

# Emerging Tech Hub Redesign & Azure OpenAI Chatbot

GSA | Information Technology Category

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## Keywords:

User Experience, Integrations, Automation, Retrieval, Search-Driven Engagement

## Summary:

At the GSA ITC alongside a partnered ITC design fellow Emi helped redesign the extension and the intranet site of the ITC Emerging Technologies Hub. Utilized user testing for the styling of the extension, switched the data collection to a completely front loaded extension which led to a more manageable and less strained sheet cms. Collaborated with a design fellow to redesign the complete site layout which was later published.

Started a research project involving comparing the public version of OpenAI's api to the Gov Azure sandbox environment when it comes to creating a chatbot assistant for FAR Contracts. Noted key differences on pricing, errors, results, and limitations in both environments. Successfully setup a replication guide alongside key errors of the Azure environment.



U.S. General Services Administration

# ITC Emerging Tech Hub Redesign & Azure OpenAI FAR Chatbot Research

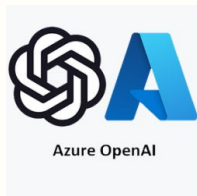
*Under QT3 Chris Hessman & Udaya Patnaik*

By: Emi Viernes Orozco

# AGENDA



1 ITC Emerging Tech Hub Design & Programming Work



2 Azure OpenAI Chatbot Research



3 Fellowship Thanks & Closing

# ITC Emerging Tech Hub



I was tasked with Improving the Emerging Tech Hub's current extension as well as redesigning the Tech Hub site

# Extension to Hub Pipeline



Contributor finds an article to fit an area and technology → The article is saved via our simple extension to sheets (cms) → Article data is then uploaded to our site.

# OLD ITC Emerging Tech Hub Extension

## Web Page Saver

Select a Category:

Artificial Intelligence - AI Assisted Coding ▼

Save to Google Sheets

The articles get categorized via an **Area** and a **Technology**: 8 areas with an average of 7 - 9 unique technologies.

Used: google script + basic styling + google spreadsheet functions to extract data.

# NEW ITC Emerging Tech Hub Extension

ITC Emerging Tech Hub

Please categorize the article:

