# OpenCV modules

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- **OpenCV-Python Tutorials**
- **OpenCV.js Tutorials**
- **Tutorials for contrib modules**
- **Frequently Asked Questions**
- **Bibliography**
- Main modules:
  - core. **Core functionality**
  - imgproc. **Image Processing**
  - imgcodecs. **Image file reading and writing**
  - videoio. **Video I/O**
  - highgui. **High-level GUI**
  - video. **Video Analysis**
  - calib3d. **Camera Calibration and 3D Reconstruction**
  - features2d. **2D Features Framework**
  - objdetect. **Object Detection**
  - dnn. **Deep Neural Network module**
  - ml. **Machine Learning**
  - flann. **Clustering and Search in Multi-Dimensional Spaces**
  - photo. **Computational Photography**
  - stitching. **Images stitching**
  - gapi. **Graph API**
- Extra modules:
  - alphamat. **Alpha Matting**
  - aruco. **ArUco Marker Detection**
  - barcode. **Barcode detecting and decoding methods**
  - bgsegm. **Improved Background-Foreground Segmentation Methods**
  - bioinspired. **Biologically inspired vision models and derivated tools**
  - ccalib. **Custom Calibration Pattern for 3D reconstruction**
  - cudaarithm. **Operations on Matrices**
  - cudabgsegm. **Background Segmentation**
  - cudacodec. **Video Encoding/Decoding**
  - cudafeatures2d. **Feature Detection and Description**
  - cudafilters. **Image Filtering**
  - cudaimgproc. **Image Processing**
  - cudalegacy. **Legacy support**
  - cudaobjdetect. **Object Detection**
  - cudaoptflow. **Optical Flow**
  - cudastereo. **Stereo Correspondence**
  - cudawarping. **Image Warping**
  - cudev. **Device layer**
  - cvv. **GUI for Interactive Visual Debugging of Computer Vision Programs**
  - datasets. **Framework for working with different datasets**
  - dnn_objdetect. **DNN used for object detection**
  - dnn_superres. **DNN used for super resolution**
  - dpm. **Deformable Part-based Models**
  - face. **Face Analysis**
  - freetype. **Drawing UTF-8 strings with freetype/harfbuzz**
  - fuzzy. **Image processing based on fuzzy mathematics**
  - hdf. **Hierarchical Data Format I/O routines**
  - hfs. **Hierarchical Feature Selection for Efficient Image Segmentation**
  - img_hash. **The module brings implementations of different image hashing algorithms.**
  - intensity_transform. **The module brings implementations of intensity transformation algorithms to adjust image contrast.**
  - julia. **Julia bindings for OpenCV**
  - line_descriptor. **Binary descriptors for lines extracted from an image**
  - mcc. **Macbeth Chart module**
  - optflow. **Optical Flow Algorithms**
  - ovis. **OGRE 3D Visualiser**
  - phase_unwrapping. **Phase Unwrapping API**
  - plot. **Plot function for Mat data**
  - quality. **Image Quality Analysis (IQA) API**
  - rapid. **silhouette based 3D object tracking**

- reg. **Image Registration**
- rgbd. **RGB-Depth Processing**
- saliency. **Saliency API**
- sfm. **Structure From Motion**
- shape. **Shape Distance and Matching**
- stereo. **Stereo Correspondance Algorithms**
- structured_light. **Structured Light API**
- superres. **Super Resolution**
- surface_matching. **Surface Matching**
- text. **Scene Text Detection and Recognition**
- tracking. **Tracking API**
- videostab. **Video Stabilization**
- viz. **3D Visualizer**
- wechat_qrcode. **WeChat QR code detector for detecting and parsing QR code.**
- xfeatures2d. **Extra 2D Features Framework**
- ximgproc. **Extended Image Processing**
- xobjdetect. **Extended object detection**
- xphoto. **Additional photo processing algorithms**