Vector Embedding Strategies

Dense Embeddings

BERT, BioBERT, Sentence-BERT

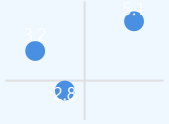
High-dimensional
continuous space

✅ Semantic similarity
✅ Context understanding
❌ Computational cost

Best for: "chest pain" ≈ "cardiac discomfort"

Sparse Embeddings

BM25, TF-IDF



Most values = 0
Only keywords

✅ Fast retrieval
✅ Interpretable
❌ No semantics

Best for: Exact term "ICD-10 I21.0"

Hybrid Approach

Dense + Sparse fusion

✅ Best of both
✅ High accuracy (95%+)
⚠ More complex

Recommended for medical applications

Retrieval Accuracy Comparison

Dimension Selection

- 384d - Fast, general purpose
- 768d - BERT standard
- 1024d - High precision