



WELCOME

Vectors and Vector Databases for the dev

The logo features the word "LUMON" in a bold, white, sans-serif font. A single blue water droplet is positioned in the center of the letter "O". The letters are set against a dark teal circular background. This circle is enclosed by a thick white oval border. The entire design is set against a solid teal background.

LUMON





Manager - Severed floor

Curt G



- My Outie
- Husband
- Dad
- Coach (CC and Track)
- Hike/Nature
- Duck Wrangler



- My Innie
- Co-Owner of CKH Consulting
- System Architecture
- Less of an AI nerd than Cameron
- Polyglot
- Data Governance Nerd
- Member of the C&M Department



ckh Consulting

COMPUTER
KNOW HOW

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Vectors and Vector Databases Developer

WTH is a Vector

Why would I want to use a Vector DB

AI and Vectors

DEMO BABY

GET STARTED →

Moonbeam

0% Complete



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4	8	0	2	9	3	1	2	8	6	0	4	0	6	2	9	9	4	0	9	0	0	8	8	
9	3	8	5	8	6	6	2	6	8	9	9	3	0	5	4	3	7	6	3	3	5	1	4	
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0	3	6	0	8	5	8	1	4	8	5	5	0	4	6	6	1	3	8	4	0	2	5	9	
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4	7	0	7	7	8	8	8	7	3	8	6	3	6	4	7	8	2	3	8	3	5	6	5	
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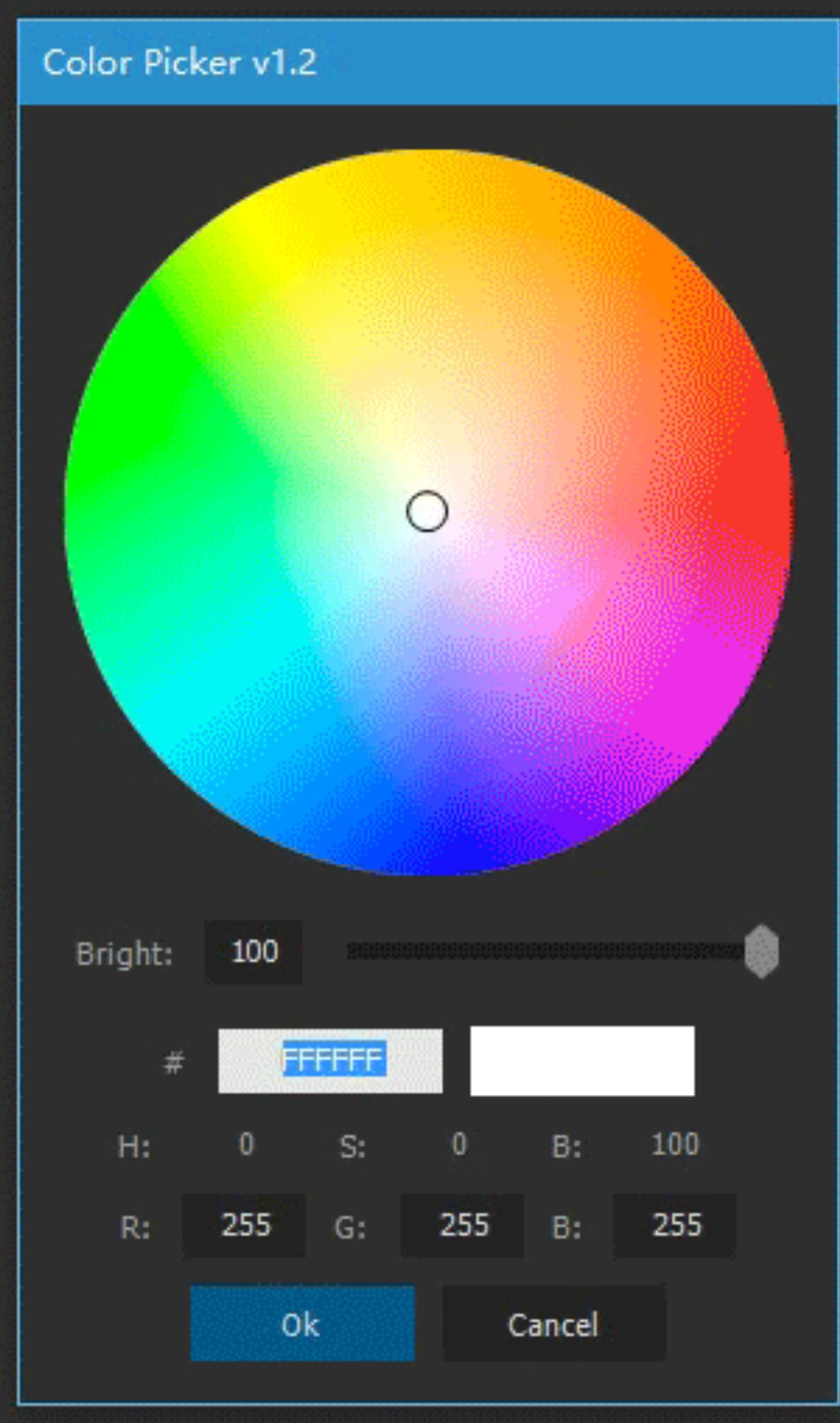
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Colors as Vectors

