

Discover your favorite **cheeses**

using **Postgres** and **AI**



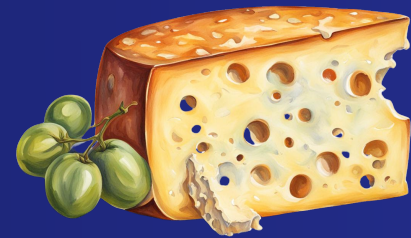
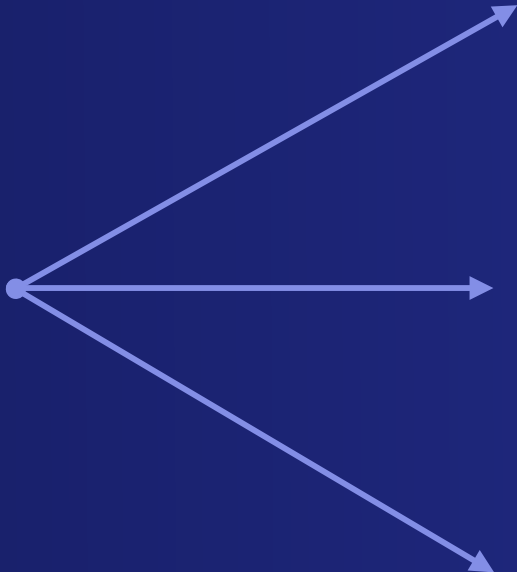
Matt Cornillon  
PGDay Paris 2024  
Senior Solution Architect



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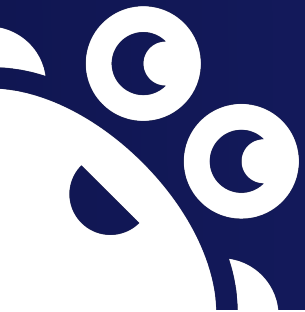
?



# t\_cheeses

id	name	origin	texture	description
1	Brebis du Puyfaucon	France	smooth	Its aroma of fresh, ewe milk gives off a subtle springtime odor and its taste is of honey.
2	CreNoble	Germany	creamy, open and smooth	« ... smooth, open texture and a typical savoury taste, complemented by a light aromatic flavour ... »
3	Accasciato	Italy	firm	« ... milk of cow and buffalo ... sweet aroma and a firm texture »
4	Beemster	Netherlands	brittle, crumbly and grainy	« ... long-lasting flavours of butterscotch, whiskey and pecan ... »
5	Mont D'or	France	creamy	« ... strong, earthy flavour, and is often served in a wooden box ... »

\* Source: [cheese.com](https://cheese.com) (yes)



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# t\_cheeses

```
SELECT count(*) FROM cheeses
WHERE LOWER(description) LIKE '%smooth%'
      AND LOWER(description) LIKE '%cow%'
      AND LOWER(description) LIKE '%strong%';
```

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```
SELECT count(*) FROM cheeses
WHERE LOWER(description) LIKE '%smooth%'
      AND LOWER(description) LIKE '%cow%'
      AND LOWER(description) LIKE '%strong%';
```

count

-----

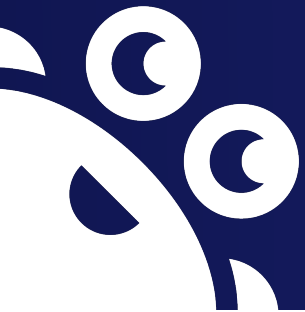
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# Problems

---

- Not really reliable
- Do not work with synonyms, expressions, nuances, etc.
- Cannot scale



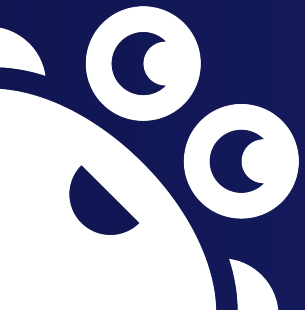


# Problems

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- Do not work with synonyms, expressions, nuances, etc.
- Cannot scale

# Solution

**AI** &  
embeddings!



# Embedding?

vector representation of data  
that capture semantic  
relationships between words

# Embedding?

