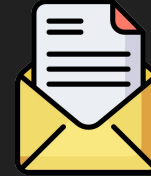# DEFENCE INFO HUB

Your AI gateway to defence-related news

Pain Points of Present Situation

Currently, MINDEF/SAF Info Hub sends <u>daily</u> email updates on defence-related news to Management and Comms officers:

- List of defence-related news topics
- Summary of each defence-related topic
- Coverage (i.e. TV broadcast, Radio, URL to online news sites)

However, there are still pain points which daily email updates cannot address:

1. Lack of an interactive news articles database for users to
   a. Search for articles of the <u>same topic</u> that are published on different dates (e.g. COS22, COS23)
   b. Search for <u>entities</u> that span across articles published on different dates (e.g. Army, China, etc)
2. Lack of a query engine to answer specific defence-related questions
   a. It is <u>time-consuming</u> to read through the entire article
   b. The summary of each defence-related topic in the daily email update may <u>not</u> contain the answers.

DEFENCE INFO HUB addresses the pain points with two capabilities
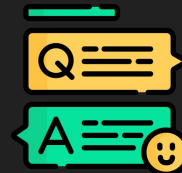
Interactive Defence Articles' Database

- Allow users to search for articles based on topic/entity of interest in their titles
- Select the topic of interest
- Generate report based on selected topic of interest instead of the date of articles

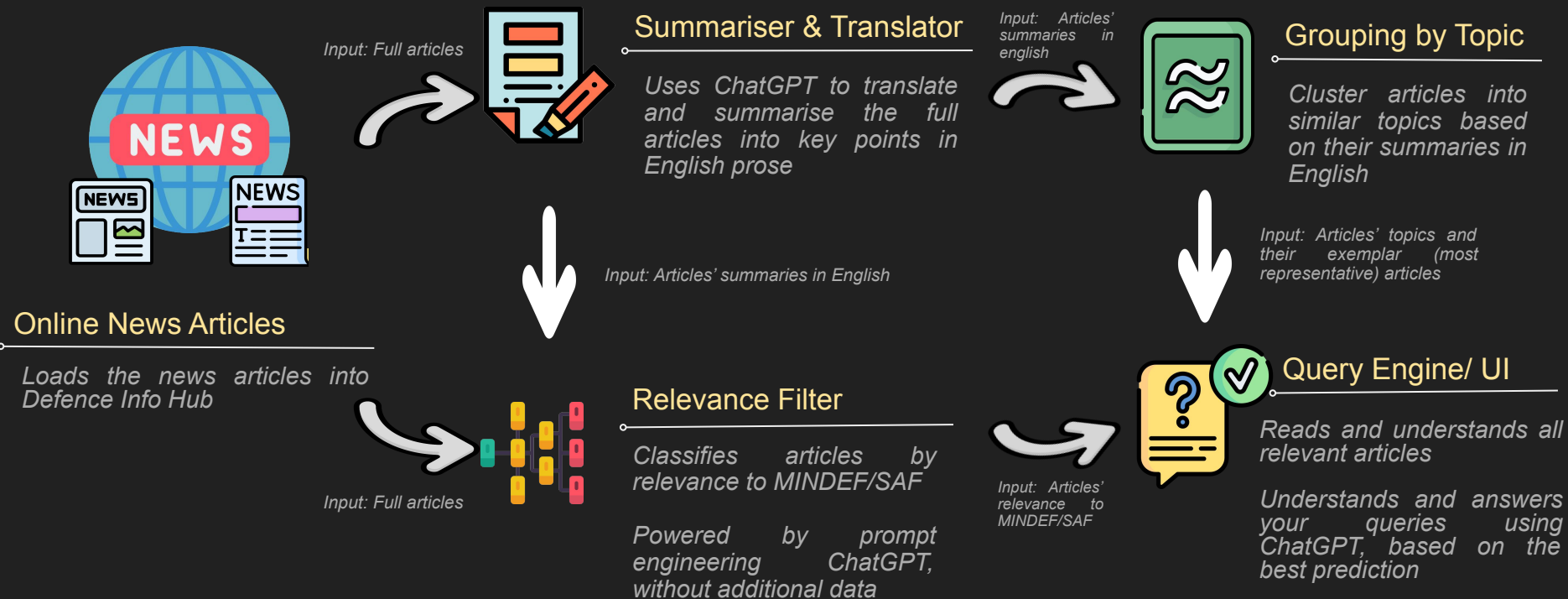**Defence Articles' Query Engine**

Ask what you want to know without reading the defence articles or their summaries

