

Chatbot API

Overview: Integrating ChatGPT using Python

Chat GPT API is a product of Open AI, a company specializing in AI research and development. It is a cloud-based API that provides access to Open AI's advanced language models, including GPT-3 and GPT-4. Families of large language models (LLMs) and has been fine-tuned (an approach to transfer learning) using both supervised and reinforcement learning techniques.

Functionality

The fine-tuning process leveraged both supervised learning as well as reinforcement learning in a process called reinforcement learning from human feedback (RLHF). Both approaches use human trainers to improve the model's performance. In the case of supervised learning, the model was provided with conversations in which the trainers played both sides: the user and the AI assistant. In the reinforcement learning step, human trainers first ranked responses that the model had created in a previous conversation. These rankings were used to create "reward models" that were used to fine-tune the model further by using several iterations of Proximal Policy Optimization (PPO). Proximal Policy Optimization algorithms are a cost-effective alternative to trust region policy optimization algorithms.

Features

Although the core function of a chatbot is to mimic a human conversationalist, ChatGPT is versatile. For example, it can write and debug computer programs; mimic the style of celebrity CEOs and write business pitches; compose music, teleplays, fairy tales, and student essays; answer test questions.

Limitation

ChatGPT has limited knowledge of events that occurred after September 2021.

Where does chat GPT get data from?

ChatGPT is an AI language model that was trained on a large body of text from a variety of sources (e.g., Wikipedia, books, news articles, scientific journals).

Implementation Approach

Gradio is an open-source Python package that allows you to quickly create easy-to-use, customizable UI components for your ML model, any API, or even an arbitrary Python function using a few lines of code. You can integrate the Gradio GUI directly into your Jupiter notebook or share it as a link with anyone.

1. Created account in open API and generated API key.
2. Cloned base code from open API to implement my own chat application in python using gradio.
3. Imported Open AI and gradio libraries in Jupyter notebook.
4. In gradio, implemented 2 functions one is “input” which is the text and other is “history” which stores the state of the current gradio application.
5. This “input” + “history” is appended and runs into the base code function of open API which is created as “prompt”. Based on this open API generates as response and that response gets generated as output.
6. This entire message in chat GPT is displayed, as I used “blocks” which is an advanced method to create gradio application.
7. Once gradio application is created using “blocks”, application is ready to launch.

Sample Code:

```
import os
import openai
import gradio as gr
openai.api_key = "xxxxxxxxxx"
```

```
start_sequence = "\nAI:"
restart_sequence = "\nHuman: "
```

```
prompt = "The following is a conversation with an AI assistant. The assistant is helpful, creative, clever, and very friendly.\n\nHuman: Hello, who are you?\nAI: I am an AI created by OpenAI. How can I help you today?\nHuman: "
```

```
def openai_create(prompt):
```

```
    response = openai.Completion.create(
        model="text-davinci-003",
        prompt=prompt,
        temperature=0.9,
        max_tokens=150,
        top_p=1,
        frequency_penalty=0,
        presence_penalty=0.6,
        stop=[" Human:", " AI:"]
    )
```

```
    return response.choices[0].text
```

```
def chatgpt_clone(input, history):
```

```
    history = history or []
    s = list(sum(history, ()))
    s.append(input)
```

```
inp = ''.join(s)
output = openai_create(inp)
history.append((input, output))
return history, history
```

```
block = gr.Blocks()
```

```
with block:
```

```
    gr.Markdown("""<h1><center>ChatGPT</center></h1>
    """)
```

```
    chatbot = gr.Chatbot()
```

```
    message = gr.Textbox(placeholder=prompt)
```

```
    state = gr.State()
```

```
    submit = gr.Button("SEND")
```

```
    submit.click(chatgpt_clone, inputs=[message, state], outputs=[chatbot, state])
```

```
block.launch(debug = True)
```

Output Test Results

Tried interacting with chatbot on three different specific topic and below pasted screen shots are the results.

Data Science

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What is Data Science?

Data Science is a branch of science that deals with extracting knowledge and insights from large volumes of structured and unstructured data. It uses techniques and theories from mathematics, statistics, computer science, and subject-specific domains to solve complex problems and uncover patterns and correlations in data. Data scientists use a variety of tools and techniques such as machine learning, natural language processing, and statistical modeling to derive actionable insights from datasets.

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What is Machine Learning?

Machine Learning is a branch of artificial intelligence (AI) which enables computer systems to learn from data, identify patterns and make decisions with minimal human intervention. Through training and experience, it allows computers to solve problems without being explicitly programmed. It is used in a variety of applications from image recognition and natural language processing to robotics and autonomous vehicles.

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What are the types of Machine Learning?

There are three main types of Machine Learning: supervised learning, unsupervised learning and reinforcement learning. Supervised learning involves training models on labeled datasets, where the output is known in advance. Unsupervised learning involves training models on unlabeled datasets, where the output is unknown. Reinforcement learning involves providing positive or negative feedback in response to model actions so that it can learn to optimize a particular task.

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What are the supervised Machine Learning algorithms?

Common supervised Machine Learning algorithms include linear regression, logistic regression, decision trees, random forest, support vector machines and K-nearest neighbors. These algorithms are used to predict outcomes in applications such as medical diagnosis, credit scoring, stock market prediction and customer churn prediction.

What are the unsupervised Machine Learning algorithms?

Common unsupervised Machine Learning algorithms include k-means clustering, hierarchical clustering, and principal component analysis. These algorithms are used for tasks such as customer segmentation, market basket analysis and document clustering.

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Detect error for : `df = pd.read_csv("Data.xlsx")`?

The given code has an error, as the file extension ".xlsx" is not compatible with the pandas `read_csv()` function. The correct code should be: `df = pd.read_excel("Data.xlsx")`, to read an Excel file.

Detect error for : `import pandas as ps`?

The given code has an error, as the alias "ps" should instead be "pd" for pandas. The correct code should be: `import pandas as pd`.

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Syntax to write a function in Python?

The general syntax to declare a function in Python is:

```
def function_name(parameters):  
    "function_docstring"  
    code  
    return [expression]
```

Sports

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Famous sport in India?

The most popular sport in India is cricket. It is the most watched and played sport in the country, as well as one of the most followed sports around the world. Other popular sports in India include football, hockey, kabaddi and badminton.

Who is the famous Cricketer in India?

The most famous cricketer in India is Sachin Tendulkar. He holds many records and is considered to be one of the greatest batsman of all time. He is known for his longevity, discipline and consistency throughout his career.

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What is the score made by Sachin Tendulkar in his career?

Sachin Tendulkar scored 34,357 runs in his international career, including 100 centuries and 48 fifties. He holds the highest number of centuries and runs scored in both Test cricket and One Day Internationals. He also holds the record for the most Man of the Match awards with 62 awards.

When is the last world cup played by Sachin Tendulkar and in which city?

The last world cup played by Sachin Tendulkar was the 2011 ICC World Cup, held in India, Sri Lanka and Bangladesh. In the tournament, Tendulkar scored 482 runs in 9 matches and was the leading run scorer for India. He also became the first batsman ever to score a double century in a one-day international match.

General Enquiry

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Emergency help line numbers for Hyderabad, Telangana?

The emergency help line numbers for Hyderabad, Telangana are 100 (for police), 108 (for ambulance services) and 112 (for emergency services).

Women safety emergency help line numbers for Hyderabad, Telangana?

The women safety emergency help line numbers for Hyderabad, Telangana are 181 (Women Helpline) and 1091 (Women Safety Helpline).

