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org.opencv.ml

## Class KNearest

* java.lang.Object
  + [org.opencv.core.Algorithm](http://docs.google.com/org/opencv/core/Algorithm.html)
    - [org.opencv.ml.StatModel](http://docs.google.com/org/opencv/ml/StatModel.html)
      * org.opencv.ml.KNearest
* public class KNearest  
  extends [StatModel](http://docs.google.com/org/opencv/ml/StatModel.html)  
  The class implements K-Nearest Neighbors model SEE: REF: ml\_intro\_knn

### Field SummaryFields

| Modifier and Type | Field and Description |
| --- | --- |
| static int | [**BRUTE\_FORCE**](http://docs.google.com/org/opencv/ml/KNearest.html#BRUTE_FORCE) |
| static int | [**KDTREE**](http://docs.google.com/org/opencv/ml/KNearest.html#KDTREE) |

### Fields inherited from class org.opencv.ml.[**StatModel**](http://docs.google.com/org/opencv/ml/StatModel.html)[COMPRESSED\_INPUT](http://docs.google.com/org/opencv/ml/StatModel.html#COMPRESSED_INPUT), [PREPROCESSED\_INPUT](http://docs.google.com/org/opencv/ml/StatModel.html#PREPROCESSED_INPUT), [RAW\_OUTPUT](http://docs.google.com/org/opencv/ml/StatModel.html#RAW_OUTPUT), [UPDATE\_MODEL](http://docs.google.com/org/opencv/ml/StatModel.html#UPDATE_MODEL)

### Method SummaryMethods

| Modifier and Type | Method and Description |
| --- | --- |
| static [KNearest](http://docs.google.com/org/opencv/ml/KNearest.html) | [**\_\_fromPtr\_\_**](http://docs.google.com/org/opencv/ml/KNearest.html#__fromPtr__(long))(long addr) |
| static [KNearest](http://docs.google.com/org/opencv/ml/KNearest.html) | [**create**](http://docs.google.com/org/opencv/ml/KNearest.html#create())() Creates the empty model The static method creates empty %KNearest classifier. |
| float | [**findNearest**](http://docs.google.com/org/opencv/ml/KNearest.html#findNearest(org.opencv.core.Mat,%20int,%20org.opencv.core.Mat))([Mat](http://docs.google.com/org/opencv/core/Mat.html) samples, int k, [Mat](http://docs.google.com/org/opencv/core/Mat.html) results) Finds the neighbors and predicts responses for input vectors. |
| float | [**findNearest**](http://docs.google.com/org/opencv/ml/KNearest.html#findNearest(org.opencv.core.Mat,%20int,%20org.opencv.core.Mat,%20org.opencv.core.Mat))([Mat](http://docs.google.com/org/opencv/core/Mat.html) samples, int k, [Mat](http://docs.google.com/org/opencv/core/Mat.html) results, [Mat](http://docs.google.com/org/opencv/core/Mat.html) neighborResponses) Finds the neighbors and predicts responses for input vectors. |
| float | [**findNearest**](http://docs.google.com/org/opencv/ml/KNearest.html#findNearest(org.opencv.core.Mat,%20int,%20org.opencv.core.Mat,%20org.opencv.core.Mat,%20org.opencv.core.Mat))([Mat](http://docs.google.com/org/opencv/core/Mat.html) samples, int k, [Mat](http://docs.google.com/org/opencv/core/Mat.html) results, [Mat](http://docs.google.com/org/opencv/core/Mat.html) neighborResponses, [Mat](http://docs.google.com/org/opencv/core/Mat.html) dist) Finds the neighbors and predicts responses for input vectors. |
| int | [**getAlgorithmType**](http://docs.google.com/org/opencv/ml/KNearest.html#getAlgorithmType())() SEE: setAlgorithmType |
| int | [**getDefaultK**](http://docs.google.com/org/opencv/ml/KNearest.html#getDefaultK())() SEE: setDefaultK |
| int | [**getEmax**](http://docs.google.com/org/opencv/ml/KNearest.html#getEmax())() SEE: setEmax |
| boolean | [**getIsClassifier**](http://docs.google.com/org/opencv/ml/KNearest.html#getIsClassifier())() SEE: setIsClassifier |
| static [KNearest](http://docs.google.com/org/opencv/ml/KNearest.html) | [**load**](http://docs.google.com/org/opencv/ml/KNearest.html#load(java.lang.String))(java.lang.String filepath) Loads and creates a serialized knearest from a file Use KNearest::save to serialize and store an KNearest to disk. |
| void | [**setAlgorithmType**](http://docs.google.com/org/opencv/ml/KNearest.html#setAlgorithmType(int))(int val) getAlgorithmType SEE: getAlgorithmType |
| void | [**setDefaultK**](http://docs.google.com/org/opencv/ml/KNearest.html#setDefaultK(int))(int val) getDefaultK SEE: getDefaultK |
| void | [**setEmax**](http://docs.google.com/org/opencv/ml/KNearest.html#setEmax(int))(int val) getEmax SEE: getEmax |
| void | [**setIsClassifier**](http://docs.google.com/org/opencv/ml/KNearest.html#setIsClassifier(boolean))(boolean val) getIsClassifier SEE: getIsClassifier |

