

# Ola Chat Methods and Tools

**Barclay R. Brown, Ph.D.**

Senior Technical Fellow, AI Research  
Applied Research and Technology (ART)  
Collins Aerospace



# Agenda

1. What is Open Local AI
2. Architecture / Components
3. Ola Chat Features
4. Ola Chat Applications
5. Installation
6. Loading Models
7. Running Ola Chat
8. Application Notes

# Why “Open Local AI” Now?

- GenAI boosts SE productivity in reqs & test (early field data)
- But: 61% restrict tools; 63% restrict data into public models; bans exist
- Forecast: a majority of LLM workloads move on-prem within ~2 years
- Tension: speed of innovation ↔ confidentiality & export controls
- Goal today: show a practical, replicable, MIT-licensed path

## Design Principles

- **Open**: auditable, modifiable, vendor-neutral
- **Local**: inference + embeddings stay on the workstation
- **Offline-capable**: install → operate with zero internet
- **Fast to adopt**: desktop install in <1 day vs multi-week SaaS approvals
- **Replicable**: published architecture; MIT license

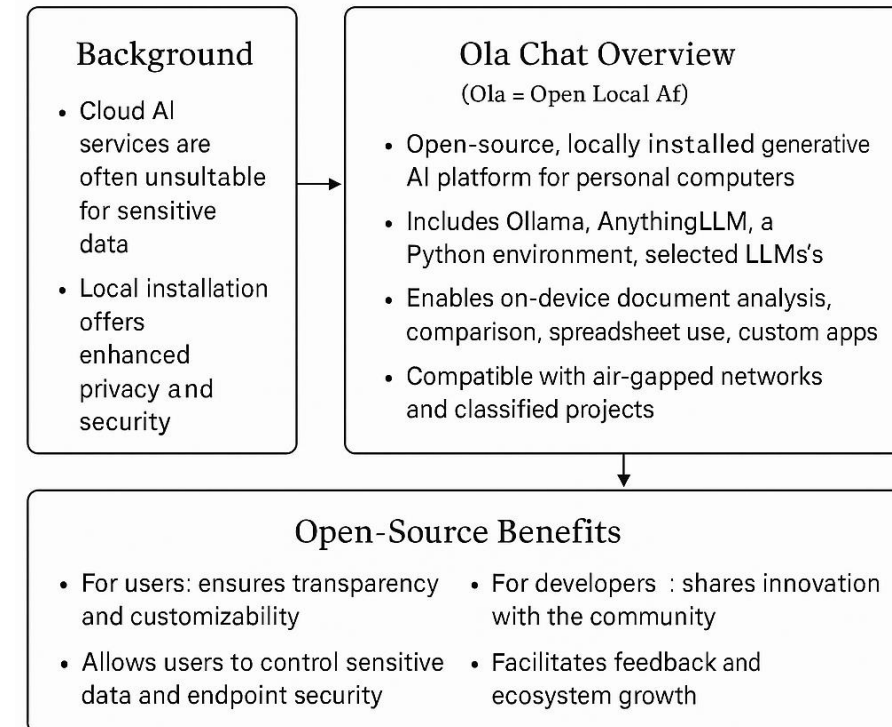
Is AI for SE more like SAP or more like Excel?

# Architecture at a Glance

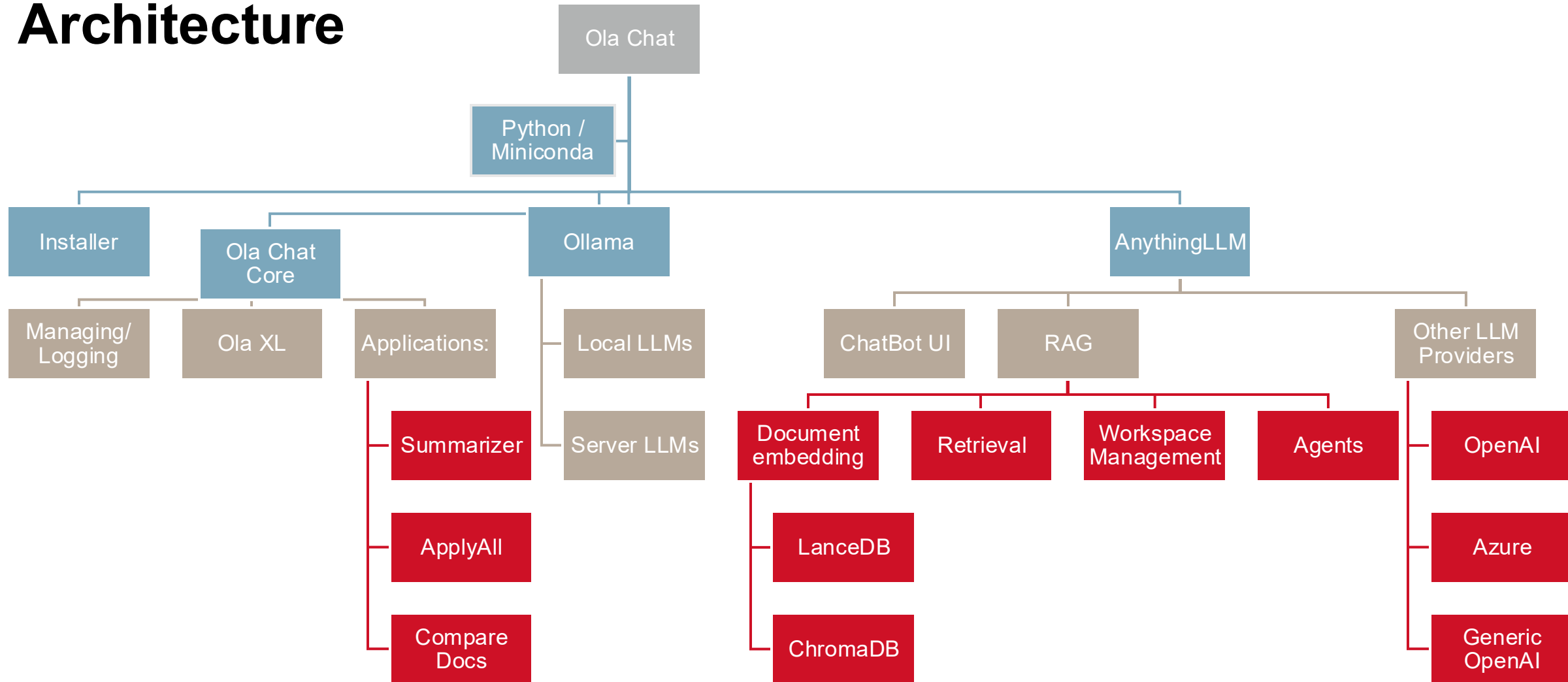
- **Ollama** executes quantized LLMs on CPU/GPU, fully local
- **AnythingLLM** orchestrates chat + retrieval; local vector indexes
- **Windows installer**: unzip → run; works on air-gapped networks
- **Scales down & up**: 8–20B models on dev boxes; heavier models on shared workstations
- **Model notes**: new small models (e.g., Phi-4 Reasoning / Mini) deliver strong utility even on low-/no-GPU machines
- **New OpenAI open source models** (GPT-OSS-20 and GPT-OSS-120) bring previously frontier model performance

## Open Local AI:

An Open Source Solution for Sensitive Information



# Ola Chat Architecture



# Deployment Approach

## The Case for Open Local AI

- Faster approvals (local install), immediate productivity lift
- Data sovereignty: nothing leaves; easier audits
- Extensible: add domain agents, pipelines, adapters
- Proven components; MIT license → fork & tailor
- **Call to action:** pilot on a dev workstation; identify 1–2 high-value SE use cases; plan a shared-workstation build for bigger models
- Deploy hosted solution to scale

## Choose your adventure...

“We can do what they did”