```
[ 0.030747423,-0.027038556,0.04453085,-0.055148322,-0.02405948,  
-0.07671157,-0.084553294,-0.013402839,0.013336284,-0.05348418,0  
.005959156,0.07226488,-0.018491317,-0.07721319,-0.020630991,-0.  
00725657,0.047375016,-0.037832405,-0.007713533,0.01466263,-0.00  
23386062,0.0057497835,-0.026496705,0.010198905,0.021539558,-0.0  
8771243,0.022220954,0.06544361,-0.008084226,-0.022786919,0.0290  
55426,0.0128310565,0.029638734,-0.056505285,0.032151617,-0.0188  
1827,0.0027554634,0.004371569,0.023516702,-0.06415488,-0.005398  
6805,0.0780955,-0.010444383,-0.0011345594,0.043474436,0.0156185  
53,0.012291042,-0.029549092,-0.002186545,0.014624436 ... ]
```

# Postgres + embeddings = pgvector



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# Postgres + embeddings = pgvector

```
CREATE EXTENSION vector;
```

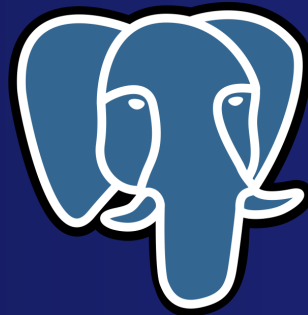
```
ALTER TABLE t_cheeses  
ADD COLUMN embedding  
VECTOR(738);
```



Its aroma of fresh, ewe milk gives off a subtle springtime odor and its taste is of honey.



```
[ 0.030747423,-0.027038556,0.04453085,-0.055148322,-0.02405948,-0.07671157,-0.084553294,-0.013402839,0.013336284,-0.05348418,0.005959156,0.07226488,-0.018491317,-0.07721319,-0.020630991,-0.00725657,0.047375016,-0.037832405,-0.007713533,0.01466263,-0.0023386062,0.0057497835,-0.026496705,0.010198905,0.021539558,-0.08771243,0.022220954,0.06544361,-0.008084226,-0.022786919,0.029055426,0.0128310565,0.029638734,-0.056505285,0.032151617,-0.01881827,0.0027554634,0.004371569,0.023516702,-0.06415488,-0.0053986805,0.0780955,-0.010444383,-0.0011345594,0.043474436,0.015618553,0.012291042,-0.029549092,-0.002186545,0.014624436 ... ]
```



t\_cheeses



# t\_cheeses

id	name	description	embedding
1	Brebis du Puyfaucon	Its aroma of fresh, ewe milk gives off a subtle springtime odor and its taste is of honey.	[0.030747423,-0.027038556,0.04453085, (...)]
2	CreNoble	« ... smooth, open texture and a typical savoury taste, complemented by a light aromatic flavour ... »	[0.0075687985,0.010785402,0.04668517, (...)]
3	Accasciato	« ... milk of cow and buffalo ... sweet aroma and a firm texture »	[0.0003621648,0.009508516,0.069396555, (...)]
4	Beemster	« ... long-lasting flavours of butterscotch, whiskey and pecan ... »	[0.00045603618,-0.0029831694,0.052954067 (...)]
5	Mont D'or	« ... strong, earthy flavour, and is often served in a wooden box ... »	[0.008566427,0.026579041,0.06647561 (...)]

\* Source: [cheese.com](https://cheese.com) (yes)



# t\_cheeses

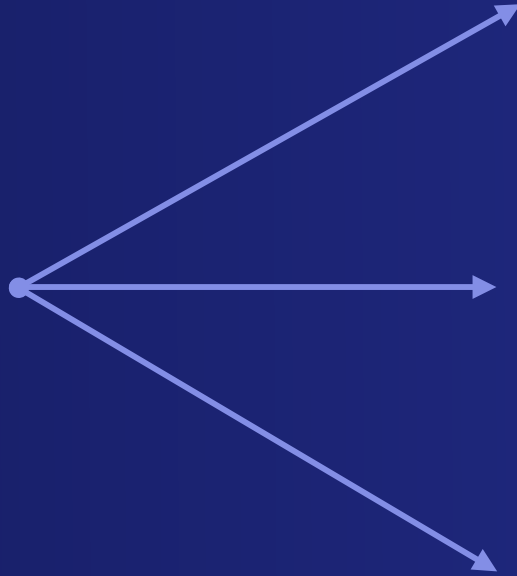
```
SELECT id, name
FROM cheeses
ORDER BY embedding <=>
(select embedding from cheeses where name = 'Saint Nectaire')
LIMIT 3;
```



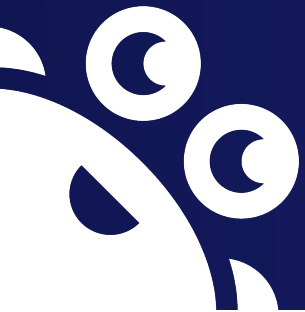
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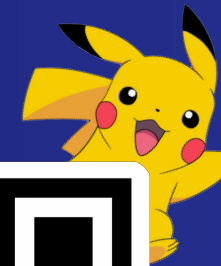
id	name
512	Crayeux de Roncq
1657	Soumaintrain
34	Aisy Cendre



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# Merci !



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