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# A FRAMEWORK FOR LONG TAIL AI APPLICATIONS

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A PREPRINT

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## ABSTRACT

Recent developments in Large Language Models opened up a vast ecosystem of applications. We introduce an architecture aimed at the construction of long tail AI assistants. In the same way Content Management Systems allowed rapid diffusion and personalization of web applications, we propose an architecture and framework to do the same with AI assistants based on a language model. The architecture presents itself as a web service, featuring a vector long term memory, a file uploader and a plugin system for extendibility. A Python implementation already exists here []

**Keywords** Artificial Intelligence · Cognitive Architecture · Open Source · Large Language Models

## 1 Introduction

Extedn the abstract on why we are doing this and how.

## 2 State of the Art

Describe current scientific ecosystem, giving reference to proprietary solutions (advanced, not scientifically shared) and open source tools.

### 2.1 Large Language Models

Cloud private offering vs open ecosystem, distilled models, generators vs instruction based, RLHF

#### 2.1.1 Agents

ReAct, ToolFormer, AutoGPT and others

#### 2.1.2 Open source tooling

Langchain, vector dbs

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\*Use footnote for providing further information about author (webpage, alternative address).

### 3 The Cheshire Cat architecture

Here we explain how the cat works

#### 3.1 Main loop

Main conversational flow

#### 3.2 Large Language Model

- LLM agnosticism
- LLM as a part, not as the whole AI (pure AGI via deep learning may arrive but in this way we accomplish control and feasibility on the short term)
- Neurosymbolic approach (mixture of neural and symbolic computation)
- Main prompt

#### 3.3 Vector Memory

- Embedding + approximate nearest neighbour
- HyDE

#### 3.4 Plugin system

Here we explain how plugins work and how they are a combination between WordPress style plugins and the Toolformer

##### 3.4.1 Hooks

How hooks work

##### 3.4.2 Tools

How Tools work

#### 3.5 Endpoints

Network capabilities

#### 3.6 Citations

Citations use natbib. The documentation may be found at

<http://mirrors.ctan.org/macros/latex/contrib/natbib/natnotes.pdf>

Here is an example usage of the two main commands (citet and citep): Some people thought a thing [??] but other people thought something else [?]. Many people have speculated that if we knew exactly why ? thought this...

#### 3.7 Figures

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<sup>2</sup>Sample of the first footnote.

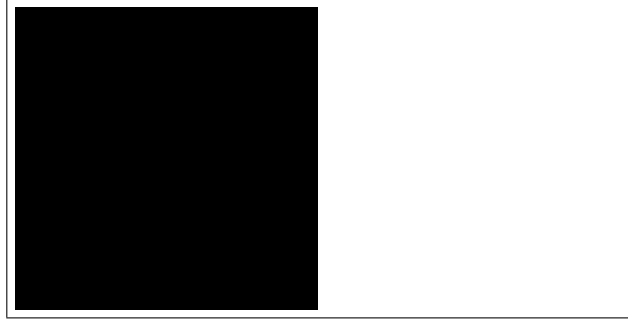


Figure 1: Sample figure caption.

Table 1: Sample table title

Part		
Name	Description	Size ( $\mu\text{m}$ )
Dendrite	Input terminal	$\sim 100$
Axon	Output terminal	$\sim 10$
Soma	Cell body	up to $10^6$

### 3.8 Tables

See awesome Table 1.

The documentation for booktabs (‘Publication quality tables in LaTeX’) is available from:

<https://www.ctan.org/pkg/booktabs>

### 3.9 Lists

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- Aliquam dignissim blandit est, in dictum tortor gravida eget. In ac rutrum magna.