

Image Search using VectorDB:

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- Implementation of **Content-Based Image Retrieval (CBIR)** system using **Milvus** vector database
- Enables efficient similarity-based image search using vector embeddings

Database Setup:

- Creates Milvus collection named 'image_search'
 - Stores three fields:
 - ``id`` (INT64, primary key)
 - ``filepath`` (VARCHAR, max_length=200)
 - ``image_embedding`` (FLOAT_VECTOR, dimension=2048)
 - Configures **IVF_FLAT** index with **L2** metric for similarity search

Image Processing Pipeline:

- Uses **ResNet50** model (pre-trained)
 - Removes final classification layer to generate embeddings
 - Processes images in batches of size **128**
 - Applies transformations:
 - Resize to 256 pixels
 - Center crop to 224x224
 - Normalize with ImageNet statistics

Search Implementation:

- Supports batch queries
 - Returns **top-K** (3) similar images
 - Measures similarity using L2 distance metric
 - Visualizes results with query image and matches