OR

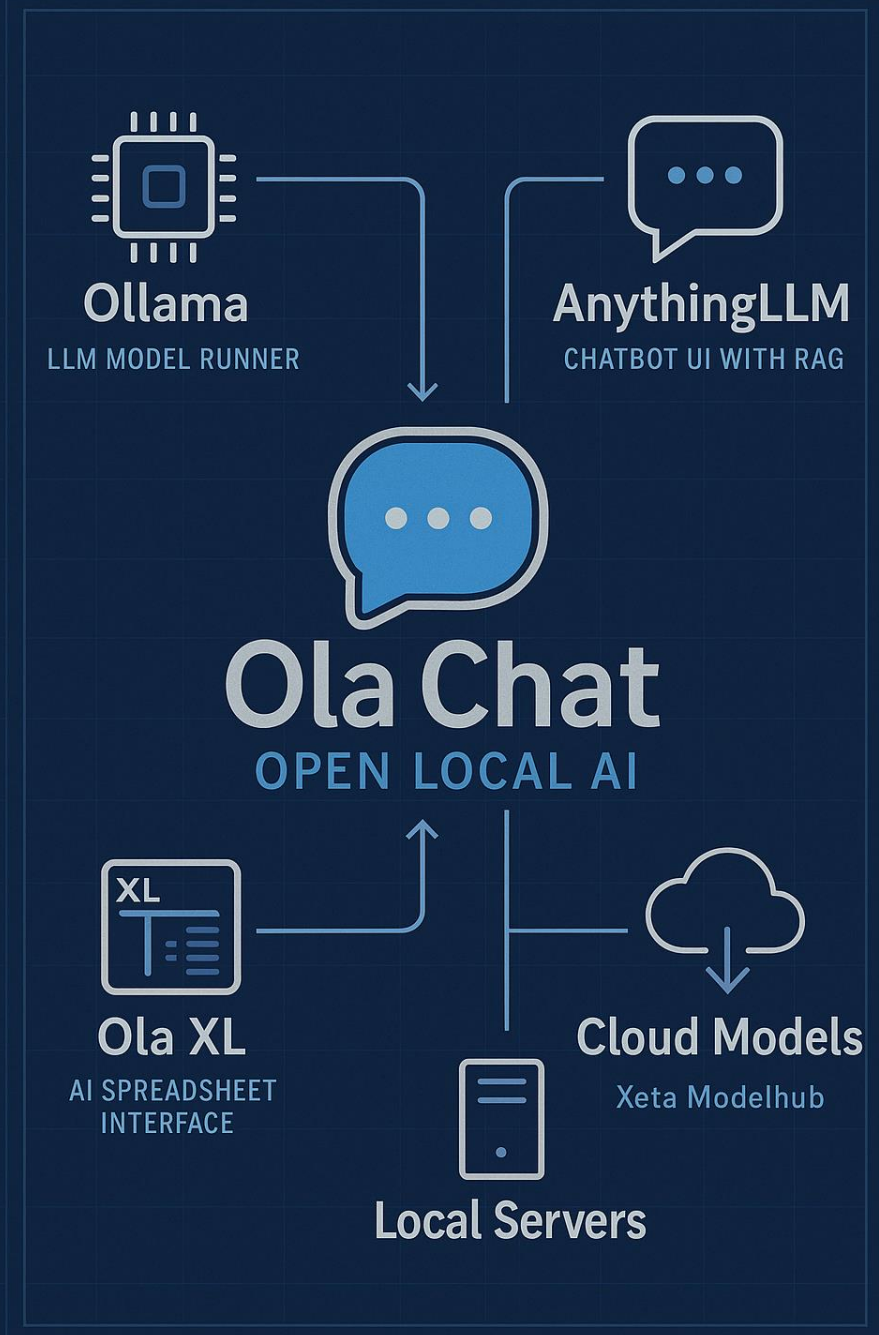
“We can use their stuff  
(and build on it)”



# Open Local AI (Ola) Chat

## What is Ola Chat?

- Open-Source based generative AI chatbot interface and application platform
- Ready to use functionality, similar to ChatGPT
- Application platform for developers
- Open-source components plus about 12k lines custom code
- Main features:
  - Chatbot using local, server or cloud models
  - End-user RAG with vector store/retrieval
  - Ola XL spreadsheet interface
  - Summarizer, document comparison, other applications
- Approved as open-source release by RTX

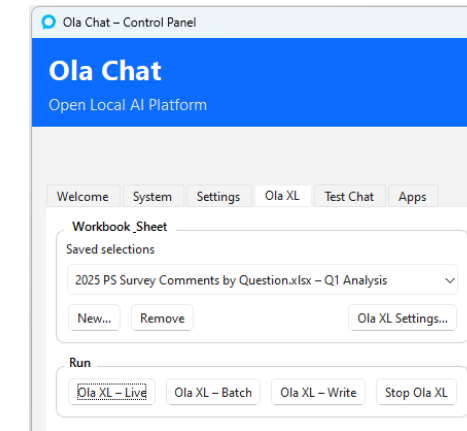
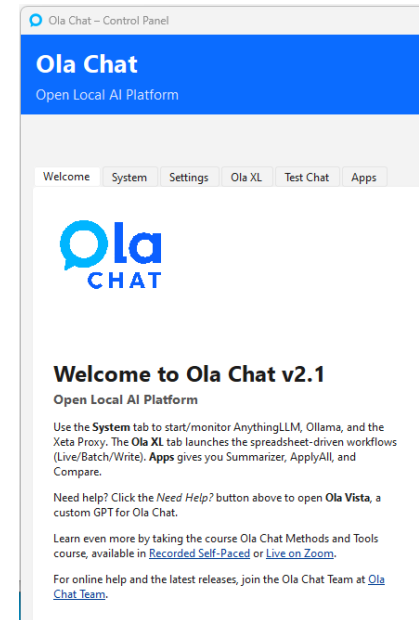




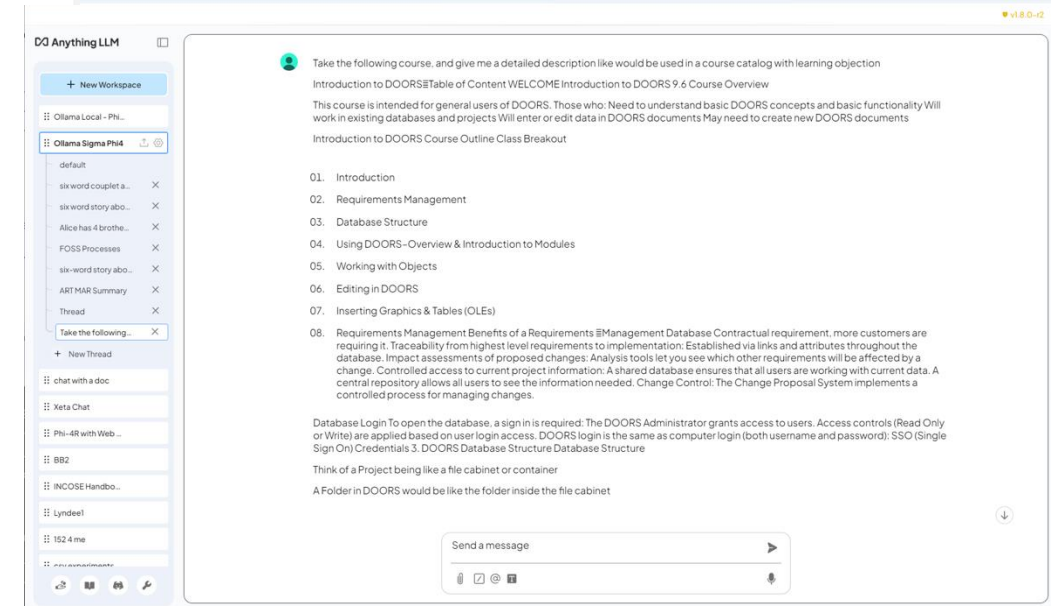
# Open Local AI Chat

## Current Progress

- User Community: 1000 across RTX with 38 Beta Testers
- Showing time savings and creative applications in systems engineering
- Educational / Outreach
  - Generative AI Applications course (~1000 completions so far)
  - GATTACA Workshops monthly
  - Ola Chat office hours weekly
  - Ola Chat Methods and Tools course (first offering July 2025)



