

**TRANSLATION, RAG,  
AND VISCERAL  
REALISM**

<https://github.com/JessicaGarson/Translation-and-Vector-Search-with-LangChain-and-Elasticsearch>



**This talk inspired this meetup**

Hi, I'm Jessica  
Garson 🖐️

I'm currently a senior  
developer advocate  
at Elastic.




In some circles I'm  
known as Messica  
Arson

I make loud  
aggressive music  
with code and make  
audio reactive visuals





A person and a dog are seen from behind, looking at a large screen. The screen displays a high-contrast, black and white image of a city street scene, possibly a market or festival, with many people and structures. Overlaid on the left side of the screen is a vertical column of code in a monospaced font. The code includes functions like 'initCam()', 'draw()', 'drawBins()', 'draw()', 'a.fft()', 'kaleid()', 'luma()', 'brightness()', 'thresh()', 'add(osc(...))', 'modulate(o0)', 'diff(o0)', 'blend(noise(...))', and 'kaleid(200)'. The text 'My band did a run of three shows in Shanghai at the beginning of the summer' is overlaid on the right side of the screen in a white sans-serif font.

My band did a run of three  
shows in Shanghai at the  
beginning of the summer

**What's your band?**

It's an open source project that anyone including you can be a member of.

VISCERAL REALISTS HAVE  
PERFORMED IN NEW YORK CITY,  
PHILADELPHIA, BALTIMORE,  
SUZHOU, AND SHANGHAI.

**BECOME VISCERALLY REAL.**

MORE INFORMATION ABOUT  
VISCERAL REALISM



## Rules

1. Visceral Realism is open source computer music.
2. Visceral Realism cannot be performed by a solo performer.
3. Visceral Realism cannot be boring.
4. Visceral Realism cannot be merchandised.
5. Practitioners of Visceral Realism perform under the name "Visceral Realists".
6. Visceral Realists perform by executing computer code.
7. Visceral Realists do not use Ableton Live or commercial DAWs.
8. Visceral Realists show their work, either with a connected projector or via printed hand-outs.
9. Visceral Realists only use computers, microphones, and MIDI controllers. Audio hardware devices and effects are not permitted.

**I had a problem**

I saw some local press about the shows but couldn't understand much.

I saw some press  
that indicated some  
excitement around  
our shows

And I wondered if  
there was more?



**I heard that LangChain was  
good with Translation**

I wrote some code which translates the text of these clippings from Chinese to English using LangChain and Elastic's vector database to learn more about the translated documents.



# Getting started



**What version of Elasticsearch should I use?**

This demo uses Elasticsearch version 8.16, but you can use any version of Elasticsearch that is higher than 8.0.

## What version of Python should I use?

The version of Python that is used is Python 3.12.1 but you can use any version of Python higher than 3.9.



```
export OPENAI_API_KEY=" ... "
```



```
pip install jupyter pandas langchain nest_asyncio langchain-elasticsearch langchain-openai tiktoken  
elasticsearch datasets
```



jupyter notebook



Using a vector  
database



A vector database allows you to find similar data quickly. It stores vector embeddings, a type of vector data representation that converts words, sentences, and other data into numbers that capture their meaning and relationships.

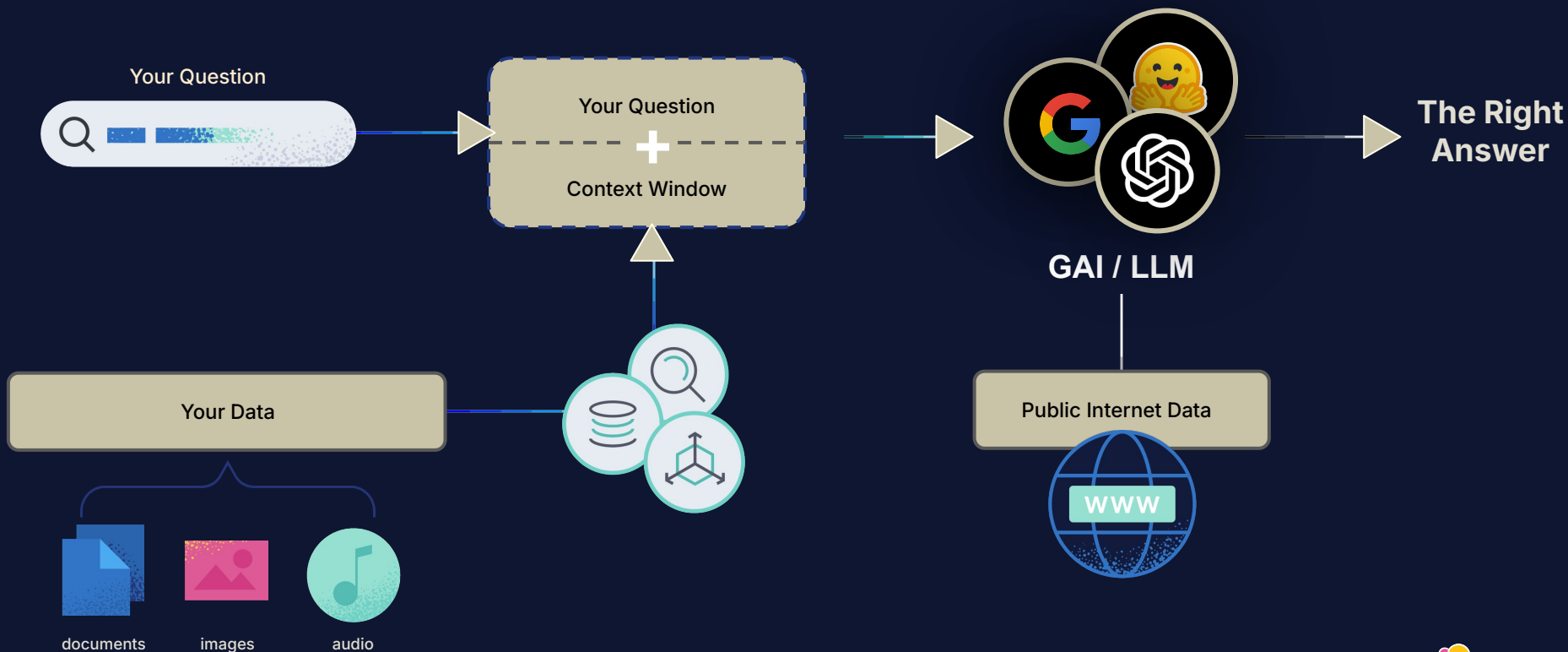
## What are embeddings?

Embeddings leverage a machine learning model to translate text into numbers, allowing you to perform vector searches.

## What is RAG?

Retrieval-augmented generation (RAG) integrates external information retrieval into generating responses by Large Language Models (LLMs).

# Retrieval Augmented Generation



# Vector Databases vs RAG

Let's take a  
look at the  
code





Please feel free to reach out!

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Thank you!

