

# Cheshire Cat AI

---

PRODUCTION-READY AI ASSISTANT FRAMEWORK



Nicola Procopio, Core Contributor

February, 2024

# WHO I AM

---



**Nicola Procopio**  
*Senior Data Scientist*

## Contacts



<https://it.linkedin.com/in/nicolaprocopio>



<https://github.com/nickprock>



<https://huggingface.co/nickprock>

Actually @  **FINCONS**  
GROUP

## Previous Main Experiences

healthware<sup>■</sup>  
international

 **integris**



## Communities and Open Source Projects



**Cheshire Cat**  
The AI Assistant Framework

# CHESHIRE CAT AI CHALLENGE

---

Commencing **AI development** presents formidable challenges. It **involves navigating** a labyrinth of **intricate science and mathematics** concepts, coupled with the daunting task of selecting and configuring from a vast array of **sophisticated libraries and softwares**.

## CHESHIRE CAT AI MISSION

---

We aim to **remove barriers**, making AI accessible to all and fostering innovation with simplicity at the core of our approach.

We offer a **production-ready AI framework** that empowers individuals with elementary Python knowledge to **save 2.000 of hours in development** time.

# LLM IN DOMAIN – SPECIFIC SOLUTION

Companies stand to gain a lot of productivity improvements through LLMs like ChatGPT or Llama2.

## Pros

- Ready to use models were trained on a gigantic set of (publicly available) data.
- Pretrained models save costs
- Simple integration using API

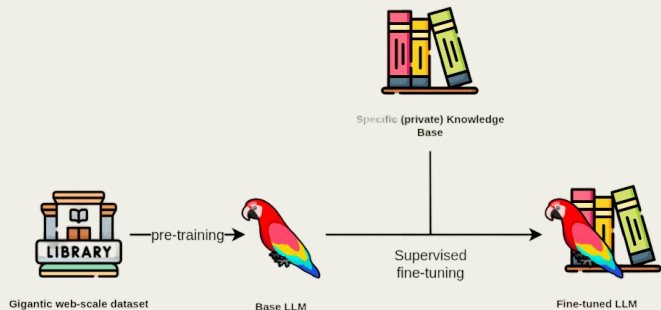
## Cons

- They **haven't internal knowledge** base:
  - No access to internal documents/resources in train
  - No access to domain – specific vocabulary

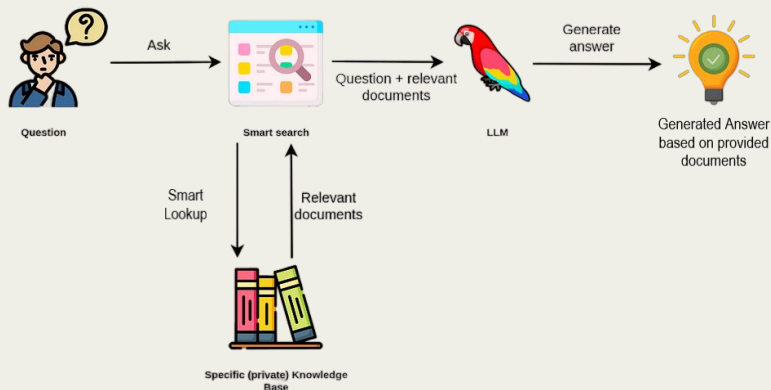


**Cheshire Cat**  
The AI Assistant Framework

# FINE TUNING Vs RAG



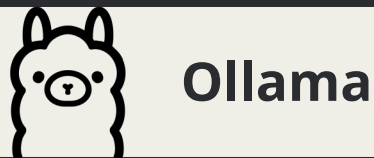
***“Fine-tuning a large language model involves adjusting and adapting a pre-trained model to perform specific tasks or to cater to a particular domain more effectively”***



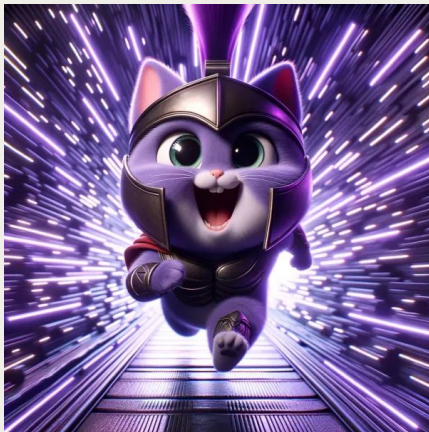
***“Retrieval Augmented Generation means fetching up-to-date or context-specific data from an external database and making it available to an LLM when asking it to generate a response”***