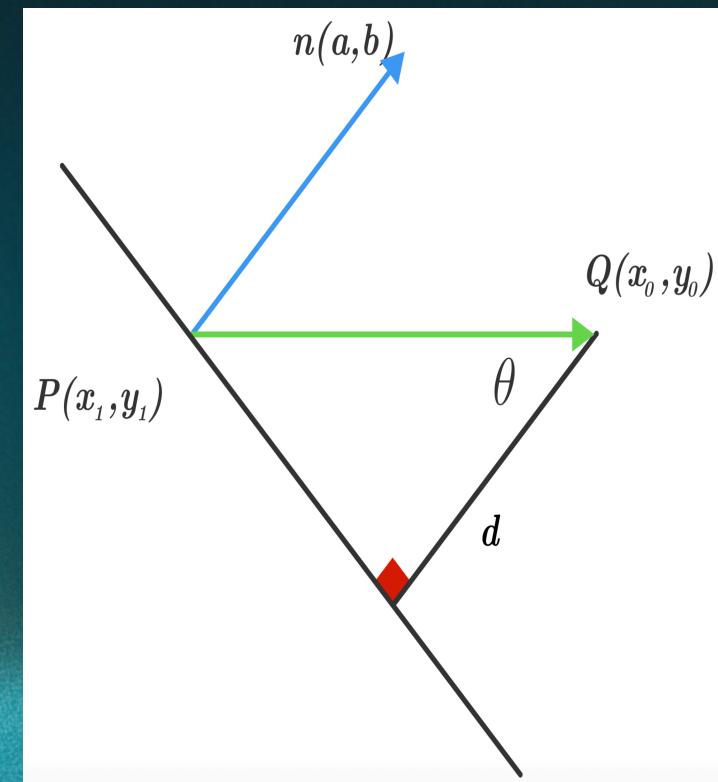
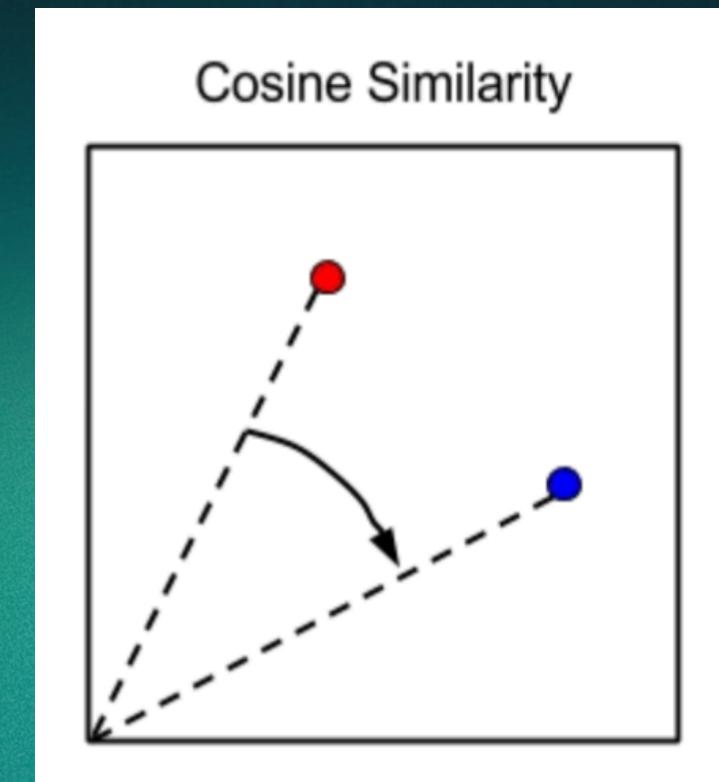
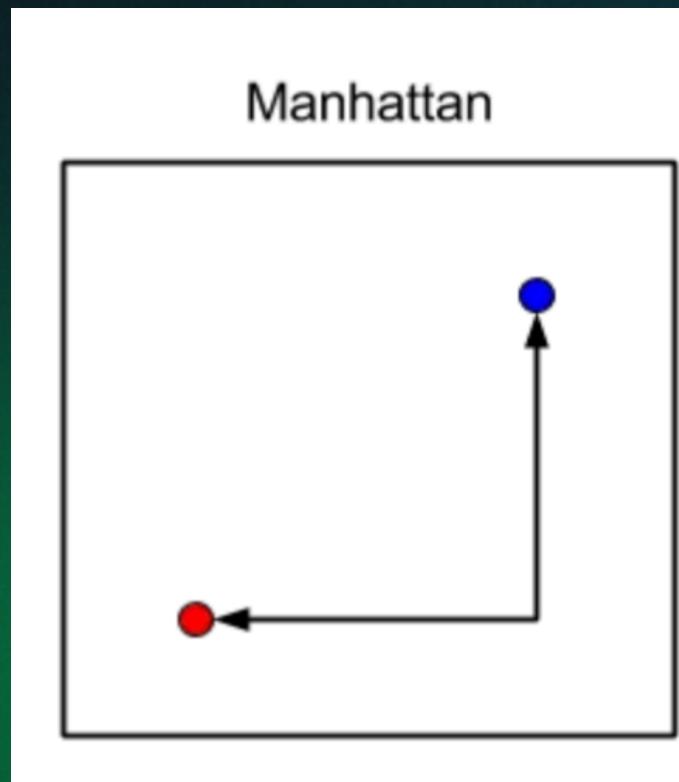
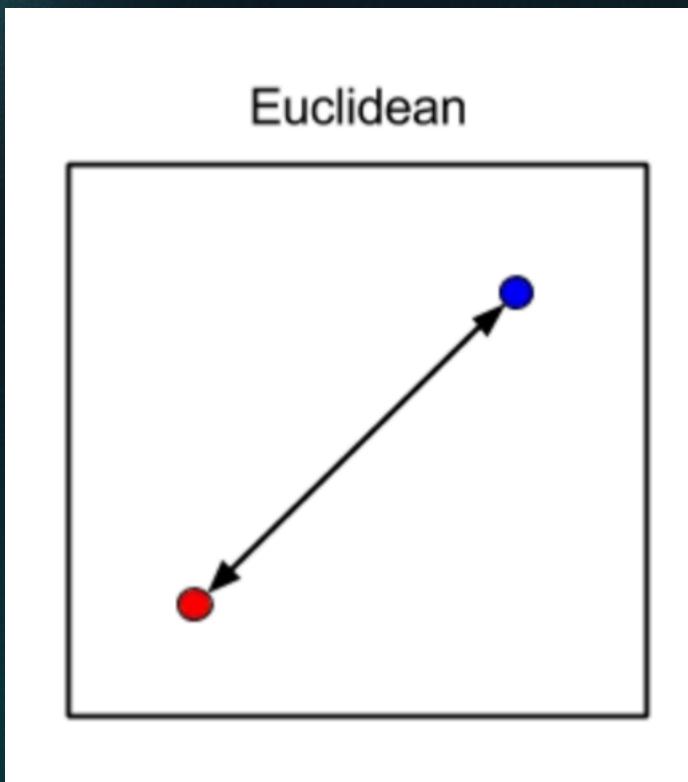
- Red Green Blue
- [255,101,206]
- #FF65CE
- [FF,65,CE]
- Hue Saturation Brightness
- [100,11,35]
- Combined Vector
- [[255,101,206],
[100,11,35]]