Area

Select Area

Technology

Select Technology

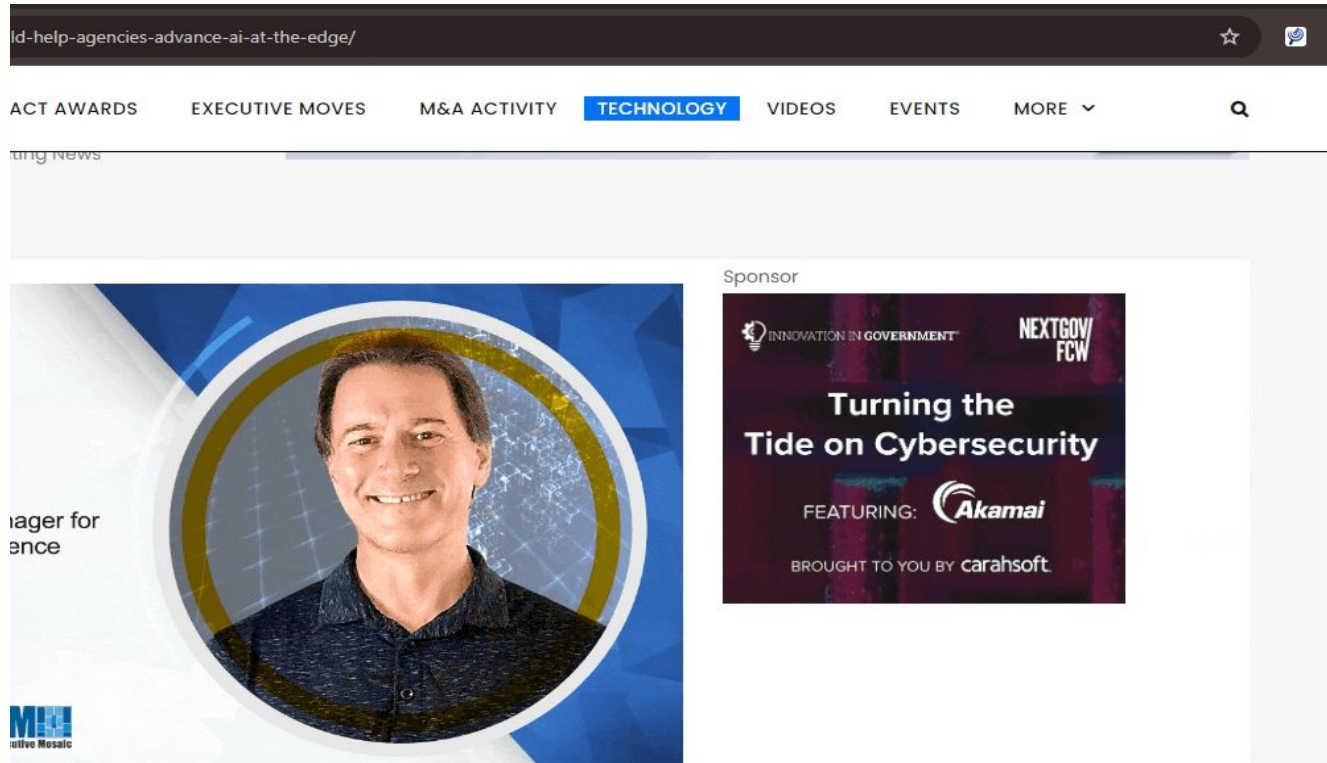
Cancel

Add Article




Utilized user testing to style and display information in a simple and accessible manner. Limited the utilizing of sheets by having the extension itself scrape the meta data and publish it to our cms(sheet)

# ITC Emerging Tech Hub Extension





# Old Emerging Tech Hub

 ITC Emerging Tech Hub


Home test side pad test1 test2 side pad test2

## ITC Emerging Tech Hub

### Emerging Tech Articles & Info

Filter by Technology:


#### Artificial Intelligence - Federated Learning



What is federated learning? - IBM Research

[Go to Article >](#)

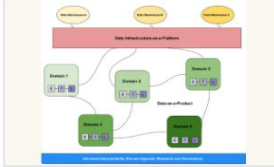
#### Artificial Intelligence - Green Machine Learning Algorithms



Green Machine Learning - Aretove Technologies

[Go to Article >](#)

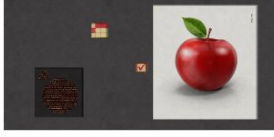
#### Artificial Intelligence - Data Mesh Architecture



What Is A Data Mesh — And How Not To Mesh It Up

[Go to Article >](#)


#### Artificial Intelligence - Large Language Models



The new version of GPT-3 is much better behaved (and should be less toxic) | MIT Technology Review

[Go to Article >](#)

#### Artificial Intelligence - Virtual Support Agents



ServiceNow unveils Now Assist for Virtual Agent, a generative AI solution for self-service | VentureBeat

[Go to Article >](#)

#### Artificial Intelligence - AI Assisted Coding

#### Climate & Energy - Green Hydrogen Generation

#### Climate & Energy - Power Beaming

#### Climate & Energy - Transportation Biofuels

#### Climate & Energy - Battery Material

# New Emerging Tech Hub

## Everything Emerging Tech

### All Areas

#### Artificial Intelligence

Climate & Energy

Computing

Connectivity & Telecom

Decentralization & Blockchain

Robotics Sensors & Internet of Things

Security & Cybersecurity

Virtual Augmented & Mixed Reality

Technology:

All Technologies

Sort By:

All

Clear Filters



Artificial Intelligence - Federated Learning

What is federated learning? - IBM Research

2023-08-24

Read More →

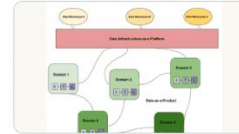


Artificial Intelligence - Green Machine Learning Algorithms

Green Machine Learning - Aretove Technologies

2023-11-18

Read More →

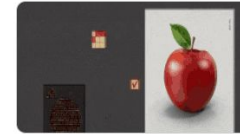


Artificial Intelligence - Data Mesh Architecture

What Is A Data Mesh — And How Not To Mesh It Up

2020-07-31

Read More →



Artificial Intelligence - Large Language Models

The new version of GPT-3 is much better behaved (and should be less toxic) | MIT Technology Review

2022-01-27

Read More →



Artificial Intelligence - Virtual Support Agents

ServiceNow unveils Now Assist for Virtual Agent, a generative AI solution for self-service | VentureBeat



Artificial Intelligence - AI Assisted Coding

Meta launches own AI code-writing tool: Code Llama - The Verge



Artificial Intelligence - AI Assisted Coding

AI-Assisted Coding with Tabnine. Write code faster and be more.. | by Tyler Hawkins | Better Programming



Artificial Intelligence - Large Language Models

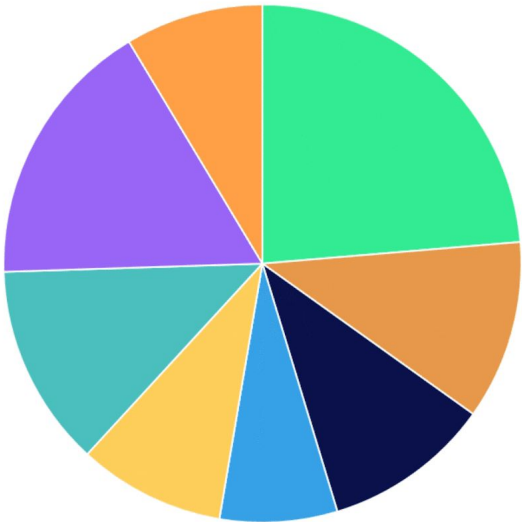
Deepset raises \$30M to help enterprises unlock the value of LLMs | VentureBeat

# Interactive Iterations



## Emerging Tech Articles & Info.

Interactive Emerging Tech Radar

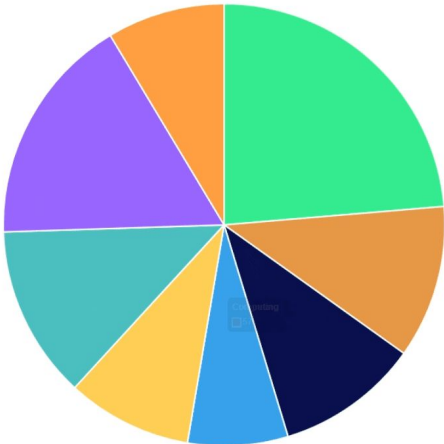


**All Areas**  
Artificial Intelligence  
Climate & Energy

Technology: All Sort By: All [Clear Filters](#)

## Emerging Tech Articles & Info.

Interactive Emerging Tech Radar



**All Areas**  
Artificial Intelligence

Technology: All Sort By: All [Clear Filters](#)

Computing: This area focuses on GSA in computational systems.



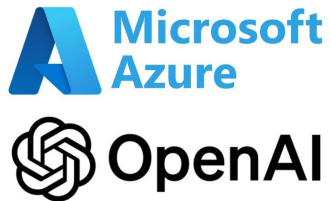
Computing - Green Data Centers

What is Green Computing & How Does it Help Federal Agencies? | FedTech Magazine

2023-08-18

[Read More](#)

# Azure OpenAI Chatbot

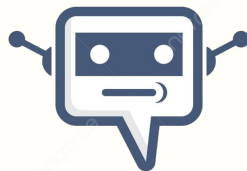


Researching the creation of a FAR Chatbot inside both the Public OpenAI API environment and later comparing to that of an Azure OpenAI sandbox