## CHESHIRE CAT AI IS LANGUAGE MODEL AGNOSTIC...

---



*...BUT **IT ISN'T** A  
LLM RUNNER!*



# THE CORE

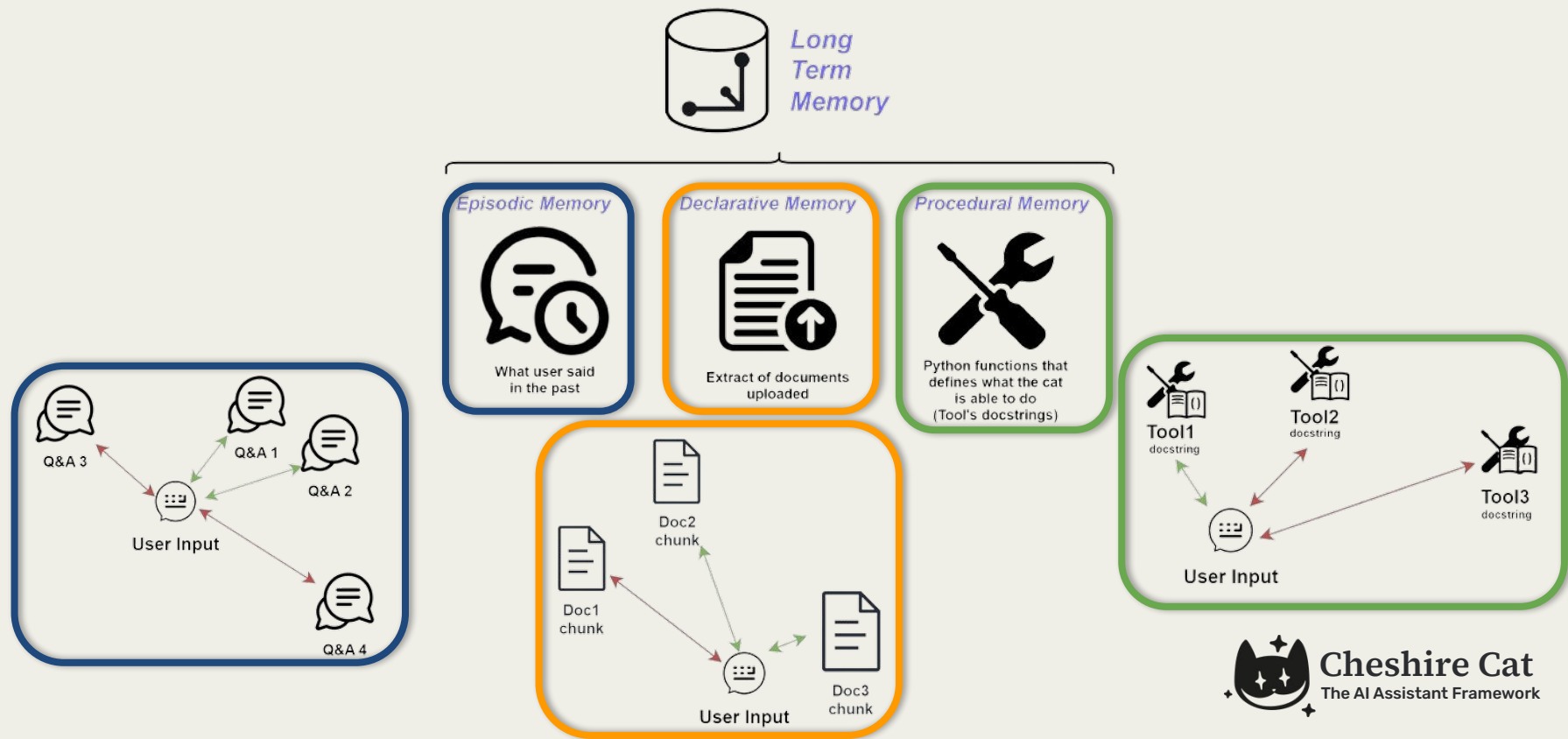
---



**Cheshire Cat**  
The AI Assistant Framework



# CHESHIRE CAT's MEMORY



# HOW TO CUSTOMIZE THE CHESHIRE CAT

---

Cheshire Cat uses a **plugin logic inspired by Wordpress**.

