GUI Features

1. Read, Show, Write Image
2. Camera Capture, Video Reading, Video Writing
3. Drawing Line, Rectangle, Circle, Ellipse, Polygon, writing Text
4. Mouse Events
5. Trackbar
6. **Contrast and Brightness**

Core Operations

1. Image Pixel, Image Properties, Region of Interest (ROI), Splitting and Merging Channels, Borders
2. Addition, Subtraction, Blending(addweighted), Bitwise AND, OR, NOT, XOR (mask)

Image Processing

1. Color spaces (BGR, RGB, HSV), inRange(Color Tracking)
2. Geometric Transformation Scaling (resize), Translation (Warp Affine), Rotation, Flip, Perspective
3. Thresholding (Binary, Trunc, Tozero), Adaptive (Mean, Gaussian), Otsu
4. Smoothing Image Convolution (filter2d), Averaging (Blur, Boxfilter), Gaussian, Median, Bilateral
5. Morphological Erosion, Dilation, Opening, Closing, Gradient, Top hat, Black hat
6. Sharpening Image (Gradient, Edges) Sobel, Scharr, Laplacian (cv2.64)
7. Canny Edge Detection
8. Image Pyramid (pyrUp, pyrDown) Gaussian and Laplacian
9. Find Contours, Retrieval, Approximation, Draw, Features, Convex Hull, Bounding Box, Ellipse, Circle, Solidity, mean, extreme point, polygon test, Matchshapes, Hierarchy
10. Histogram Numpy, Matplotlib, Opencv, Equalisation CLAHE
11. Backprojection
12. Image Transform Fourier
13. Template Matching CCOE
14. FF, SQDIFF, CCORR
15. Hough Line
16. Hough Circle
17. Segmentation WaterShed
18. Foreground GrabCut
19. Convex Hull
20. Bounding boxes rectangle, circle, ellipse
21. Moment
22. Point Polygon test

Feature Detection

1. Harris Corner
2. Shi-Tomasi Good Features to track
3. Sift
4. Surf
5. Fast For Corner Detection
6. Brief
7. Orb
8. Feature matching ORB, SIFT, FLANN
9. Calib3d

Video Analysis

1. Background Subtraction
2. Meanshift, Camshift
3. Optical flow Lukas kanade, Dense
4. Tracking API

Camera Calibration

1. Camera Grid detection
2. Pose
3. Epipolar Geometry
4. Depth map

Machine Learning

1. KNN
2. SVM
3. K Means
4. CNN
5. DNN
6. YOLO

Computational Photograph

1. Denoising
2. Inpainting
3. High Dynamic Range (HDR)

Object detection

1. Face Detection Haar Cascade
2. Cascade Training

Face Recognition

1. Recognition
2. Digital Face Makeup
3. Facial Recognition
4. Face Distance Value
5. Motion Detection

DeepLearning

Object Recognition

1. Optical Character OCR
2. SSD
3. Mask RCNN
4. YOLO