



PhotoVault - Professional Photo Management Platform

PhotoVault is a comprehensive photo management platform designed for secure storage, advanced editing, and intelligent organization of photographs. Built by Calmic Sdn Bhd, it combines enterprise-grade security with user-friendly features.

Core Photo Management

- **Secure Upload & Storage:** Upload photos from files or capture directly with integrated camera
- **Dual Version Management:** Maintains both original and edited versions of every photo
- **Comprehensive Metadata:** Automatically extracts and stores EXIF data including camera settings, GPS coordinates, and timestamps
- **Thumbnail Generation:** Creates optimized thumbnails for fast browsing
- **Multi-format Support:** Handles various image formats (PNG, JPG, JPEG, GIF, BMP, WebP)

Intelligent Face Detection & Recognition

- **Automatic Face Detection:** Uses OpenCV computer vision to automatically detect faces in uploaded photos
- **Bounding Box Mapping:** Stores precise face locations with confidence scores
- **Person Assignment:** Link detected faces to people in your contact database
- **Smart Tagging:** Combines automatic detection with manual tagging capabilities

Advanced Image Enhancement

- **OpenCV-Powered Processing:** Professional-grade image enhancement using computer vision algorithms
- **Old Photo Restoration:** Specialized tools for restoring vintage photographs including:
 - CLAHE (Contrast Limited Adaptive Histogram Equalization)
 - Bilateral filtering for noise reduction
 - Auto-levels adjustment



- Brightness and contrast optimization
- **Canvas-Based Editor:** Client-side photo editing with responsive design for all devices

Camera Integration

- **WebRTC Camera Access:** Direct camera capture through web browser
- **Dual Capture Modes:**
 - Sequential mode for single photos
 - Quad Split mode for multiple angles
- **Touch-Optimized:** Full touch support for mobile devices
- **Real-time Preview:** Live camera feed with capture controls

Voice Documentation

- **Voice Memos:** Attach audio recordings to any photo
- **Multiple Formats:** Supports various audio formats (WebM, WAV, etc.)
- **Transcription Ready:** Optional text transcription of voice recordings
- **Duration Tracking:** Automatic timing and file size management

Organization & Search

- **Person Database:** Create detailed profiles for people in your photos
- **Event Organization:** Group photos by events, occasions, or time periods
- **Tag System:** Comprehensive tagging with both manual and automatic options
- **Relationship Tracking:** Document family relationships and connections
- **Location Awareness:** GPS coordinate storage and location naming

User Management & Security

- **Role-Based Access Control:** Three user levels (User, Admin, Superuser)
- **Secure Authentication:** Password hashing and session management
- **User Administration:** Complete user management dashboard for admins
- **Data Protection:** Enterprise-grade security measures throughout



Professional Features

- **Statistics & Analytics:** Detailed usage statistics and photo analysis
- **Bulk Operations:** Handle multiple photos efficiently
- **Export Capabilities:** Download and share photos with metadata preserved
- **Database Integration:** PostgreSQL backend for reliable data storage
- **API Endpoints:** RESTful API for integration and monitoring

Technical Capabilities

- **Responsive Design:** Works seamlessly on desktop, tablet, and mobile devices
- **Bootstrap 5 Interface:** Modern, professional user interface
- **Real-time Processing:** Fast image processing and thumbnail generation
- **Scalable Architecture:** Built for growth with cloud deployment support
- **Cross-Platform:** Works in any modern web browser

Use Cases

- **Family Archives:** Organize and preserve family photo collections
- **Professional Photography:** Manage client photos with enhanced organization
- **Historical Preservation:** Restore and catalog vintage photographs
- **Event Documentation:** Comprehensive event photo management
- **Personal Collections:** Intelligent organization of personal photo libraries

PhotoVault combines the power of modern computer vision with intuitive design to create a comprehensive solution for anyone serious about photo management and preservation.