Ola XL Test Sheet			
system prompt: You are a helpful assistant.			
Prompt	Data	Directive	Output
Write a six-word story about:	rats in the basement	@ola_prompt Write a six-word story about: rats in the basement Rats scurried; basement secrets were revealed. V You are a helpful	Rats scurried; basement secrets were revealed.
couplet about:	rats on the beach	@ola_prompt couplet about: rats in the basement rats on the beach electric bicycle in the basement, rats scurry, shadows they breach.	In the basement, rats scurry, shadows they breach, While on the sand, they frolic, near waves they reach. An electric bicycle hums, swift and sleek, Through city streets and coastal paths, adventures unique.
List the major subsystems for:	electric bicycle	@ola_prompt List the major subsystems for: electric bicycle An electric bicycle, or e-bike, consists of several key subsystems that work together to provide its functionality. Here is a list of the major subsystems typically found in an electric bicycle:	An electric bicycle, or e-bike, consists of several key subsystems that work together to provide its functionality. Here is a list of the major subsystems typically found in an electric bicycle: 1. **Motor System:**

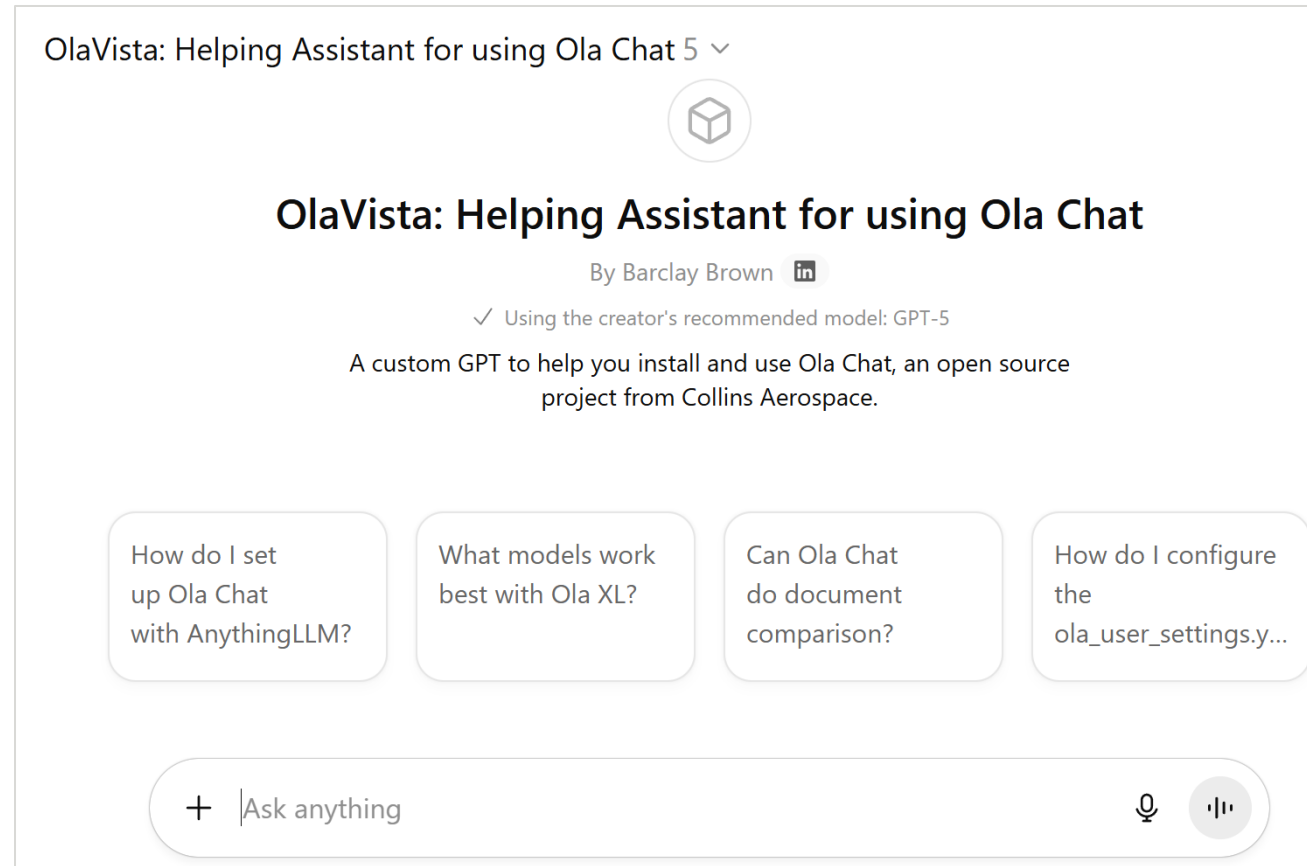




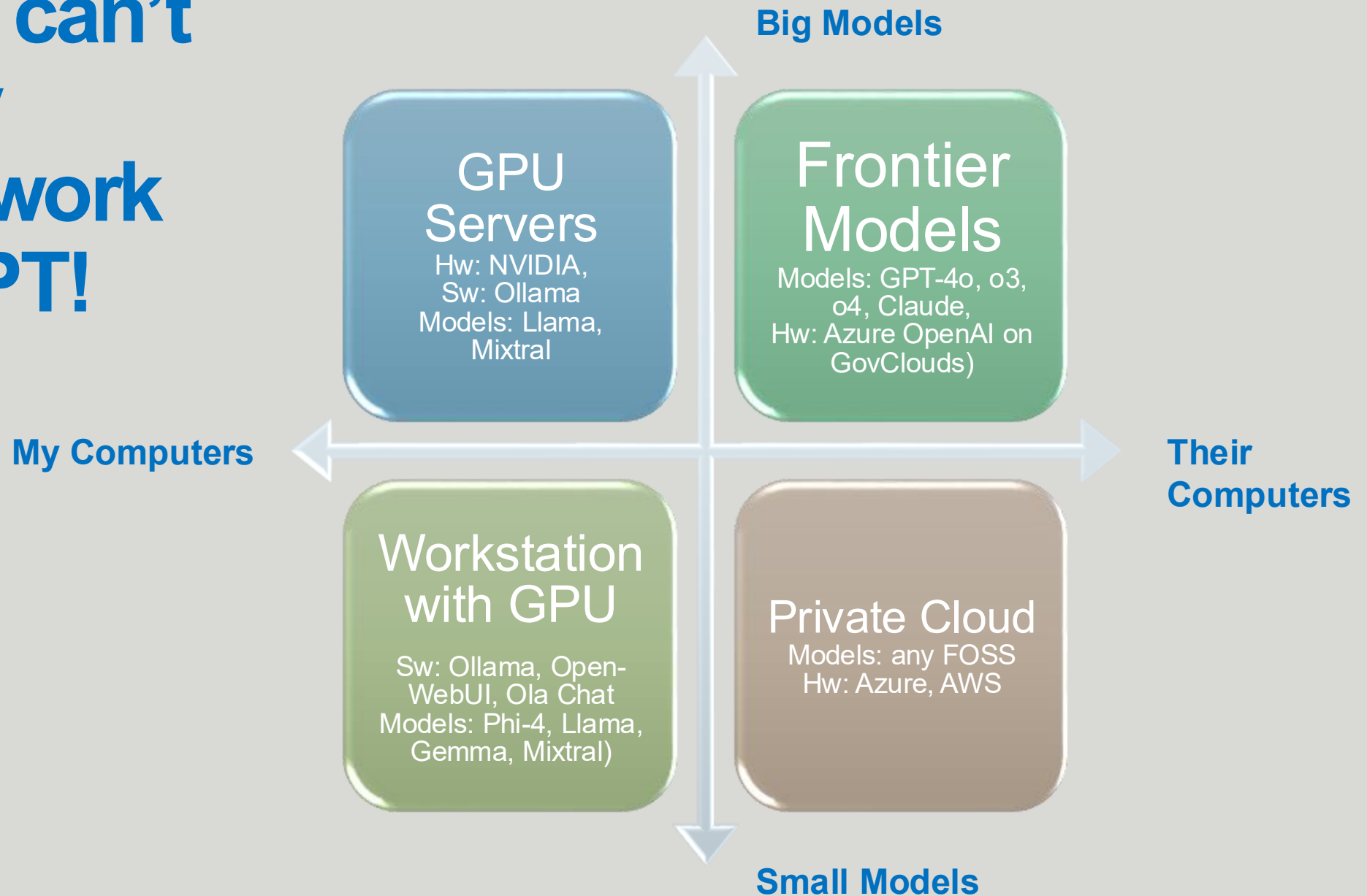
# Meet OlaVista: Ola Chat Assistant

To access:

- ChatGPT.com
  - Explore Custom GPTs
    - Look for OlaVista
  - Direct link: <https://chatgpt.com/g/g-682f17b82b708191950afd867b5495e2-ola-chat>
- OlaVista runs on an **external** AI, therefore, no RTX data. The subject matter is Ola Chat, which is approved as open source (release pending)
- It's fine to ask it about Ola Chat, AnythingLLM, Ollama, Ola XL, etc. but don't include company data in the question



**But, wait, I can't  
just do my  
company work  
on ChatGPT!**



# Models, Models... Everywhere

## GPT-5

- New single model with multiple versions
- Performance/ intelligence varies a lot
- Be sure to use GPT-5 Thinking if you want the actual best

ChatGPT 5 Thinking ▾

GPT-5

Auto  
Decides how long to think

Fast  
Instant answers

Thinking  
Thinks longer for better answers

Pro  
Research-grade intelligence

Upgrade

Legacy models



GPT-4o

## Artificial Analysis Intelligence Index

Artificial Analysis Intelligence Index v3.0 incorporates 10 evaluations: MMLU-Pro, GPQA Diamond, Humanity's Last Exam, LiveCodeBench, SciCode, AIME 2025, IFBench, AA-LCR, Terminal-Bench Hard,  $\tau^2$ -Bench Telecom

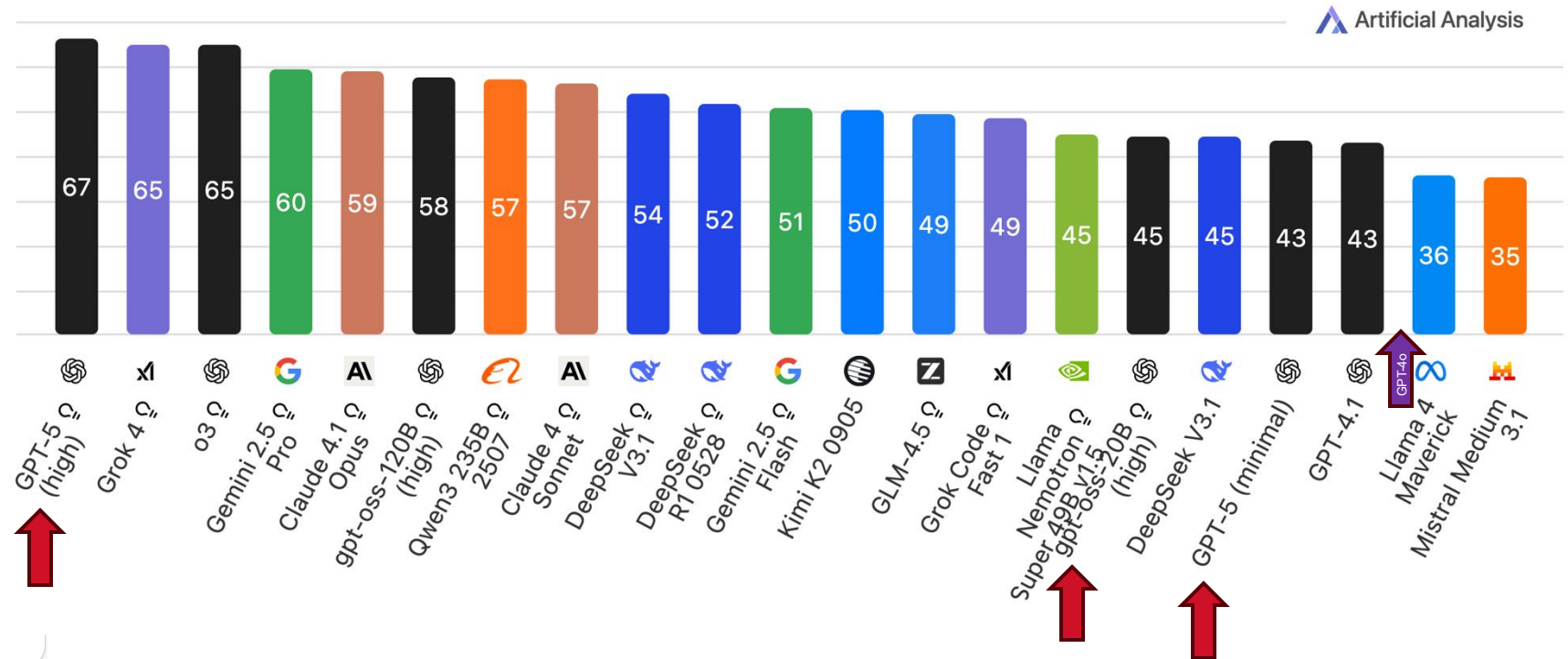


Diagram used with permission of the creator

See also post by Ethan Mollick: [https://www.linkedin.com/posts/ethanmollick\\_the-issue-with-gpt-5-in-a-nutshell-is-that-activity-7359977503651729408-zgY0?utm\\_source=share&utm\\_medium=member\\_desktop&rcm=ACoAAKu9PEBBWCYdSzIWNcmQVg0EcIQDRdJ-5k](https://www.linkedin.com/posts/ethanmollick_the-issue-with-gpt-5-in-a-nutshell-is-that-activity-7359977503651729408-zgY0?utm_source=share&utm_medium=member_desktop&rcm=ACoAAKu9PEBBWCYdSzIWNcmQVg0EcIQDRdJ-5k)

# In other news, GPT-OSS

*Another reason to go local!*

## GPT-OSS-20, GPT-OSS-120

- First open source models from OpenAI since GPT-2
- Apache 2 open source license
- GPT-OSS-20 <> GPT-o3-mini
- GPT-OSS-120 <> GPT-04-mini
- Very good for a lot of uses