- Ease the processing of defence-related news

- Get answers to your queries quicker

3

DEFENCE INFO HUB employs LLM tech to process news and answer users' queries

Input: Full articles

Summariser & Translator

Uses ChatGPT to translate and summarise the full articles into key points in English prose

Input: Articles' summaries in english

Grouping by Topic

Cluster articles into similar topics based on their summaries in English

Input: Articles' summaries in English

Input: Articles' topics and their exemplar (most representative) articles

Online News Articles

Loads the news articles into Defence Info Hub

Input: Full articles

Relevance Filter

Classifies articles by relevance to MINDEF/SAF

Powered by prompt engineering ChatGPT, without additional data

Input: Articles' relevance to MINDEF/SAF

Query Engine/ UI

Reads and understands all relevant articles

Understands and answers your queries using ChatGPT, based on the best prediction

Please refer to slide 5 for the product demo and slide 15 for the pipeline.

Product Demo

https://huggingface.co/spaces/mindefdata/infohub

Defence Articles Explorer
(Interactive Defence Articles' Database)

1. UI
2. Use Case #1: View Articles by Topic
3. Use Case #2: View Articles by Dates
4. Use Case #3: Generate Report

Ask Me!
(Defence Articles' Query Engine)

1. UI
2. Use Case #1: Query details in Article

Product Demo - 'Defence Articles Explorer' Tab

https://huggingface.co/spaces/mindefdata/infohub

We are on the "Defence Articles Explorer" Tab (Interactive UI)

Note: Exemplar article is the **most representative** article in the cluster of related articles. Hence, the drop down list contains the titles of articles representative of their respective articles' clusters.

Note: Date contains the exemplar articles' published dates.

Note: As no exemplar article is selected, the table shows all exemplar articles in our data.

The details to the articles are listed in the table:
- Title: Title of the article
- Summary: Summary of article based on its content
- Site: URL to the article
- Date: Published date of article

Click here to toggle to "Ask Me!" Tab (Query Engine)

Please take note of the warnings before use.

Click "Show all" to reset your selections and show details of all exemplar articles in the table below.
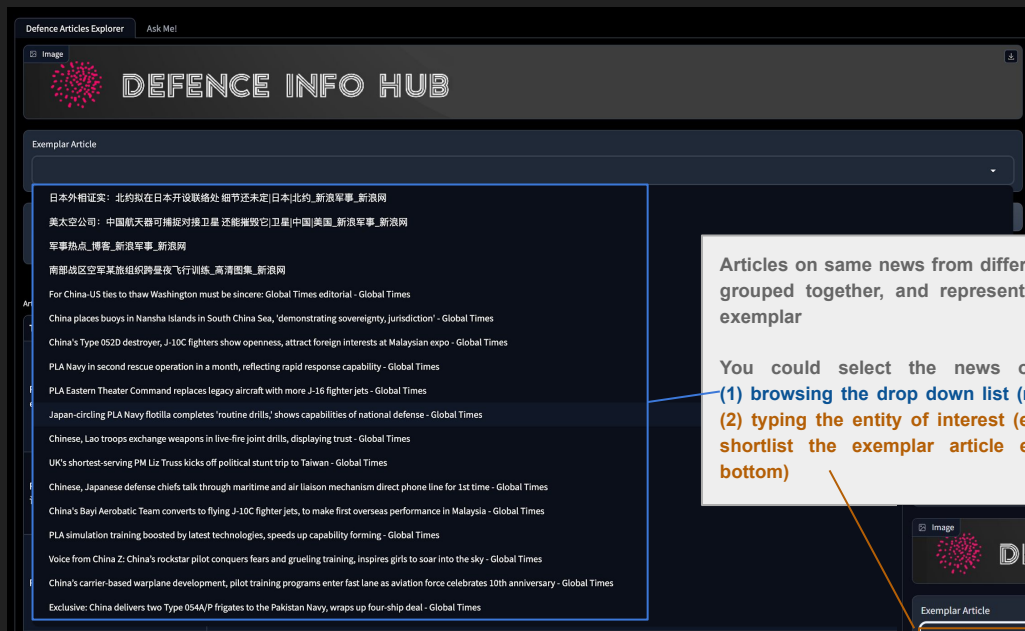
Click "Generate Report" to generate a text file containing your selection of articles.

Note: "Download" link will appear after clicking "Generate Report".

