JavaScript is disabled on your browser.

* [Overview](http://docs.google.com/overview-summary.html)
* [Package](http://docs.google.com/package-summary.html)
* Class
* [Tree](http://docs.google.com/package-tree.html)
* [Index](http://docs.google.com/index-all.html)
* [Help](http://docs.google.com/help-doc.html)
* Prev Class
* [Next Class](http://docs.google.com/org/opencv/features2d/FlannBasedMatcher.html)
* [Frames](http://docs.google.com/index.html?org/opencv/features2d/Features2d.html)
* [No Frames](http://docs.google.com/Features2d.html)
* [All Classes](http://docs.google.com/allclasses-noframe.html)
* Summary:
* Nested |
* [Field](#3znysh7) |
* [Constr](#2et92p0) |
* [Method](#tyjcwt)
* Detail:
* [Field](#1t3h5sf) |
* [Constr](#1ksv4uv) |
* [Method](#2jxsxqh)

org.opencv.features2d

## Class Features2d

* java.lang.Object
  + org.opencv.features2d.Features2d
* public class Features2d  
  extends java.lang.Object

### Field SummaryFields

| Modifier and Type | Field and Description |
| --- | --- |
| static int | [**DRAW\_OVER\_OUTIMG**](http://docs.google.com/org/opencv/features2d/Features2d.html#DRAW_OVER_OUTIMG) |
| static int | [**DRAW\_RICH\_KEYPOINTS**](http://docs.google.com/org/opencv/features2d/Features2d.html#DRAW_RICH_KEYPOINTS) |
| static int | [**DrawMatchesFlags\_DEFAULT**](http://docs.google.com/org/opencv/features2d/Features2d.html#DrawMatchesFlags_DEFAULT) |
| static int | [**DrawMatchesFlags\_DRAW\_OVER\_OUTIMG**](http://docs.google.com/org/opencv/features2d/Features2d.html#DrawMatchesFlags_DRAW_OVER_OUTIMG) |
| static int | [**DrawMatchesFlags\_DRAW\_RICH\_KEYPOINTS**](http://docs.google.com/org/opencv/features2d/Features2d.html#DrawMatchesFlags_DRAW_RICH_KEYPOINTS) |
| static int | [**DrawMatchesFlags\_NOT\_DRAW\_SINGLE\_POINTS**](http://docs.google.com/org/opencv/features2d/Features2d.html#DrawMatchesFlags_NOT_DRAW_SINGLE_POINTS) |
| static int | [**NOT\_DRAW\_SINGLE\_POINTS**](http://docs.google.com/org/opencv/features2d/Features2d.html#NOT_DRAW_SINGLE_POINTS) |

### Constructor SummaryConstructors

| Constructor and Description |
| --- |
| [**Features2d**](http://docs.google.com/org/opencv/features2d/Features2d.html#Features2d())() |