# Introducing gpt-oss

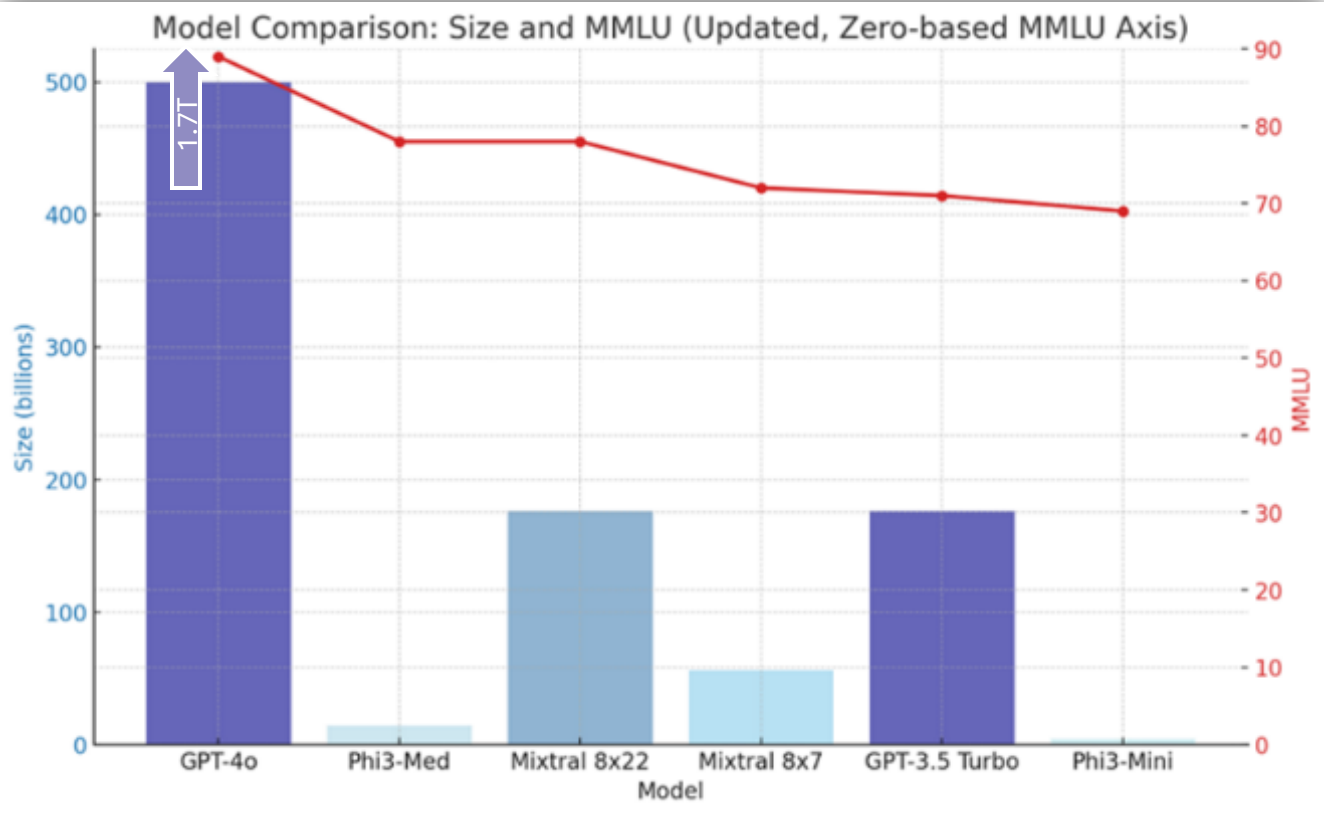
gpt-oss-120b and gpt-oss-20b push the frontier of open-weight reasoning models

[Explore on Hugging Face ↗](#)

[Read model card ↗](#)

Model	Layers	Total Params	Active Params Per Token	Total Experts	Active Experts Per Token	Context Length
gpt-oss-120b	36	117B	5.1B	128	4	128k
gpt-oss-20b	24	21B	3.6B	32	4	128k

# Can an LLM really run on my PC?

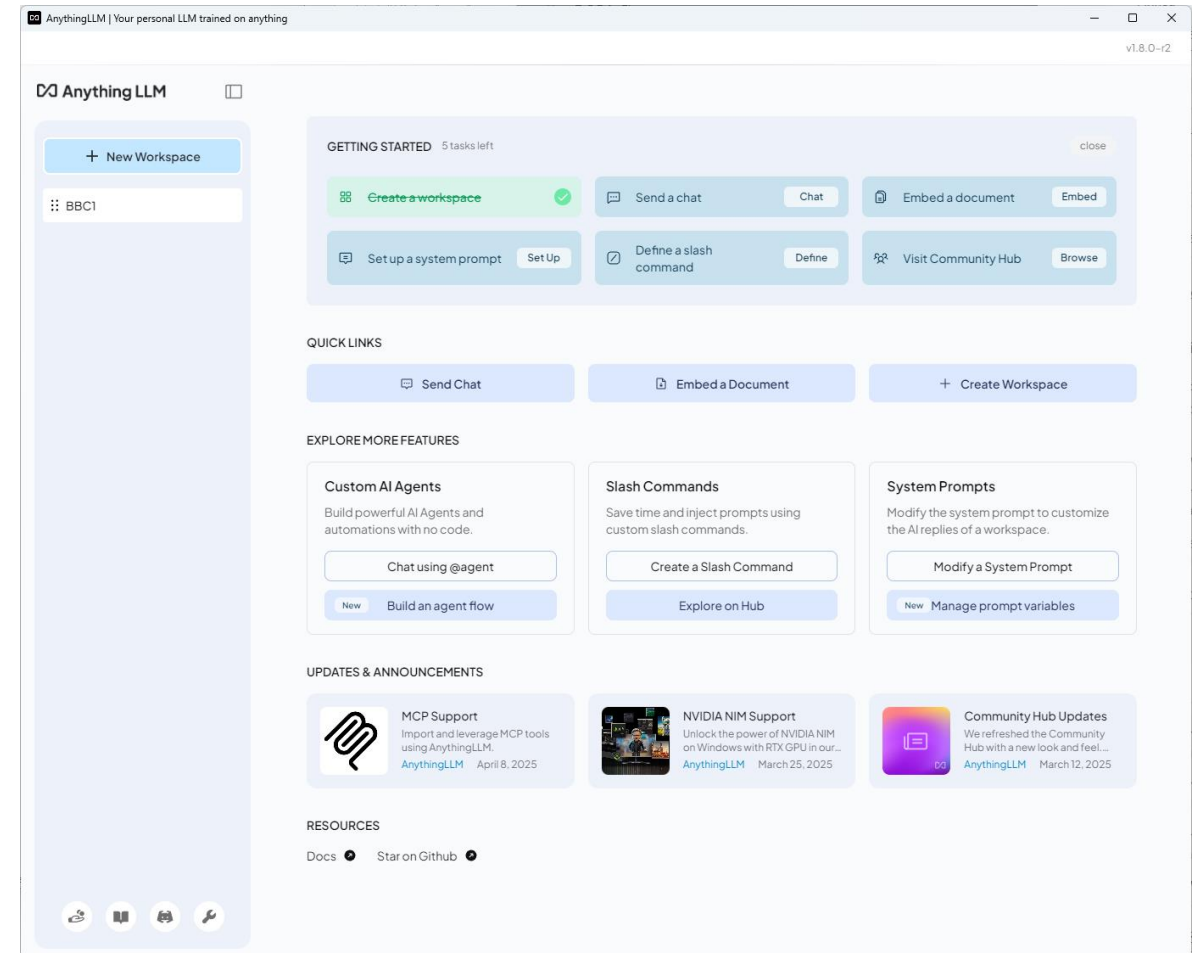


Model	MMLU-5	MMLU-Pro
• GPT-5	91.3	87
• Grok-4	86.6	87
• GPT-OSS-120	90.0	
• GPT-o3	92.3	85.6
• Gemini 2.5 Pro Exp		84.1
• Claude 3.7 Sonnet		82.7
• GPT-5 mini		82.5
• GPT-5 nano		77.9
• GPT-4o	88.7	72.6
• GPT-o3-mini-high	87.0	
• Llama 3.1 (405B)	85.4	
• GPT-OSS-20	85.3	67.1
• GPT-o4-mini	82	63
• Phi 4 Reasoning Plus		76
• Phi 4 (14B)	84.8	71.5
• Llama 3.3 (70B)	82.0	
• Mixtral 8x22 (176B)	77.8	
• Llama 3.2 Vision (11B)	68.4	
• Mixtral 8x7B (56B total)	70.6	
• Phi-4 Mini 128k (3.8B)	67.3	52.8
• Mistral 7B	60.1	

GPT-OSS-20 <> GPT-o3-mini / GPT-OSS-120 <> GPT-o4-mini

# Ola Chat and AnythingLLM

- AnythingLLM as UI
  - MIT License
  - Python integration via API
  - Flexible model access (many model providers)
- Ola Chat Installation Flexibility
  - Ola Chat Setup – windows installer
  - Can also install AnythingLLM and Ollama independently
  - Add Ola Chat source code in Python, with supporting libraries: Ola Chat is not compiled