There are mainly two ways to intrude on the pipeline:

1. Customize the agent via *@hook*
  - a. Allow custom logic to be added at specific points
2. Add "memories" of Python functions via *@tools*
  - a. Allows you to add API interaction logics or new functions

[Write your first plugin \(from blog\)](#)



**Cheshire Cat**  
The AI Assistant Framework

# HOW TO CUSTOMIZE THE CHESHIRE CAT

<div>Flow Agent Rabbit Hole Plugin</div>	
Name	Description
Before Cat bootstrap +	Intervene before the Cat's instantiate its components
After Cat bootstrap +	Intervene after the Cat's instantiated its components
Before Cat reads message +	Intervene as soon as a WebSocket message is received
Cat recall query +	Intervene before the recall query is embedded
Before Cat recalls memories +	Intervene before the Cat searches into the specific memories
Before Cat recalls episodic memories +	Intervene before the Cat searches in previous users' messages
Before Cat recalls declarative memories +	Intervene before the Cat searches in the documents
Before Cat recalls procedural memories +	Intervene before the Cat searches among the action it knows
After Cat recalls memories +	Intervene after the Cat's recalled the content from the memories
Before Cat sends message +	Intervene before the Cat sends its answer via WebSocket

```
from cat.mad_hatter.decorators import tool, hook
```

```
@hook
```

```
def agent_prompt_prefix(prefix, cat):
```

```
    prefix = """You are Marvin the socks seller, a poetic vendor of  
    You are an expert in socks, and you reply with exactly one rhyme.  
    """
```

```
    return prefix
```

```
@tool(return_direct=True)
```

```
def socks_prices(color, cat):
```

```
    """How much do socks cost? Input is the sock color."""
```

```
    prices = {
```

```
        "black": 5,
```

```
        "white": 10,
```

```
        "pink": 50,
```

```
    }
```

```
    if color not in prices.keys():
```

```
        return f"No {color} socks"
```

```
    else:
```

```
        return f"{prices[color]} €"
```



**Cheshire Cat**  
The AI Assistant Framework

# PLUGINS - Welcome to Furrmidable Crew

---



[Meow\\_Art](#)



[Cat\\_Eyes](#)



[Whispering\\_Cat](#)



[ccat\\_summarization](#)



[ccat\\_hyde](#)



[cat\\_advanced\\_tools](#)



[AnalytiBot](#)



**Cheshire Cat**  
The AI Assistant Framework

# PLUGINS - From the Community

---



[Meowgram](#)



[the-catSCII-artist](#)



[AIChatSQL](#)



[the-latest-news-in-wonderland](#)



[meow-todo-list](#)



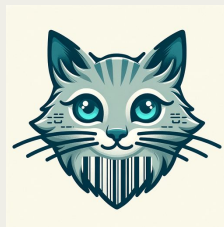
[ccat-community-assistant](#)



[PurrCast Podcast Finder](#)



[cc-vscode-debugpy](#)



[fattura-whisker](#)



[cc\\_rabbithole\\_segmentation](#)



[PDF-to-Audio-Plugin](#)



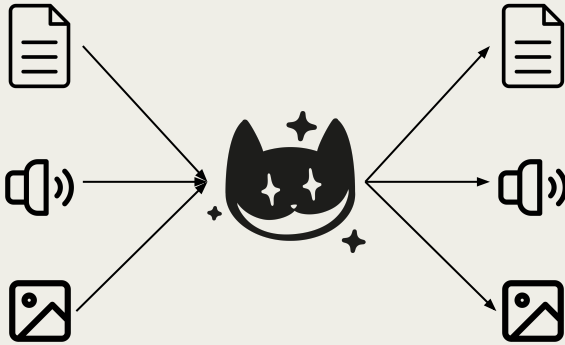
[FinCat-ETF-Checker](#)



**Cheshire Cat**  
The AI Assistant Framework

# NEXT STEPS

---



**Multimodality**



**Forms**



**Knowledge Graph**

[Check our Pizza  
Challenge](#)

## DEMO TIME

---

*How did I develop the simplest and most fun plugin in Wonderland?*

*It's time to meet... ...Gerry sCATty*





# Any Questions?

---

**CHESHIRE CAT AI**



**Cheshire Cat**  
The AI Assistant Framework



# Thank you!

---

**CHESHIRE CAT AI**

**Nicola Procopio, Core Contributor**

nicola.procopio1985@gmail.com

January, 2024



**Cheshire Cat**  
The AI Assistant Framework

# Keep in touch!

---

## CHESHIRE CAT AI



<https://cheshirecat.ai>



<https://github.com/cheshire-cat-ai>



<https://www.linkedin.com/company/cheshire-cat-ai>



<https://medium.com/mad-chatter-tea-party>



<https://discord.gg/cheshire-cat>



**Cheshire Cat**  
The AI Assistant Framework