

Cultivating the Future of Farming: Natural Farming Chat



A collaborative project by Team Tonic & Copyleft Cultivars

Empowering Sustainable Agriculture with AI

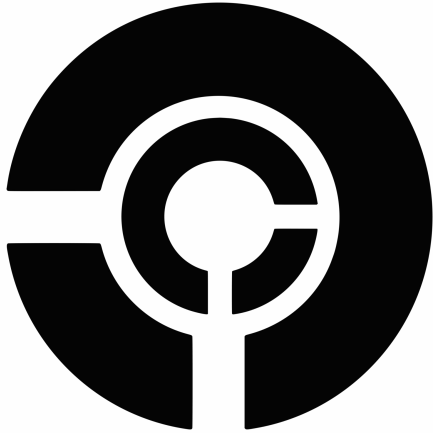
- Growing food sustainably is crucial for our planet's future.
- Farmers need accessible and accurate information to make informed decisions.
- Natural Farming Chat aims to bridge the gap using the power of AI.

Problems:

- Small-scale farmers lack access to customized solutions for their specific needs, cultures, and local conditions.
- Industrial agriculture over-relies on expensive synthetic fertilizers and pesticides which damage marginalized communities and ecologies.
- Food insecurity, Environmental degradation, & Climate Change change the landscape of farming.
- Indigenous farming knowledge and languages with embedded locational knowledge face threats of dilution and disappearance.

We've been working on solutions to these issues and welcome you to join us!





Our Mission

Protect, publish, and preserve vulnerable plants, using copyleft, research, and education.

A Community Commons for Vulnerable Plants

Our prototypes:

1. From Text to Expertise:

We built a prototype using Vectara's indexing and chat APIs to create an interactive dialogue system. Users could ask questions and receive accurate answers based on a vast database of agricultural knowledge. While we encountered some technical hurdles, it laid the foundation for further exploration.



Our prototypes:

2. DIY Solutions for Sustainable Farming:

Undeterred, we embraced the challenge and pivoted to Chaindesk, a Vectara competitor. This allowed us to develop a working version that empowers users to create custom organic fertilizers tailored to their specific crops and geographic location.



Our prototypes:

3. Pushing the Boundaries:
Our ambition led us to explore local deployments and advanced functionalities. We successfully utilized Ollama, but integrating RAG elements locally proved tricky. Additionally, we attempted a more advanced version on Hugging Face Spaces, encountering a technical hurdle with model weights, leaving it unfinished for now.



Natural Farming Chat - a Huggi x +

huggingface.co/spaces/CopyleftCultivars/natural-farming-chat

Spaces | CopyleftCultivars/natural-farming-chat like 2 • Running Logs

App Files Community Settings


Welcome to Natural Farming Chat

This demo uses Retrieval Augmented Generation to achieve greater accuracy in agronomics and agricultural methodology. A collaboration between Team Tonic and the Copyleft Cultivars Nonprofit, for the LEAP 2024 Hackathon. Based on content from Copyleft Cultivars and Open Nutrient Project.

How this works?

This app was built with [Vectara](#). Vectara's [Indexing API](#) was used to ingest the data into a Vectara corpus (or index).

This app uses Vectara [Chat API](#) to query the corpus and present the results to you, answering your question.



Vectara chat demo: Natural Farming Chat

Ask questions about Natural Farming

How may I help you?


Please help me grow tomatoes in Saudi Arabia

I'm sorry. I am experiencing an error in Vectara API conversationId assignment

Your message

Error internally with Vectara

The image shows a screenshot of the Vectara console interface. The main window displays the 'Configure chat' page for a specific corpus. The page title is 'Configure chat' and it includes a sub-header 'Learn about chat.' Below this, it states 'There are currently no configuration options for chat.' The interface is partially obscured by a dark overlay, likely representing a modal or a navigation drawer. The overlay contains a list of navigation items: Overview, Data, Conversations, Build apps, Authorization, Team, Billing, Help, and a feedback link. The 'Configure chat' page also features a sidebar with a list of navigation items: The Vectara Platform, Use Case Exploration, Getting Started, Quick Start, API Recipes, Sample Demos and Applications, Learn, Data Privacy, Authentication and Authorization, Semantic Search, Select the Ideal Indexing API, Enable Exact Keyword Text Matching, Combine Neural Search and Keyword Search, Retrieval Augmented Generation (RAG), Data Ingestion, Document Data Structuring, Metadata Search Filtering, Recommendation System, FAQ and Q&A Matching, Generative Prompts, Build Applications, Vectara Console, Vectara Console Overview, Manage Corpora, Create a Corpus, and Reset or Delete a Corpus. The main content area of the 'Configure chat' page is mostly blank, with a few small elements visible, including a 'Data' tab and a 'Query' input field. The overall appearance is that of a web application with a dark theme and a clean, modern design.