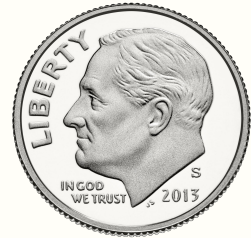
FAR being the major regulation documentation for agency acquisitions

# Chris Opened Up This Project by Asking

## What If there were a chatbot which we could drop in a prompt and a FAR compliant contract would populate.



# Pricing Broken Down



## Azure Models/Pricing (Storage)

SKU	Offering	Indexes	Indexers	Vector quota	Total storage	Search units	Replicas	Partitions
F	Free	3	3	25 MB ⓘ	50 MB	1	1	1
B	Basic	15	15	5 GB	15 GB/Partition	9	3	3
S	Standard	50	50	35 GB/Partition	160 GB/Partition	36	12	12
S2	Standard	200	200	150 GB/Partition	512 GB/Partition	36	12	12

## Public OpenAi Models/Pricing (Tokens)

### Models

#### Flagship models [🔗](#)

##### GPT-4o New

Our fastest and most affordable flagship model

- ✦ Text and image input, text output
- 📄 128k context length
- 💰 Input: \$5 | Output: \$15\*

##### GPT-4 Turbo

Our previous high-intelligence model

- ✦ Text and image input, text output
- 📄 128k context length
- 💰 Input: \$10 | Output: \$30\*

##### GPT-3.5 Turbo

Our fast, inexpensive model for simple tasks

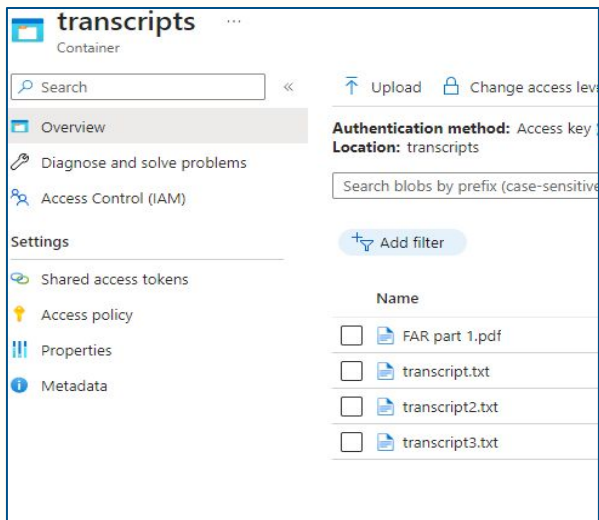
- ✦ Text input, text output
- 📄 16k context length
- 💰 Input: \$0.50 | Output: \$1.50\*