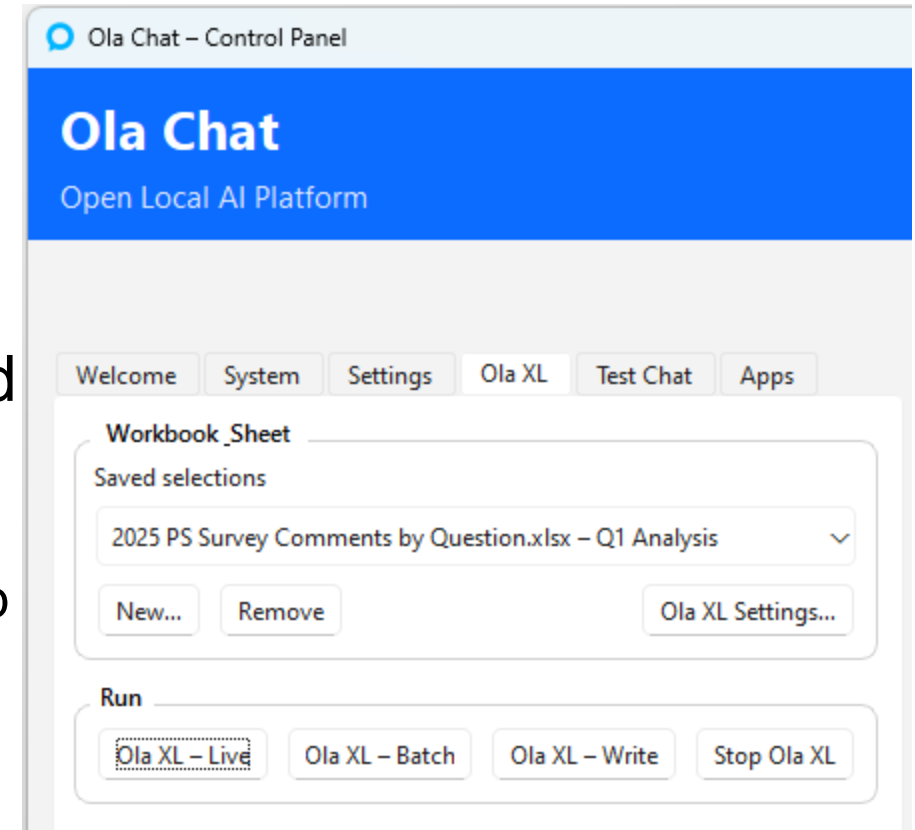


Be sure to follow your BU FOSS processes

# Ola XL – Spreadsheet AI

- Allows entry of prompts, data and directives in ordinary Excel spreadsheets
- Results returned to spreadsheet or written to Word document
- Quick start: @ola\_prompt
  - “ ” is the separator for the TEXTJOIN; TRUE means skip empty cells
  - @ola\_prompt is the directive to Ola Chat
  - A4 is the prompt
  - B4 is the data to be sent to the LLM with the prompt
  - D4 is the output cell
  - “V” means spill any multi-part data vertically (not used)
  - \$D\$1 is the system prompt (optional)

Prompt	Data	Directive	Output
Write a six-word story about:	rats in the basement	=TEXTJOIN(" ",TRUE,"@ola_prompt", A4, B4, D4, "V", \$D\$1)	Basement rats feast, shadows whisper, fear.



# Additional Ola XL directives (functions)

Directive	Parameters	Purpose
@ola_prompt	Prompt, data, output, system prompt	Combine prompts and data and pass to LLM for response
@ola_cat	Prompt, titles, data range, selector, output, system prompt	Apply prompt to rows matching selector
@ola_docgen	Heading Levels, heading titles, input, output	Write existing data in spreadsheet to multi-level heading Word document
@ola_pairs	Prompt, left and right data ranges, output, system prompt	Applies prompt to left/right pairs of inputs; writes output in tabular form
@ola_itemlist	Prompt, left and right data ranges, output, system prompt	Applies prompt to each left item and combination of all right items; writes output in tabular form
@ola_heading	Heading level, heading name, output, system prompt	Writes new multi-level heading to output Word document
@ola_heading	Cell range, output	Writes combined cells into output Word document



# Ola XL Modes

## Live Mode

- Normal, default mode
- Ola XL opens the designated spreadsheet and performs the Ola XL directives on the live open sheet, writing results in real time
- Only performs directives with no output present
- Saves sheet periodically

## Batch Mode

- Same as live mode but operates without opening Excel sheet

## Write Mode

- Writes all output to Word document
- Output to Excel sheet optional
- Allows for intelligence complex document generation

# Ola XL Write Mode - Example

## Analyze List of Items

Expressions in English - Analysis						
			prompt =	For the following expression, give a brief version of the meaning and the origin story of the expression	system promot =	You are a helpful assistant
		@ola_heading 1 Expressions and their Origins	@ola_text This document explains some common English expressions and their origin stories.	This document explains some common English expressions and their origin stories.		
Expression	Doc Section Heading					
Bite the bullet	@ola_heading 2 Bite the bullet	@ola_prompt For the following expression, give a brief version of the meaning and the origin story of the expression Bite the bullet **Meaning** "Bite the bullet" means to face a painful, difficult, or unpleasant situation with courage and resolve, accepting it rather than avoiding or postponing it.  **Origin story** The phrase comes from 19th-century battlefield medicine. Before anesthesia was common, soldiers undergoing surgery or other painful procedures would literally bite a bullet (or a piece of metal) to keep from screaming and to help them endure the pain. The act of "biting the bullet" became a metaphor for enduring hardship with stoicism. V You are a helpful assistant	**Meaning** "Bite the bullet" means to face a painful, difficult, or unpleasant situation with courage and resolve, accepting it rather than avoiding or postponing it.  **Origin story** The phrase comes from 19th-century battlefield medicine. Before anesthesia was common, soldiers undergoing surgery or other painful procedures would literally bite a bullet (or a piece of metal) to keep from screaming and to help them endure the pain. The act of "biting the bullet" became a metaphor for enduring hardship with stoicism.			
Break a leg	@ola_heading 2 Break a leg	@ola_prompt For the following expression, give a brief version of the meaning and the origin story of the expression Break a leg **Meaning** "Break a leg" is a theatrical way of wishing someone good luck—especially before a performance. It's used because saying "good luck" directly is considered bad luck in the theater world.  **Origin story** The exact origin is unclear, but the phrase is thought to date back to the 19th-century stage. One popular theory is that it's a euphemism: saying "good luck" was believed to tempt the devil, so actors said the opposite—"break a leg." Another explanation links "leg" to the "leg" of a stage or to the idea of "breaking a leg" in a performance (i.e., doing so well that you "break" the usual limits). Whatever the precise source, the expression has become a standard, superstitious blessing in theater and beyond. V You are a helpful assistant	**Meaning** "Break a leg" is a theatrical way of wishing someone good luck—especially before a performance. It's used because saying "good luck" directly is considered bad luck in the theater world.  **Origin story** The exact origin is unclear, but the phrase is thought to date back to the 19th-century stage. One popular theory is that it's a euphemism: saying "good luck" was believed to tempt the devil, so actors said the opposite—"break a leg." Another explanation links "leg" to the "leg" of a stage or to the idea of "breaking a leg" in a performance (i.e., doing so well that you "break" the usual limits). Whatever the precise source, the expression has become a standard, superstitious blessing in theater and beyond.			

### 1 Expressions and their Origins

This document explains some common English expressions and their origin stories.

#### 1.1 Bite the bullet

##### Meaning

"Bite the bullet" means to face a painful, difficult, or unpleasant situation with resolve and stoicism, accepting it rather than avoiding it.

##### Origin story

In the 19th-century battlefield, surgeons performed amputations and other urgent procedures without anesthesia. Soldiers were given a small metal bullet (or a piece of wood) to bite on to help endure the pain. The act of biting the bullet became a metaphor for enduring hardship with courage. The phrase entered common usage in the mid-1800s and has since been used figuratively to describe any tough decision or task that must be confronted head-on.

#### 1.2 Break a leg

##### Meaning

"Break a leg" is a theatrical way of wishing someone good luck—especially before a performance. It's used in the same way as "good luck" in everyday conversation, but only in the context of the stage.

##### Origin story (brief)

The exact origin is uncertain, but the most widely accepted explanation is that it's a superstition. In the world of theater, saying "good luck" directly is thought to jinx the performer, so actors use the opposite phrase—"break a leg"—to ward off bad luck.