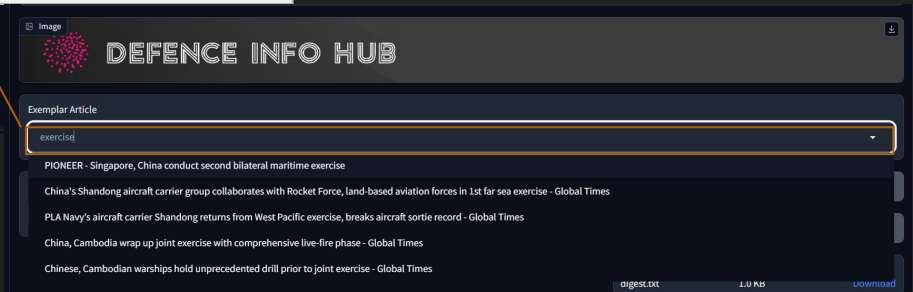Click "Download" to download the generated report.

Defence Articles Explorer   Ask Me!

Label

[Read before use] Although the responses are contextualised to relevant defence articles, the underlying large language model may still generate inaccurate or hallucinated responses. You should use the responses with caution and take responsibility over the generated output. You should not input any classified or sensitive information.

Image

DEFENCE INFO HUB

Exemplar Article
Showing all titles

Date

Show all

Generate Report

File
digest.txt   109.2 KB   Download

Articles

Title	Summary	Site	Date
PIONEER - First in family to enlist, learning to lead	On May 18th, 942 cadets graduated as specialists and military experts of the Singapore Armed Forces. Among them was 3SG Jerrald Capuno Caballa, a Filipino and second-generation permanent resident, who is the first in his immediate family to enlist for national service. Caballa graduated as a combat medic of the SAF and successfully helped the medical officer in preparing the equipment and resuscitating and stabilizing a casualty during his first outfield exercise. Another graduand, 3SG Abdul Alim Bin Iskandar Dzulkhairi Kajai, was awarded the Silver Bayonet for his performance as detachment commander during a live firing exercise. The 55th Specialist Cadet Graduation Parade was reviewed by Senior Minister of State for Finance and for Transport, Mr Chee Hong Tat, who reminded the graduands to lead with empathy.	MINDEF PIONEER	2023-05-18
PIONEER - 标志着在美国空域进行高端训练30周年	The Peace Carvin II detachment, which operates F-16 fighter jets, celebrated its 30th anniversary of conducting high-end training in US airspace. The detachment is the longest-running overseas deployment in the Singapore Air Force and has accumulated over 75,000 flying hours while participating in major military exercises such as Red Flag, Maple Flag, and Green Flag. The anniversary was marked by a parade at Luke Air Force Base in Arizona, and the event was attended by senior officials from both Singapore and the US.	MINDEF PIONEER	2023-04-26

6

Product Demo - View Articles by Topic

https://huggingface.co/spaces/mindefdata/infohub

Defence Articles Explorer | Ask Me!

DEFENCE INFO HUB

Exemplar Article

日本外相证实：北约拟在日本开设联络处 细节还未定|日本|北约_新浪军事_新浪网

美太空公司：中国航天器可捕捉对接卫星 还能摧毁它|卫星|中国|美国_新浪军事_新浪网

军事热点_博客_新浪军事_新浪网

南部战区空军某旅组织跨昼夜飞行训练_高清图集_新浪军事_新浪网

For China-US ties to thaw Washington must be sincere: Global Times editorial - Global Times

China places buoys in Nansha Islands in South China Sea, 'demonstrating sovereignty, jurisdiction' - Global Times

China's Type 052D destroyer, J-10C fighters show openness, attract foreign interests at Malaysian expo - Global Times

PLA Navy in second rescue operation in a month, reflecting rapid response capability - Global Times

PLA Eastern Theater Command replaces legacy aircraft with more J-16 fighter jets - Global Times

Japan-circling PLA Navy flotilla completes 'routine drills,' shows capabilities of national defense - Global Times

Chinese, Lao troops exchange weapons in live-fire joint drills, displaying trust - Global Times

UK's shortest-serving PM Liz Truss kicks off political stunt trip to Taiwan - Global Times

Chinese, Japanese defense chiefs talk through maritime and air liaison mechanism direct phone line for 1st time - Global Times

China's Bayi Aerobatic Team converts to flying J-10C fighter jets, to make first overseas performance in Malaysia - Global Times

PLA simulation training boosted by latest technologies, speeds up capability forming - Global Times

Voice from China Z: China's rockstar pilot conquers fears and grueling training, inspires girls to soar into the sky - Global Times

China's carrier-based warplane development, pilot training programs enter fast lane as aviation force celebrates 10th anniversary - Global Times

Exclusive: China delivers two Type 054A/P frigates to the Pakistan Navy, wraps up four-ship deal - Global Times

Articles on same news from different sources are grouped together, and represented by a single exemplar article.

