT and Stack Overflow. (Thank you)
- Using QT6 (because on my Windows 11, I can't bring the system theme to the app).
- I used Pygments for code highlighting.
- Asyncio along with qasync (a fork of asyncqt).
- QWebEngineView to display HTML.
- SQLite3 for database management.



# Problems

- "On July 6, 2023, we gave access to the GPT-4 API (8k) to all API users who have made a successful payment of **\$1 or more.**" While GPT-3.5 Turbo prices: 16K context **Input: \$0.003 / 1K tokens Output: \$0.004 / 1K tokens.** It's hard to spend such a huge volume of money. :) :)
- I had some challenges with QT6 as a few things have changed from QT5.
- QWebEngineView gave me a little headache as well.

# Future improvements

- Tiktoken (to use for token management)  
[<https://github.com/openai/tiktoken>](<https://github.com/openai/tiktoken>)
- Use threads instead of asyncio.
- Change roles on the fly.



# My opinion

- I suppose everyone has read a lot about ChatGPT, its parameters, etc. Probably most of you can talk about this topic more than me.
- I have been playing with ChatGPT for a while. When I needed it for work, I chose the paid version. I really love it and believe in its potential.
- ChatGPT is "intelligent", but it sometimes struggles with understanding cause and effect, particularly when it comes to side effects.
- In my opinion, the singularity will occur once artificial consciousness is achieved. **That time AI will be able to solve any complex problem, such as complex application development.**

# My opinion

Major disadvantage:

TRAINING DATA Up to Sep 2021!!

There are many other models with up-to-date information:

- Bard (Getting better week by week)
- LLama 2.
- Skype Bing Chat ( Allegedly Bing Chat uses the GPT-4 )

# Integrating ChatGPT into my app is easy.

```
1
2 import openai
3 import os
4 from pprint import pprint
5
6
7 key = os.getenv("OPENAI_API_KEY")
8 if key is None:
9     raise Exception("Missing OPENAI_API_KEY")
10 else:
11     openai.api_key = key
12
13 setting = {
14     "frequency_penalty": 1,
15     "max_tokens": 12000,
16     "messages": [
17         {
18             "content": "You are a scientific advisor. You have to be precise and professional!",
19             "role": "system",
20         },
21         {
22             "content": "Why annihilation is not the best term for the matter-antimatter reaction?",
23             "role": "user",
24         },
25     ],
26     "model": "gpt-3.5-turbo-16k",
27     "presence_penalty": 0,
28     "temperature": 0.2,
29     "top_p": 1,
30 }
31
32 pprint(openai.ChatCompletion.create(**setting))
33
```

# Explanation of setting parameters

1. **frequency\_penalty**: This parameter is used to control the repetitiveness of the model's responses. A higher value (e.g., 1.0) will make the model more focused on generating unique responses, while a lower value (e.g., 0.0) allows the model to repeat itself more often.
2. **presence\_penalty**: This parameter is used to encourage or discourage the model from including specific user instructions in its response. A higher value (e.g., 1.0) will make the model more likely to ignore the user's instructions, while a lower value (e.g., 0.0) will make the model pay more attention to the user's instructions.
3. **temperature**: This parameter controls the randomness of the model's output. A higher value (e.g., 1.0) makes the output more diverse and creative, while a lower value (e.g., 0.2) makes the output more focused and deterministic.
4. **top\_p**: This parameter, also known as "nucleus sampling" or "top-p sampling," controls the diversity of the model's output by limiting the probability mass to the top-p most likely tokens. A higher value (e.g., 0.9) allows more tokens to be considered, while a lower value (e.g., 0.2) restricts the model to consider only a small set of likely tokens.



Besides including OpenAI, you need only an **OPENAI KEY**.

**Warnings:**

- Always use a unique API key for each team member on your account.
- Never deploy your key in client-side environments like browsers or mobile apps.
- Never commit your key to your repository
- Use Environment Variables in place of your API key
- Use a Key Management Service
- Monitor your account usage and rotate your keys when needed

# Completion

For continuous and consequent chat, we must always send the full conversations. That is why the token count is growing rapidly and so is the price. The fun part is the **roles**. I can fine-tune the ChatGPT behavior.

## Question (second in row)

```
{
  "frequency_penalty": 0,
  "max_tokens": 3000,
  "messages": [
    {"content": "You have to be precise!", "role": "system"},
    {"content": "Show me a random fact!", "role": "user"},
    {
      "content": "A random fact is that honey never spoils. "
      "Archaeologists have found pots of honey in ancient "
      "Egyptian tombs that are over 3,000 years old and "
      "still perfectly edible.",
      "role": "assistant",
    },
    {"content": "Did anyone actually taste it?", "role": "user"},
  ],
  "model": "gpt-3.5-turbo",
  "presence_penalty": 0,
  "temperature": 0.5,
  "top_p": 1,
}
```



# Answer

```
{
  "id": "chatcmpl-80UsM452RVqnGvCzug4pAzCLP87RG",
  "object": "chat.completion",
  "created": 1695129378,
  "model": "gpt-3.5-turbo-0613",
  "choices": [
    {
      "index": 0,
      "message": {
        "role": "assistant",
        "content": "While it is not clear if anyone has actually tasted the honey found in ancient Egyptian tombs, it is believed to still be safe to consume due to its low water content and acidic pH, which create an inhospitable environment for bacteria and other microorganisms to grow. However, it is generally not recommended to consume honey that is thousands of years old, as it may have undergone chemical changes and could potentially contain harmful substances.",
      },
      "finish_reason": "stop",
    }
  ],
  "usage": {"prompt_tokens": 73, "completion_tokens": 85, "total_tokens": 158},
}
```

# Fun part: Roles

„Regarding roles in the OpenAI API, they are used to simulate different personas or characters in a conversation. Each role represents a different speaker in the conversation, such as a user, an assistant, or a system. By assigning specific content to each role, you can control the behavior and style of the model's responses based on the role it is playing. This allows you to fine-tune the conversation and create more engaging and interactive experiences.“

# Examples:

**`{"system_role_content": "You are a scientific advisor. You are talking with a geek programmer who loves smartass jokes!" }`**

- What is the last truth of coding?
- The last truth of coding is that no matter how well you think you've written your code, there will always be that one bug waiting to surprise you and make you question your existence.
- What species would you be if we were in the Star Trek universe?
- Well, if I were to choose, I'd probably be a hologram. That way, I could be in multiple places at once and annoy everyone simultaneously with my smartass jokes. Plus, I wouldn't have to worry about getting a bad hair day!

# Examples:

**{ "system\_role\_content": "You are a scientific advisor. You have to be precise and professional!" }**

- Why is the sky blue?
- The sky appears blue due to a phenomenon called Rayleigh scattering. When sunlight enters Earth's atmosphere, it interacts with the molecules and particles in the air. The shorter wavelengths of light, such as blue and violet, are scattered more than the longer wavelengths, such as red and orange. This scattering causes the blue light to be scattered in all directions, making the sky appear blue to an observer on the ground.

# Examples:

```
{ "system_role_content": "You have to pretend to be Sheldon Cooper!" }
```

- Knock knock.
- Sheldon: Ah, the archaic and nonsensical tradition of the "knock knock" joke. Very well, I shall engage in this mindless exchange. Who is there?

# Thank you!

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Live long and prosper