Color Demo

Measuring Distances



- Euclidean Distance
- Manhattan Distance
- Cosine Similarity
- Dot Product



Categorization Demo

Why use a vector?

AI Uses

- Natural Language Processing (NLP)
- Long Term memory for LLM
- Image/Unstructured Data Search

Other uses

- Similarity Search
- Recommendation Engines
- Semantic Searches
- Anomaly Detection

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Search/Cache Demo

What are some Vector Databases?

Vector First

- Pinecone
- Chroma
- Weaviate

Vector search options

- Couchbase
- Postgres
- Redis

What to look for in a Vector Database?

Features to compare

- Performance
- Scalability
- Cost
- Maturity
- Reliability
- Indexing Techniques (HNSW, LSH, ENN, ANN)
- Vector Distance Calculation
- Vendor/Community
- AI Tool Integration

Credits and further learning

- John Strabla (Principle Product Manager @ Couchbase) - <https://github.com/jon-strabala>
- Matthew Groves (DevRel @ Couchbase) - <https://github.com/mgroves/>
- Couchbase GitHub - <https://github.com/couchbase-examples/hybrid-search-demo>
- Couchbase YouTube - <https://www.youtube.com/@CouchbaseInc>
- AssemblyAI - <https://www.youtube.com/watch?v=dN0lsF2cvm4>
- Fireship - <https://www.youtube.com/watch?v=klTvEwg3oJ4>
- PineCone - <https://www.youtube.com/@pinecone-io>
- Chroma - <https://www.trychroma.com/>

Moonbeam

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Thank You!