You could select the news of interest by:
(1) browsing the drop down list (refer to the left)
(2) typing the entity of interest (e.g. exercise) to shortlist the exemplar article easily (refer to bottom)

DEFENCE INFO HUB

Exemplar Article

exercise

PIONEER - Singapore, China conduct second bilateral maritime exercise

China's Shandong aircraft carrier group collaborates with Rocket Force, land-based aviation forces in 1st far sea exercise - Global Times

PLA Navy's aircraft carrier Shandong returns from West Pacific exercise, breaks aircraft sortie record - Global Times

China, Cambodia wrap up joint exercise with comprehensive live-fire phase - Global Times

Chinese, Cambodian warships hold unprecedented drill prior to joint exercise - Global Times

7

Product Demo - View Articles by Date

https://huggingface.co/spaces/mindefdata/infohub

Selecting a specific date will display only articles published on that date.

Click on "Generate Report" to generate a summary report of the articles from the date of interest.

Product Demo - Generate Report

Selecting an exemplar article will display the articles relating to the same news.

Click on "Generate Report" to generate a text file with the article's title, summary, sources and the URLs.

Click on "Download" to download the text file containing the generated report.

Product Demo - Example of a Generated Report

https://huggingface.co/spaces/mindefdata/infohub

```
Japan-circling PLA Navy flotilla completes 'routine drills,' shows capabilities of national defense - Global Times
```

Title

```
The Chinese People's Liberation Army (PLA) Navy completed a full circumnavigation around Japan, which is routine and
demonstrates the PLA Navy's capabilities, according to Chinese experts. Japan's Maritime Self-Defense Force spotted
the PLA Navy flotilla, consisting of several advanced warships, as it sailed through the Miyako Strait and waters
between the Okinawa islands to the east of Taiwan into the East China Sea. The flotilla sailed in a full circle
around Japan clockwise during a voyage of more than half a month, with the far sea exercises becoming a routine for
the PLA Navy. The experts said Japan's hyping of the PLA Navy activities is based on a guilty conscience, as Japan is
conspiring to break the post-WWII world order and return to a path of militarism.
```

Summary

```
Sources:
Global Times: https://www.globaltimes.cn/page/202305/1290962.shtml
Global Times: https://www.globaltimes.cn/page/202305/1290562.shtml
```

Sources + URLs

Product Demo - 'Ask Me!' Tab

https://huggingface.co/spaces/mindefdata/infohub

We are on the "Ask Me!" Tab (Query Engine)

Please take note of the warnings before use.

Type your question here.

Click "Ask" after you have typed your question.

Click "Clear" to remove all preceding questions and answers, i.e. reset the chatbot conversations.

Product Demo - Query Engine on Defence-related Articles

https://huggingface.co/spaces/mindefdata/infohub

I want to know more about the most recent graduation ceremony:

The Query Engine is able to tell me the <u>date</u> of the most recent graduation ceremony correctly.

The Query Engine is able to provide me with the correct <u>link</u> to the article.

The Query Engine is not able to identify the <u>interviewees</u> mentioned in the articles correctly.

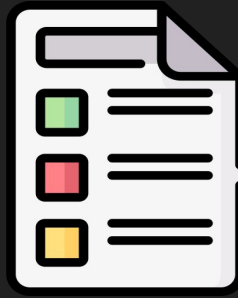The Query Engine is able to identify the <u>award recipient</u> correctly.

3 out of 4 questions were answered correctly.

Possible Improvements

Better UI

Gradio is useful for building quick demos but has limited customisation.

Customised Report

The generated report should allow for <u>more than one</u> topic of interest.
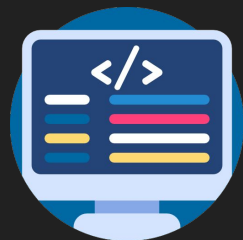

Increase the number of articles

75% of the observations are not clustered with others, and largest cluster only has 5 articles, which might be due to the low number of articles we have.

Please provide us with your feedback on our products to boost your productivity and efficiency.

Try for yourself!

https://huggingface.co/spaces/mindefdata/infohub - Defence Articles

Pipeline

Summariser & Translator

Langchain   ChatGPT (GPT-3.5 Turbo)

Similarity

HuggingFace

Sentence-transformers   model (Paraphrase multilingual mpnet base v2)
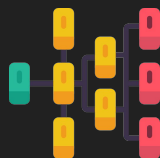
Agglomerative Clustering

News Articles

Zero-Shot Classifier

Langchain

ChatGPT (GPT-3.5 Turbo)

Prompt Engineering

Query Engine

Langchain

ChatGPT (GPT 3.5 turbo)

Gradio (UI)

15