VIDEO INDEXING

STEP5:STORING AND INDEXING

Purpose of Segmentation

1.1

Store metadata persistently and create an index for efficient retrieval.

1.2

Index supports queries by keywords, sentiment, or themes.

Techniques Used

METADATA STORAGE

Tool

SQLite database.

How

Stores metadata in a table with segment IDs, video paths, timestamps, keywords, sentiment, and cluster IDs.

Why

Provides persistent, queryable storage for indexing and retrieval.

Techniques Used

BAG-OF-WORDS REPRESENTATION

Tool

scikit-learn’s CountVectorizer

How

Converts keywords into frequency vectors (e.g., “dog: 2, park: 1”).

Why

Simplifies text features for clustering and indexing (Bag-of-Words).

Techniques Used

INVERTED INDEX CREATION

Tool

Whoosh search library.

How

Maps keywords and sentiment to segment IDs and timestamps (Fichier inverse).

Why

Enables fast text-based search (e.g., “find ‘dog’ segments”).

Techniques Used

CLUSTERING

Tool

scikit-learn’s K-means.

How

Groups segments by similar keywords into clusters (e.g., “dog-related” cluster).

Why

Organizes segments for thematic browsing or index efficiency (Clustering).

Techniques Used

MODALITY FUSION

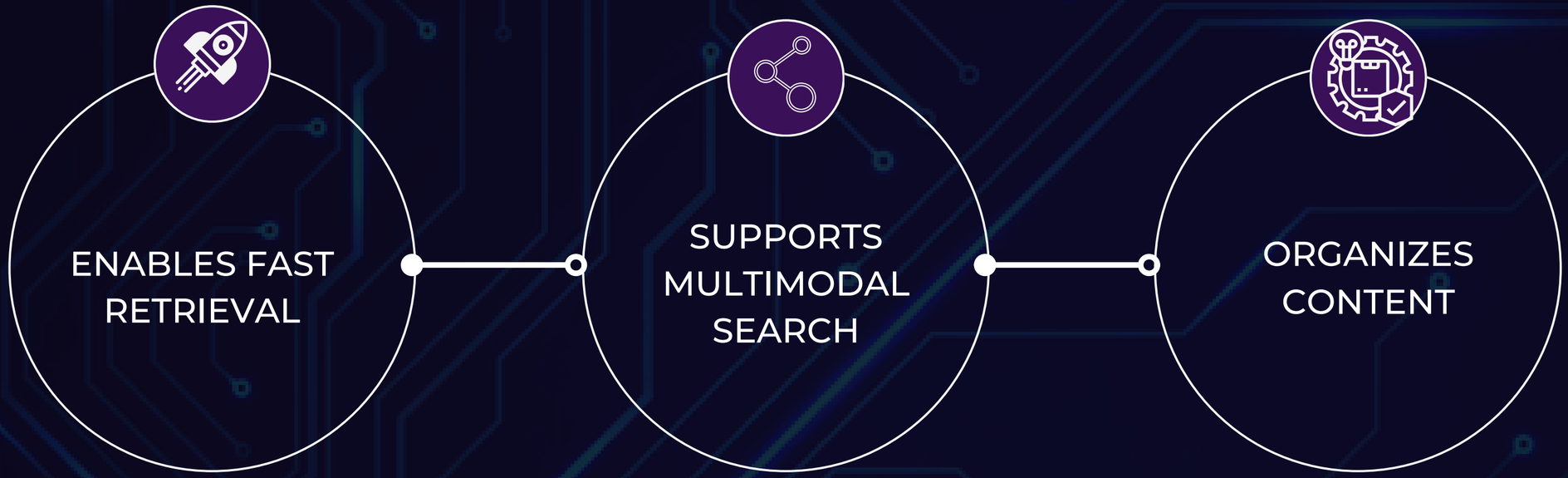
How

Boosts keywords present in multiple modalities (e.g., text and visual) in the index (Fusion des modalités).

Why

Improves search accuracy by combining multimodal features.

Importance of Step 5



Inverted index allows instant lookup of segments by keywords or sentiment. Example: Query “dog” returns segment IDs [1, 3] in milliseconds.

Fusion of modalities ensures accurate results (e.g., “dog” in text and visual is prioritized).

Clustering groups similar segments, aiding browsing (e.g., “show all dog scenes”).