Hi, I'm a limited test version of the Natural Farming Fertilizer Assistant. I was created by Copyleft Cultivars, a nonprofit working to protect vulnerable plants using copyleft (protected open source.) I've been trained on a library of organic farming, natural farming, and botanical disease diagnostics sources, as well as a community-created guide for nutrient accumulation in forageable plants for fertilizer production. Please remember that I am a very early test version so there may be inaccuracies. My processing is limited so say "continue" if I stop too early. Welcome! Please tell me about your farm or garden, your goals here, the crops and scale of your farm or garden, and your location.

I am in Washington State. I am hoping to save money



ถิ่น

- FPJ จากพืชท้องถิ่น: ใช้พืชที่มีในโตรเจนสูงในท้องถิ่นแทนต้นกะเพราและคอมพริย
- มิลเมิลด์พืชท้องถิ่น: ใช้มิลเมิลด์พืชท้องถิ่นแทนมิลเมิลด์ฝ้าย
- ของเสียจากปลาท้องถิ่น: ใช้ของเสียจากปลาจากตลาดท้องถิ่นเพื่อสร้าง FAA

คำพูดสนับสนุน

การเดินทางของคุณเข้าสู่การเกษตรธรรมชาติเป็นขั้นตอนที่มีพลังในการเป็นอิสระและการดูแลสิ่งแวดล้อม คงความเรียนรู้ ทดลอง และแบ่งปันประสบการณ์ของคุณกับชุมชน ความพยายามของคุณจะนำไปสู่ผลผลิตที่อุดมสมบูรณ์และโลกที่มีสุขภาพดีขึ้น



rious brassica and spicy pepper crops.

I am i



Mark As Resolved

Powered by  Chaindesk



Files

DevBranch + Q

Go to file t

> src

LEAP-Agriculture-Age...

LICENSE

README.md

main.py

requirements.txt

GaiaTonic / LEAP-Agriculture-Agents.py

↑ Top

Code Blame 83 lines (63 loc) · 3.25 KB

Raw Copy Download Edit

```
29         return prompt
30     else:
31         print("Please enter a prompt.")
32
33
34     def generate_agent_prompts(user_prompt, themes):
35         #Duplicates the user prompt with different thematic twists.
36         synth_agent_prompts = []
37         for theme in themes:
38             synth_agent_prompts.append(f"\"As an advanced language model you should create 4 challenging and unique prompts for the task outlined below.
39 These samples should be intricately designed to test the limits of the Task Theme and Naive Prompt, challenging yet relevant to the task description. The prompts should be only one sentence long, ea
40
41 The task description and instruction is phrased as a generative task. The results prompts samples should be input to the the model.
42 The model will be able then to generate an example given the instructions and the prompt input.
43 Task Theme:
44 {theme.capitalize()}
45 Naive Prompt:
46 {user_prompt}\"")
47         return synth_agent_prompts
48
49     def generate_agent_prompts(synth_agent_prompts, master_prompt):
50         #Duplicates the user prompt with different thematic twists.
51         agent_prompts = []
52         for synth_agent_prompt in synth_agent_prompts:
53             agent_prompts.append(f"(master_prompt): {synth_agent_prompt}")
54         return agent_prompts
55
56
57     def call_ollama(prompt):
58         #Calls the Ollama LLM and returns its output.
59         oll_pipeline = pipeline("text-generation", model=f"{oll_path}")
60         return oll_pipeline(prompt, max_length=1024, top_k=1, do_sample=True)[0]["generated_text"]
61
62
63     def main():
64         #Main execution flow.
65         user_prompt = get_user_prompt()
66         agent_prompts = generate_agent_prompts(user_prompt, themes)
67
68         # Call Ollama for each agent prompt and concatenate outputs
69         final_output = ""
70         for prompt in agent_prompts:
71             agent_output = call_ollama(prompt)
72             final_output += f"\n**{prompt}**\n{agent_output}\n"
```

Team Tonic & Copyleft Cultivars: A LEAP in Sustainable Innovation

- Our team comprises members from the USA and France, bringing diverse perspectives.
- Team Tonic's expertise in AI development is combined with Copyleft Cultivars' commitment to open-source agriculture.
- This collaboration fosters innovation and a global impact.



Cultivating a Sustainable Future, Together

- Natural Farming Chat offers a glimpse into the future of AI-powered sustainable farming.
- We are committed to continuous development and collaboration.
- Join us in shaping a future where sustainable farming is accessible and empowering for all!