### Method SummaryMethods

| Modifier and Type | Method and Description |
| --- | --- |
| static void | [**drawKeypoints**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawKeypoints(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat))([Mat](http://docs.google.com/org/opencv/core/Mat.html) image, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImage) Draws keypoints. |
| static void | [**drawKeypoints**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawKeypoints(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.Scalar))([Mat](http://docs.google.com/org/opencv/core/Mat.html) image, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImage, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) color) Draws keypoints. |
| static void | [**drawKeypoints**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawKeypoints(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.Scalar,%20int))([Mat](http://docs.google.com/org/opencv/core/Mat.html) image, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImage, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) color, int flags) Draws keypoints. |
| static void | [**drawMatches**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatches(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.MatOfDMatch,%20org.opencv.core.Mat))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, [MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html) matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg) Draws the found matches of keypoints from two images. |
| static void | [**drawMatches**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatches(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.MatOfDMatch,%20org.opencv.core.Mat,%20org.opencv.core.Scalar))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, [MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html) matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor) Draws the found matches of keypoints from two images. |
| static void | [**drawMatches**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatches(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.MatOfDMatch,%20org.opencv.core.Mat,%20org.opencv.core.Scalar,%20org.opencv.core.Scalar))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, [MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html) matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor) Draws the found matches of keypoints from two images. |
| static void | [**drawMatches**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatches(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.MatOfDMatch,%20org.opencv.core.Mat,%20org.opencv.core.Scalar,%20org.opencv.core.Scalar,%20org.opencv.core.MatOfByte))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, [MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html) matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, [MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html) matchesMask) Draws the found matches of keypoints from two images. |
| static void | [**drawMatches**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatches(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.MatOfDMatch,%20org.opencv.core.Mat,%20org.opencv.core.Scalar,%20org.opencv.core.Scalar,%20org.opencv.core.MatOfByte,%20int))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, [MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html) matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, [MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html) matchesMask, int flags) Draws the found matches of keypoints from two images. |
| static void | [**drawMatches2**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatches2(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20java.util.List,%20org.opencv.core.Mat))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg) |
| static void | [**drawMatches2**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatches2(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20java.util.List,%20org.opencv.core.Mat,%20org.opencv.core.Scalar))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor) |
| static void | [**drawMatches2**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatches2(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20java.util.List,%20org.opencv.core.Mat,%20org.opencv.core.Scalar,%20org.opencv.core.Scalar))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor) |
| static void | [**drawMatches2**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatches2(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20java.util.List,%20org.opencv.core.Mat,%20org.opencv.core.Scalar,%20org.opencv.core.Scalar,%20java.util.List))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, java.util.List<[MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html)> matchesMask) |
| static void | [**drawMatches2**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatches2(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20java.util.List,%20org.opencv.core.Mat,%20org.opencv.core.Scalar,%20org.opencv.core.Scalar,%20java.util.List,%20int))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, java.util.List<[MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html)> matchesMask, int flags) |
| static void | [**drawMatchesKnn**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatchesKnn(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20java.util.List,%20org.opencv.core.Mat))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg) |
| static void | [**drawMatchesKnn**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatchesKnn(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20java.util.List,%20org.opencv.core.Mat,%20org.opencv.core.Scalar))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor) |
| static void | [**drawMatchesKnn**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatchesKnn(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20java.util.List,%20org.opencv.core.Mat,%20org.opencv.core.Scalar,%20org.opencv.core.Scalar))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor) |
| static void | [**drawMatchesKnn**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatchesKnn(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20java.util.List,%20org.opencv.core.Mat,%20org.opencv.core.Scalar,%20org.opencv.core.Scalar,%20java.util.List))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, java.util.List<[MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html)> matchesMask) |
| static void | [**drawMatchesKnn**](http://docs.google.com/org/opencv/features2d/Features2d.html#drawMatchesKnn(org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20org.opencv.core.Mat,%20org.opencv.core.MatOfKeyPoint,%20java.util.List,%20org.opencv.core.Mat,%20org.opencv.core.Scalar,%20org.opencv.core.Scalar,%20java.util.List,%20int))([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, java.util.List<[MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html)> matchesMask, int flags) |

### Methods inherited from class java.lang.Objectequals, getClass, hashCode, notify, notifyAll, toString, wait, wait, wait

### Field Detail

#### DRAW\_OVER\_OUTIMG public static final int DRAW\_OVER\_OUTIMGSee Also:[Constant Field Values](http://docs.google.com/constant-values.html#org.opencv.features2d.Features2d.DRAW_OVER_OUTIMG)

#### DRAW\_RICH\_KEYPOINTS public static final int DRAW\_RICH\_KEYPOINTSSee Also:[Constant Field Values](http://docs.google.com/constant-values.html#org.opencv.features2d.Features2d.DRAW_RICH_KEYPOINTS)

#### DrawMatchesFlags\_DEFAULT public static final int DrawMatchesFlags\_DEFAULTSee Also:[Constant Field Values](http://docs.google.com/constant-values.html#org.opencv.features2d.Features2d.DrawMatchesFlags_DEFAULT)

#### DrawMatchesFlags\_DRAW\_OVER\_OUTIMG public static final int DrawMatchesFlags\_DRAW\_OVER\_OUTIMGSee Also:[Constant Field Values](http://docs.google.com/constant-values.html#org.opencv.features2d.Features2d.DrawMatchesFlags_DRAW_OVER_OUTIMG)

#### DrawMatchesFlags\_DRAW\_RICH\_KEYPOINTS public static final int DrawMatchesFlags\_DRAW\_RICH\_KEYPOINTSSee Also:[Constant Field Values](http://docs.google.com/constant-values.html#org.opencv.features2d.Features2d.DrawMatchesFlags_DRAW_RICH_KEYPOINTS)

#### DrawMatchesFlags\_NOT\_DRAW\_SINGLE\_POINTS public static final int DrawMatchesFlags\_NOT\_DRAW\_SINGLE\_POINTSSee Also:[Constant Field Values](http://docs.google.com/constant-values.html#org.opencv.features2d.Features2d.DrawMatchesFlags_NOT_DRAW_SINGLE_POINTS)

