

Visual Intelligence, at Scale

Organizations generate massive volumes of images and videos, but existing tools address only fragments of the workflow. Storage systems offer no visual understanding. Labeling platforms require data to already be organized. Search is limited to filenames and manual tags.

Visual Layer is the first platform that lets you ingest, understand, and act on visual data at scale. No GPU required. No special expertise necessary.

What Visual Layer Is

Visual Layer is a data-centric visual AI platform that ingests images and videos from any source and builds a visual knowledge graph from deep embeddings, on CPU alone. That graph organizes content by similarity, surfaces what needs attention, and powers search, automated labeling, and model training, all across millions of assets.

SURFACE WHAT MATTERS

Pre-trained models add structured metadata to datasets without custom training. Models run as background pipelines and write results directly into the dataset for immediate search and filtering.

Object Detection	Bounding boxes with class labels
Image Classification	Category tags per image
Face Detection	Face locations and facial landmarks
Captioning	Descriptive text summaries and VQA
Custom Models	Domain-specific model packs and organization-specific model integration

FIND ANYTHING

Multiple search modalities locate exactly what you need across datasets of any size.

Semantic Search	Match images by meaning — queries like "forklift in a warehouse" return relevant results regardless of file names or tags
Visual Search	Find similar content from a reference image, including partial and cross-dataset matches
Hybrid Search	Combine semantic queries, visual references, and metadata filters in a single search; save as monitored views

CLEAN AND CURATE

Visual Layer identifies the content that needs attention — as filters within the same exploration interface, not a separate workflow.

Duplicate Detection	Visual similarity analysis (not file hashes) flags redundancy at configurable thresholds
Outlier Detection	Surfaces anomalies and edge cases that differ significantly from the rest of the dataset
Mislabel Detection	Analyzes visual-label alignment to find incorrect or inconsistent annotations
Quality Filters	Catches blur, overexposure, and underexposure with per-issue confidence controls

SEE WHAT YOU HAVE

Visual Layer automatically organizes visual data into meaningful structure the moment it is ingested. Built-in models handle visual complexity without custom training.

Visual Clustering	Automatically groups similar images and objects, giving teams immediate visibility into dataset composition without manual review
Adjustable Granularity	Tune similarity thresholds from broad categories to fine-grained distinctions to explore at any level of detail

VL CHAT

Natural language interface for conversational dataset exploration.	
Conversational Search	Query datasets using natural language with multi-turn context
Query Interpretation	Transparent JSON output shows how queries are parsed and executed
Smart Suggestions	Contextual suggestions guide effective query formulation

ORGANIZE & COLLABORATE

Persistent views and controlled sharing keep teams aligned as datasets evolve.	
Saved Views	Capture any combination of search queries, filters, and conditions as named views that dynamically track matching results
Custom Metadata	Tags and attributes extend organization beyond standard labels; import existing annotations or add new metadata directly
Export	Download datasets in JSON or COCO format with optional image files for integration with labeling tools and training pipelines
Dataset Sharing	Secure, email-based access control with configurable permissions for controlled collaboration across teams
Automated Labeling	Propagate labels from a handful of seed examples to thousands of images using visual similarity

Use Cases

Investigations & OSINT	Ingest millions of images and videos from field collection or open sources. Search by concept or face, identify people across datasets, surface patterns, and monitor for new matches.
Industrial Inspection & Quality	Analyze visual inspection data from production lines at scale. Detect defects, duplicates, and anomalies. Automate quality workflows with object detection and classification.
Large-Scale Visual Data Platforms	Organize, search, and extract structured value from massive visual datasets. Tag, caption, deduplicate, and export curated datasets for downstream applications.

Technical Specifications

Processes petabyte-scale visual data collections efficiently without GPU infrastructure requirements, enabling cost-effective deployment at any volume.

API CAPABILITIES

Data Ingestion	Bulk upload, streaming ingestion, metadata attachment, folder-based organization
Semantic Search	Natural language queries with confidence scoring
Visual Search	Image-based similarity search with configurable thresholds
Multi-Query	Combined semantic + visual + metadata filter queries in single request

SUPPORTED FORMATS

Images	PNG, JPG, JPEG, GIF, TIF, TIFF, HEIC, HEIF, BMP, WebP, JP2, JFIF
Videos	MP4, AVI, DAV, M4V, MOV, MKV, WMV, FLV, WebM

DEPLOYMENT OPTIONS

Cloud	Fully managed on AWS.
Self-Hosted	On-premises or private cloud, including airgapped environments. GPU optional.
Embeddable	Integrates as a visual intelligence layer within existing platforms.

DATA SOURCES

Local	ZIP upload, local files and folders
Cloud Storage	Public and private Amazon S3, Google Cloud Storage
Streaming	API-based ingestion from any source

About Visual Layer

Visual Layer is headquartered in Tel Aviv, Israel. Founded by the creators of fastdup, the most widely adopted open-source tool for visual data analysis. Visual Layer serves organizations across defense, intelligence, industrial inspection, and large-scale data platforms with both cloud and self-hosted deployments.