Combines @ola\_prompt, @ola\_text, @ola\_heading directives

# Other Ola Chat Applications

## Built-In Features (end-user)

- Document Summarizer – Summarizes long documents
- Apply All – iteratively applies a prompt to a set of files in a folder
- Compare – compares two documents by identification of concepts and iterative comparison
- Most or even all of this can now be done using Ola XL (but new applications can be added)

The screenshot shows the 'Ola Chat' web interface with the subtitle 'Open Local AI Platform'. A navigation bar at the top contains tabs for 'Welcome', 'System', 'Settings', 'Ola XL', 'Test Chat', and 'Apps'. The main content area displays three application panels:

- Document Summarizer:** Features an 'Input folder' text field containing 'ents\\_BB\\_Orig\LongSum Docs\EIS', a 'Choose...' button, a 'Settings' button, and a 'Run Summarizer' button.
- ApplyAll:** Features an 'Input folder' text field containing 'uments\\_BB\\_Orig\LongSum Docs\EIS', a 'Choose...' button, a 'Settings' button, and a 'Run ApplyAll' button.
- Compare Documents:** Features two text fields: 'Source file' containing '\\_BB\\_Orig\hamilton\declaration.pdf' and 'Target file' containing 'ts\\_BB\\_Orig\hamilton\hamilton.pdf'. It also includes 'Source...', 'Compare with...', 'Settings', and 'Run Compare' buttons.

Applications put advanced AI workflows within reach of non-coders

# Installer Variants

- Four options available
  - OlaChatSetup\_2-x-x\_update: Full installer without Ollama/AnythingLLM/models (for UI updates)
  - OlaChatSetup\_2-x-x\_nomodels: Full installer without models (if models pre-installed)
  - OlaChatSetup\_2-x-x\_patch: Patch installer, smaller: skips core libs/env
  - OlaChatSetup\_2-x-x\_full: Complete installer: includes Ollama, AnythingLLM, Phi-4 models

# Loading Models

- Methods to load into Ollama
  - Full installer includes Phi-4 Mini & embedding model
  - Command line: `ollama pull <model>`
  - Ola Chat 'lmz' menu option for model ZIP
  - Manual .gguf or safetensors via HuggingFace

# Ola Chat Summarizer

- Documents smaller than context can simply be pasted
- There is also a summarizer built into AnythingLLM
- Summarizes multiple long documents using portioning if necessary
  - Creates portions (stored as txt files)
  - Summarizes each portion (also stored)
  - Combines summaries (concatenate, then summarize using prompt)

```
> sum
2025-07-24 09:03:29,575 - OlaChat Log - INFO - Starting Ola
Document Summarizer with mode: summarize

=====
Starting Ola Document Summarizer with mode: summarize
=====

(Input folder is set in ola_user_settings.yaml as
summarize_input_folder.
Results are stored in new folders under the input folder.)

Input folder: C:\Users\e21131490\Documents\_BB\_Orig\LongSum
Docs\EIS
Summarize from doc: 1 and to doc: 0 (0 indicates all)
Using modelset: Ollama, and model: phi4:14b-q8_0
Using prompt: Please summarize the text provided,
retaining...
Ollama server is: http://192.168.999.999:11434

Proceed with summarization, mode: summarize? (y/n) [n]
```

# Ola Chat Compare Docs

- Documents are compared using novel algorithm:
  1. Split Doc 1 into propositions
  2. Compare each proposition to Doc 2
  3. Categorize:
    - Nothing in Doc 2 relates to the prop
    - Doc 2 is consistent with the prop
    - Doc 2 contradicts the prop

```
> sum
2025-07-24 09:03:29,575 - OlaChat Log - INFO - Starting Ola
Document Summarizer with mode: summarize

=====
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Proceed with summarization, mode: summarize? (y/n) [n]
```

# Ola Chat with Web Searching

- Must use a search engine, e.g. Google
  - So, no company info can be sent in a prompt that will result in a Google Search—**CAREFUL!**
- Open your workspace Agent Configuration in the AnythingLLM settings
- Under Agent Skills, confirm Web-Browsing is enabled (default “Default” tool)
- In the Search Provider dropdown, choose Google
- Note: Google Search allows up to 100 free searches/day by default AnythingLLM
- May not work with some VPNs in place (need more testing)

The screenshot displays the 'AnythingLLM' settings interface. On the left is a sidebar menu with categories: 'INSTANCE SETTINGS' (AI Providers, LLM, Vector Database, Embedder, Text Splitter & Chunking, Voice & Speech, Transcription), 'Admin' (General Settings, Workspace Chats), 'Agent Skills' (selected), 'Community Hub' (Explore Trending, Your Account, Import Item), 'Customization' (UI Preferences, Chat), 'Tools' (Event Logs, Developer API, System Prompt Variables, Browser Extension, Browser Tool), and 'Experimental Features'. The main content area is divided into three sections: 'Agent Skills' with a table of skills (RAG & long-term memory, View & summarize documents, Scrape websites, Generate & save files to browser, Generate charts, Web Search, SQL Connector) and their status; 'Custom Skills' with a message 'No imported skills found'; and 'Agent Flows' with a message 'No agent flows found'. On the right, the 'Live web search and browsing' toggle is turned on. Below it, the 'Google Search Engine' is selected as the search provider, with fields for 'Search engine ID' (73568e3f7784342ad) and 'Programmatic Access API Key' (masked with dots).



# Extension/Customization Possibilities

## In Ola Chat Python Codebase

- GUI Customization
- Module addition
- New Applications
- Custom vector DB loading

## In AnythingLLM

### •Custom Agent Skills (NodeJS plugins)

Write a folder containing

- plugin.json (defines skill metadata & parameters)
- handler.js (implements the skill's logic in Node.js)

and drop it into plugins/agent-skills in your STORAGE\_DIR

### •Custom Data Connectors (plugins)

Build “data source” plugins to pull in documents or records from proprietary APIs, databases or file systems

### •Custom Authentication (OAuth plugins)

Implement OAuth or other auth flows so end-users can log in via external identity providers

### •Custom Model Provider

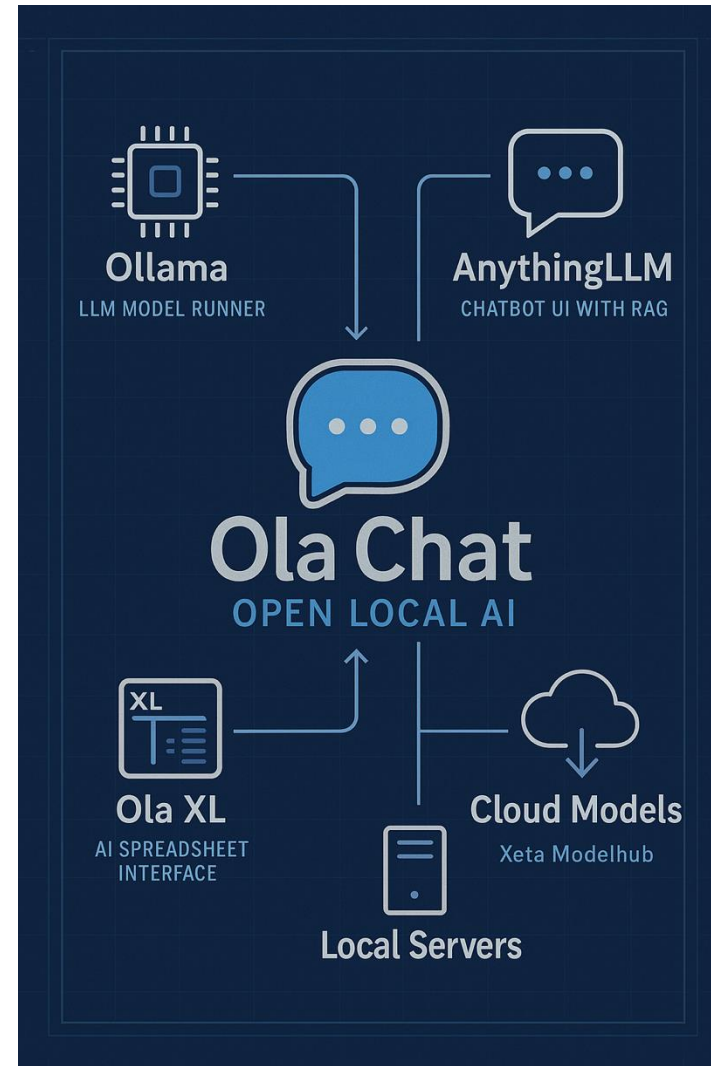
Complete flexibility for modifying the user interaction flow