#### NOT\_DRAW\_SINGLE\_POINTS public static final int NOT\_DRAW\_SINGLE\_POINTSSee Also:[Constant Field Values](http://docs.google.com/constant-values.html#org.opencv.features2d.Features2d.NOT_DRAW_SINGLE_POINTS)

### Constructor Detail

#### Features2d public Features2d()

### Method Detail

#### drawKeypoints public static void drawKeypoints([Mat](http://docs.google.com/org/opencv/core/Mat.html) image, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImage) Draws keypoints.Parameters:image - Source image.keypoints - Keypoints from the source image.outImage - Output image. Its content depends on the flags value defining what is drawn in the output image. See possible flags bit values below. DrawMatchesFlags. See details above in drawMatches . **Note:** For Python API, flags are modified as cv2.DRAW\_MATCHES\_FLAGS\_DEFAULT, cv2.DRAW\_MATCHES\_FLAGS\_DRAW\_RICH\_KEYPOINTS, cv2.DRAW\_MATCHES\_FLAGS\_DRAW\_OVER\_OUTIMG, cv2.DRAW\_MATCHES\_FLAGS\_NOT\_DRAW\_SINGLE\_POINTS

#### drawKeypoints public static void drawKeypoints([Mat](http://docs.google.com/org/opencv/core/Mat.html) image, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImage, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) color) Draws keypoints.Parameters:image - Source image.keypoints - Keypoints from the source image.outImage - Output image. Its content depends on the flags value defining what is drawn in the output image. See possible flags bit values below.color - Color of keypoints. DrawMatchesFlags. See details above in drawMatches . **Note:** For Python API, flags are modified as cv2.DRAW\_MATCHES\_FLAGS\_DEFAULT, cv2.DRAW\_MATCHES\_FLAGS\_DRAW\_RICH\_KEYPOINTS, cv2.DRAW\_MATCHES\_FLAGS\_DRAW\_OVER\_OUTIMG, cv2.DRAW\_MATCHES\_FLAGS\_NOT\_DRAW\_SINGLE\_POINTS

#### drawKeypoints public static void drawKeypoints([Mat](http://docs.google.com/org/opencv/core/Mat.html) image, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImage, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) color, int flags) Draws keypoints.Parameters:image - Source image.keypoints - Keypoints from the source image.outImage - Output image. Its content depends on the flags value defining what is drawn in the output image. See possible flags bit values below.color - Color of keypoints.flags - Flags setting drawing features. Possible flags bit values are defined by DrawMatchesFlags. See details above in drawMatches . **Note:** For Python API, flags are modified as cv2.DRAW\_MATCHES\_FLAGS\_DEFAULT, cv2.DRAW\_MATCHES\_FLAGS\_DRAW\_RICH\_KEYPOINTS, cv2.DRAW\_MATCHES\_FLAGS\_DRAW\_OVER\_OUTIMG, cv2.DRAW\_MATCHES\_FLAGS\_NOT\_DRAW\_SINGLE\_POINTS

#### drawMatches public static void drawMatches([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, [MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html) matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg) Draws the found matches of keypoints from two images.Parameters:img1 - First source image.keypoints1 - Keypoints from the first source image.img2 - Second source image.keypoints2 - Keypoints from the second source image.matches1to2 - Matches from the first image to the second one, which means that keypoints1[i] has a corresponding point in keypoints2[matches[i]] .outImg - Output image. Its content depends on the flags value defining what is drawn in the output image. See possible flags bit values below. , the color is generated randomly. have the matches. If singlePointColor==Scalar::all(-1) , the color is generated randomly. drawn. DrawMatchesFlags. This function draws matches of keypoints from two images in the output image. Match is a line connecting two keypoints (circles). See cv::DrawMatchesFlags.

#### drawMatches public static void drawMatches([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, [MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html) matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor) Draws the found matches of keypoints from two images.Parameters:img1 - First source image.keypoints1 - Keypoints from the first source image.img2 - Second source image.keypoints2 - Keypoints from the second source image.matches1to2 - Matches from the first image to the second one, which means that keypoints1[i] has a corresponding point in keypoints2[matches[i]] .outImg - Output image. Its content depends on the flags value defining what is drawn in the output image. See possible flags bit values below.matchColor - Color of matches (lines and connected keypoints). If matchColor==Scalar::all(-1) , the color is generated randomly. have the matches. If singlePointColor==Scalar::all(-1) , the color is generated randomly. drawn. DrawMatchesFlags. This function draws matches of keypoints from two images in the output image. Match is a line connecting two keypoints (circles). See cv::DrawMatchesFlags.