\* prices per 1 million tokens

# How Storage works

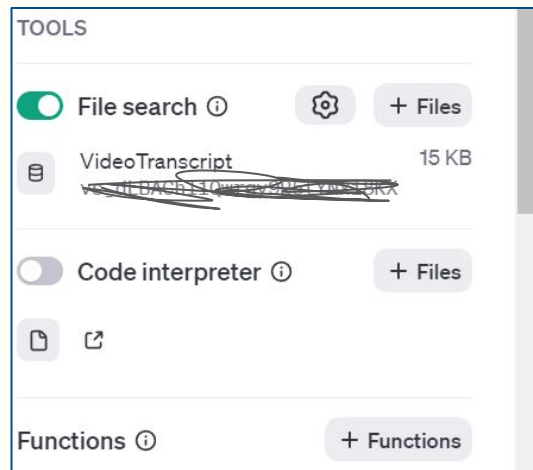
## Azure Data Upload

Drag and Drop → Container, Blob Storage, Indexed



## Public OpenAI Data Upload

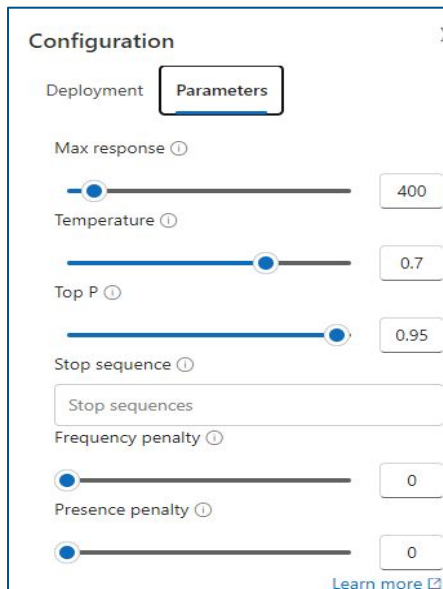
Drag and Drop Text files ONLY



# Filter Differences

## Azure Filters

- Many filters, more on content blocking and user moderation (more filters = more tokens)

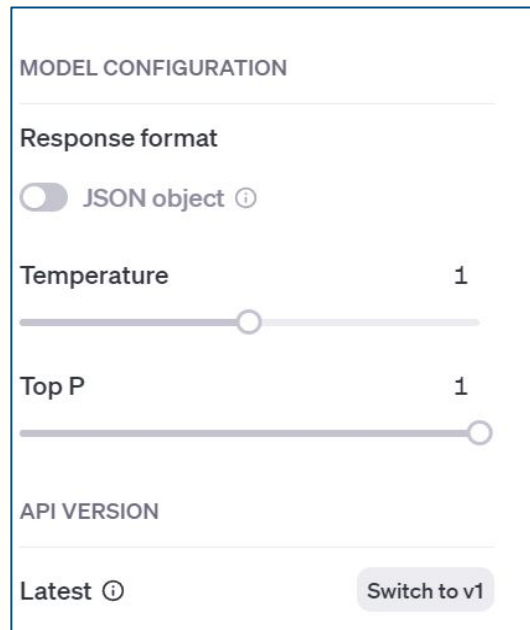


The screenshot shows the 'Parameters' tab of the Azure OpenAI Configuration panel. It includes sliders and input fields for various parameters: Max response (400), Temperature (0.7), Top P (0.95), Stop sequence (empty), Frequency penalty (0), and Presence penalty (0). A 'Learn more' link is at the bottom right.

Parameter	Value
Max response	400
Temperature	0.7
Top P	0.95
Stop sequence	
Frequency penalty	0
Presence penalty	0

## Public OpenAI Data

- Only Filters Filters aside from fine tuning



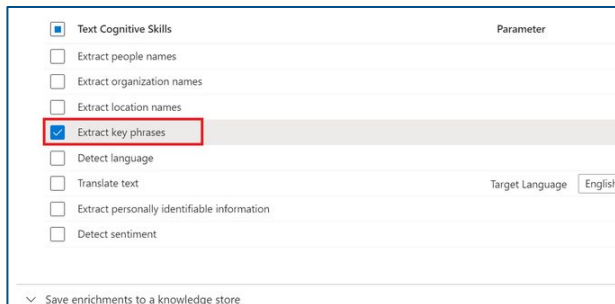
The screenshot shows the 'MODEL CONFIGURATION' panel for the Public OpenAI API. It includes a 'Response format' section with a 'JSON object' toggle, and sliders for 'Temperature' (1) and 'Top P' (1). The 'API VERSION' section shows 'Latest' with a 'Switch to v1' button.

Parameter	Value
Response format	JSON object
Temperature	1
Top P	1
API VERSION	Latest



# Azure Cognitive AI Search And It's Uses

- AI Search is needed for retrieval of my current transcript/far documents.
- Must be carefully monitored as free version can't be used: *Cannot upload even a small singular text file **standard deployment needed**.*



The screenshot shows the 'Text Cognitive Skills' configuration panel in the Azure Cognitive Search interface. The 'Extract key phrases' checkbox is checked and highlighted with a red box. Other options include 'Extract people names', 'Extract organization names', 'Extract location names', 'Detect language', 'Translate text', 'Extract personally identifiable information', and 'Detect sentiment'. A 'Target Language' dropdown is set to 'English'. At the bottom, there is a link to 'Save enrichments to a knowledge store'.