### •AnythingLLM REST API / SDK

Use its HTTP endpoints or official JavaScript/Python SDK to embed chat, RAG or management features into your own applications

### •Embedded Chat Widgets

Drop prebuilt React/JS widgets into any web page to provide in-page AI chat powered by your AnythingLLM instance



# BACKUP

# Building Block Architecture

- **Ollama**
  - Open source “engine” that runs models on your local PC (or a local server)
  - Approved open source across RTX
- **Anything LLM**
  - UI for Ollama and other hosted models
- **Models**
  - Recommend Phi-4 mini and Phi-4
  - More GPU available? Try or Mixtral 8x7B
  - Phi-4 mini available in Ola Chat model zips or Ollama Pull
- **Hobson**
  - AI assistant via email
  - Prompts and attached documents
- **Ola Chat**
  - Chatbot interface for Ollama
  - Saved chats, file upload, custom modes
  - Prompt lists
- RTX “Innersource” – internal open source
- Distribution via MS Team (for now)

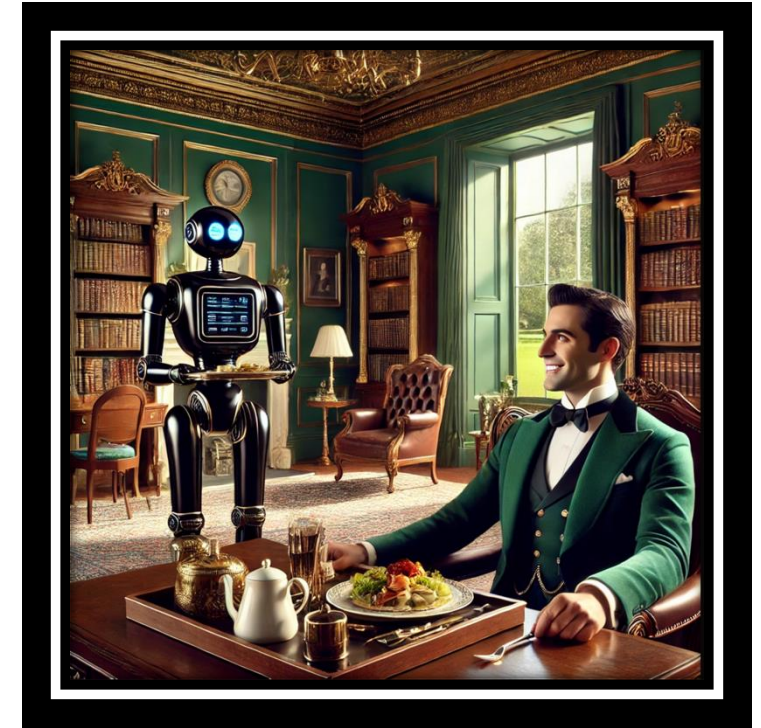


Image generated by author

Ola Chat

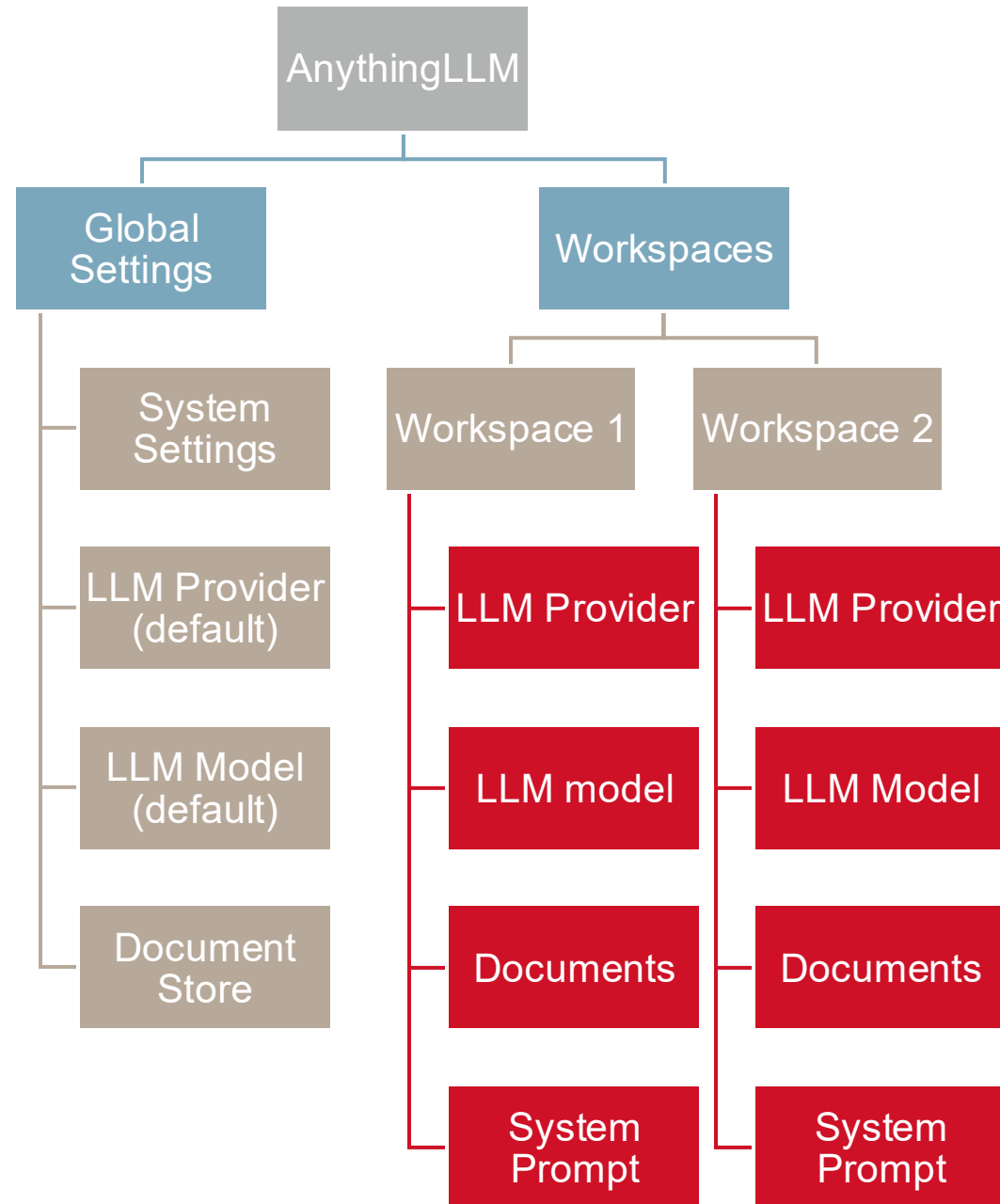
Ola XL

Hobson

Coding  
(future)

Join Ola Chat / Hobson team using code: **4zsxdx7**

# AnythingLLM Settings



# Installation Requirements

- Prepare the environment
  - Install to user-level folder (avoid Program Files)
  - Install AnythingLLM for current user only
  - GPU users: ensure NVIDIA CUDA drivers (e.g., v12.5)
  - Verify with nvidia-smi command

# Installation Steps

- Step-by-step process
  - Download OlaChatSetup\_x-x-x\_zip.txt and rename to .zip
  - Unzip folder and run OlaChatSetup.exe
  - Unblock executables if Windows Defender blocks
  - Choose install for current user
  - Skip Ollama/AnythingLLM download if pre-installed

# Running Ola Chat

- Quick start and detailed
  - Start via Windows Start menu or start\_ola\_chat.bat
  - User-level install typically in AppData\Local\OlaChat
  - Batch script reads registry, activates conda env, runs ola\_chat
  - Logs and settings in ola\_chat\_logs and settings folders
  - Optional Xeta Proxy server start via menu