#### drawMatches public static void drawMatches([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, [MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html) matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor) Draws the found matches of keypoints from two images.Parameters:img1 - First source image.keypoints1 - Keypoints from the first source image.img2 - Second source image.keypoints2 - Keypoints from the second source image.matches1to2 - Matches from the first image to the second one, which means that keypoints1[i] has a corresponding point in keypoints2[matches[i]] .outImg - Output image. Its content depends on the flags value defining what is drawn in the output image. See possible flags bit values below.matchColor - Color of matches (lines and connected keypoints). If matchColor==Scalar::all(-1) , the color is generated randomly.singlePointColor - Color of single keypoints (circles), which means that keypoints do not have the matches. If singlePointColor==Scalar::all(-1) , the color is generated randomly. drawn. DrawMatchesFlags. This function draws matches of keypoints from two images in the output image. Match is a line connecting two keypoints (circles). See cv::DrawMatchesFlags.

#### drawMatches public static void drawMatches([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, [MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html) matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, [MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html) matchesMask) Draws the found matches of keypoints from two images.Parameters:img1 - First source image.keypoints1 - Keypoints from the first source image.img2 - Second source image.keypoints2 - Keypoints from the second source image.matches1to2 - Matches from the first image to the second one, which means that keypoints1[i] has a corresponding point in keypoints2[matches[i]] .outImg - Output image. Its content depends on the flags value defining what is drawn in the output image. See possible flags bit values below.matchColor - Color of matches (lines and connected keypoints). If matchColor==Scalar::all(-1) , the color is generated randomly.singlePointColor - Color of single keypoints (circles), which means that keypoints do not have the matches. If singlePointColor==Scalar::all(-1) , the color is generated randomly.matchesMask - Mask determining which matches are drawn. If the mask is empty, all matches are drawn. DrawMatchesFlags. This function draws matches of keypoints from two images in the output image. Match is a line connecting two keypoints (circles). See cv::DrawMatchesFlags.

#### drawMatches public static void drawMatches([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, [MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html) matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, [MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html) matchesMask, int flags) Draws the found matches of keypoints from two images.Parameters:img1 - First source image.keypoints1 - Keypoints from the first source image.img2 - Second source image.keypoints2 - Keypoints from the second source image.matches1to2 - Matches from the first image to the second one, which means that keypoints1[i] has a corresponding point in keypoints2[matches[i]] .outImg - Output image. Its content depends on the flags value defining what is drawn in the output image. See possible flags bit values below.matchColor - Color of matches (lines and connected keypoints). If matchColor==Scalar::all(-1) , the color is generated randomly.singlePointColor - Color of single keypoints (circles), which means that keypoints do not have the matches. If singlePointColor==Scalar::all(-1) , the color is generated randomly.matchesMask - Mask determining which matches are drawn. If the mask is empty, all matches are drawn.flags - Flags setting drawing features. Possible flags bit values are defined by DrawMatchesFlags. This function draws matches of keypoints from two images in the output image. Match is a line connecting two keypoints (circles). See cv::DrawMatchesFlags.

#### drawMatches2 public static void drawMatches2([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg)

#### drawMatches2 public static void drawMatches2([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor)

#### drawMatches2 public static void drawMatches2([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor)

#### drawMatches2 public static void drawMatches2([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, java.util.List<[MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html)> matchesMask)

#### drawMatches2 public static void drawMatches2([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, java.util.List<[MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html)> matchesMask, int flags)

#### drawMatchesKnn public static void drawMatchesKnn([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg)

#### drawMatchesKnn public static void drawMatchesKnn([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor)

#### drawMatchesKnn public static void drawMatchesKnn([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor)

#### drawMatchesKnn public static void drawMatchesKnn([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, java.util.List<[MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html)> matchesMask)

#### drawMatchesKnn public static void drawMatchesKnn([Mat](http://docs.google.com/org/opencv/core/Mat.html) img1, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints1, [Mat](http://docs.google.com/org/opencv/core/Mat.html) img2, [MatOfKeyPoint](http://docs.google.com/org/opencv/core/MatOfKeyPoint.html) keypoints2, java.util.List<[MatOfDMatch](http://docs.google.com/org/opencv/core/MatOfDMatch.html)> matches1to2, [Mat](http://docs.google.com/org/opencv/core/Mat.html) outImg, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) matchColor, [Scalar](http://docs.google.com/org/opencv/core/Scalar.html) singlePointColor, java.util.List<[MatOfByte](http://docs.google.com/org/opencv/core/MatOfByte.html)> matchesMask, int flags)

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