- Importing data and applying what to search/query through
  - Some defaults to select from like names, locations, and so on.

# Streamlit Web App



# Web App with Data & Filtering

Deploy ⋮

## FARsi ITC Chatbot

Select FAR Topic

General FAR Guidance ▾

Select Document Type

None ▾

Select FAR Section

Entire FAR ▾

Enter a keyword to filter the content

Please ask your FAR related questions below

Send

# Demo on the Azure Sandbox

The screenshot displays the Azure Sandbox interface, which is divided into three main sections: Setup, Chat, and Citations.

**Setup Panel (Left):**

- Setup** (Close button)
- Prompt** (Add your data)
- Apply changes** (Apply icon)
- Safety system message** (Shield icon)
- Use a system message template**
- Using templates** (Close button)
  - Use a template to get started, or just start writing your own system message below. Want some tips? [Learn more](#)
- Select a template** (Dropdown menu)
- System message** (Info icon)
  - You are an information bot assisting in the creation of US government acquisition contracts. Make sure to follow FAR regulations and display FAR-based information. Use the transcripts and Far documentation provided to help you
- Examples** (Info icon)
  - + Add** (Add button)

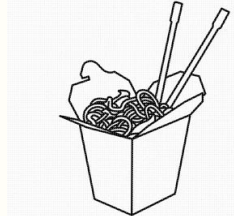
**Chat Panel (Center):**

- Clear chat** (Trash icon)
- Chat capabilities** (Gear icon)
- View code** (Code icon)
- Show JSON** (Toggle switch)
- what will the (b) The Federal Acquisition System do ?** (User query)
- The Federal Acquisition System will:**
  - 1. Satisfy the customer in terms of cost, quality, and timeliness of the delivered product or service by:
    - Maximizing the use of commercial products and commercial services;
    - Using contractors who have a track record of successful past performance or who demonstrate a current superior ability to perform; and
    - Promoting competition.
  - 2. Minimize administrative operating costs.
  - 3. Conduct business with integrity, fairness, and openness.
  - 4. Fulfill public policy objectives <sup>1</sup>.
- 1 references**
- 1 1-102-Statement-of-guiding-principles-for-the-Federal-Acquisition-System-.pdf - Part 1** (Reference link)
- Type user query here. (Shift + Enter for new line)** (Input field)
- 112/128000 tokens to be sent** (Token count)

**Citations Panel (Right):**

- Citations** (Close button)
- 1-102-Statement-of-guiding-principles-for-the-Federal-Acquisition-System-.pdf**
- 1.102 Statement of guiding principles for the Federal Acquisition System.**
- (a) The vision for the Federal Acquisition System is to deliver on a timely basis the best value product or service to the customer, while maintaining the public's trust and fulfilling public policy objectives. Participants in the acquisition process should work together as a team and should be empowered to make decisions within their area of responsibility.**
- (b) The Federal Acquisition System will-**
- (1) Satisfy the customer in terms of cost, quality, and timeliness of the delivered product or service by, for example-**
- (i) Maximizing the use of commercial products and commercial services;**
- (ii) Using contractors who have a track record of successful past performance or who demonstrate a current superior ability to perform; and**
- (iii) Promoting competition;**
- (2) Minimize administrative operating costs;**
- (3) Conduct business with integrity, fairness, and openness; and**
- (4) Fulfill public policy objectives.**

# Takeaways



- Always Reach Out even to just update
  - I've had minor data inconveniences turn into hard blocks
- Document EVERYTHING
  - This was all for a testing and research process, even minor errors or bugs I changed are important for replication reasons
- A second pair of eyes is greatly beneficial
  - Practicing User testing with the main contributors gave much needed info Mackey and I later recalled when brainstorming

# Thank You For Your Time I Can Now Answer Any Pending Questions

Special thanks to the CIF and Reveal Staff for the constant aid

- Chris for his constant attention and enthusiasm
- Udaya for his management expertise and guidance
- Mackey for her insane work ethic and constant support

coding it forward >