### Methods inherited from class org.opencv.ml.[**StatModel**](http://docs.google.com/org/opencv/ml/StatModel.html)[calcError](http://docs.google.com/org/opencv/ml/StatModel.html#calcError(org.opencv.ml.TrainData,%20boolean,%20org.opencv.core.Mat)), [empty](http://docs.google.com/org/opencv/ml/StatModel.html#empty()), [getVarCount](http://docs.google.com/org/opencv/ml/StatModel.html#getVarCount()), [isClassifier](http://docs.google.com/org/opencv/ml/StatModel.html#isClassifier()), [isTrained](http://docs.google.com/org/opencv/ml/StatModel.html#isTrained()), [predict](http://docs.google.com/org/opencv/ml/StatModel.html#predict(org.opencv.core.Mat)), [predict](http://docs.google.com/org/opencv/ml/StatModel.html#predict(org.opencv.core.Mat,%20org.opencv.core.Mat)), [predict](http://docs.google.com/org/opencv/ml/StatModel.html#predict(org.opencv.core.Mat,%20org.opencv.core.Mat,%20int)), [train](http://docs.google.com/org/opencv/ml/StatModel.html#train(org.opencv.core.Mat,%20int,%20org.opencv.core.Mat)), [train](http://docs.google.com/org/opencv/ml/StatModel.html#train(org.opencv.ml.TrainData)), [train](http://docs.google.com/org/opencv/ml/StatModel.html#train(org.opencv.ml.TrainData,%20int))

### Methods inherited from class org.opencv.core.[**Algorithm**](http://docs.google.com/org/opencv/core/Algorithm.html)[clear](http://docs.google.com/org/opencv/core/Algorithm.html#clear()), [getDefaultName](http://docs.google.com/org/opencv/core/Algorithm.html#getDefaultName()), [getNativeObjAddr](http://docs.google.com/org/opencv/core/Algorithm.html#getNativeObjAddr()), [save](http://docs.google.com/org/opencv/core/Algorithm.html#save(java.lang.String))

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

### Field Detail

#### BRUTE\_FORCE public static final int BRUTE\_FORCESee Also:[Constant Field Values](http://docs.google.com/constant-values.html#org.opencv.ml.KNearest.BRUTE_FORCE)

#### KDTREE public static final int KDTREESee Also:[Constant Field Values](http://docs.google.com/constant-values.html#org.opencv.ml.KNearest.KDTREE)

### Method Detail

#### \_\_fromPtr\_\_ public static [KNearest](http://docs.google.com/org/opencv/ml/KNearest.html) \_\_fromPtr\_\_(long addr)

#### create public static [KNearest](http://docs.google.com/org/opencv/ml/KNearest.html) create() Creates the empty model The static method creates empty %KNearest classifier. It should be then trained using StatModel::train method.Returns:automatically generated

#### findNearest public float findNearest([Mat](http://docs.google.com/org/opencv/core/Mat.html) samples, int k, [Mat](http://docs.google.com/org/opencv/core/Mat.html) results) Finds the neighbors and predicts responses for input vectors.Parameters:samples - Input samples stored by rows. It is a single-precision floating-point matrix of <number\_of\_samples> \* k size.k - Number of used nearest neighbors. Should be greater than 1.results - Vector with results of prediction (regression or classification) for each input sample. It is a single-precision floating-point vector with <number\_of\_samples> elements. precision floating-point matrix of <number\_of\_samples> \* k size. is a single-precision floating-point matrix of <number\_of\_samples> \* k size. For each input vector (a row of the matrix samples), the method finds the k nearest neighbors. In case of regression, the predicted result is a mean value of the particular vector's neighbor responses. In case of classification, the class is determined by voting. For each input vector, the neighbors are sorted by their distances to the vector. In case of C++ interface you can use output pointers to empty matrices and the function will allocate memory itself. If only a single input vector is passed, all output matrices are optional and the predicted value is returned by the method. The function is parallelized with the TBB library. Returns:automatically generated

#### findNearest public float findNearest([Mat](http://docs.google.com/org/opencv/core/Mat.html) samples, int k, [Mat](http://docs.google.com/org/opencv/core/Mat.html) results, [Mat](http://docs.google.com/org/opencv/core/Mat.html) neighborResponses) Finds the neighbors and predicts responses for input vectors.Parameters:samples - Input samples stored by rows. It is a single-precision floating-point matrix of <number\_of\_samples> \* k size.k - Number of used nearest neighbors. Should be greater than 1.results - Vector with results of prediction (regression or classification) for each input sample. It is a single-precision floating-point vector with <number\_of\_samples> elements.neighborResponses - Optional output values for corresponding neighbors. It is a single- precision floating-point matrix of <number\_of\_samples> \* k size. is a single-precision floating-point matrix of <number\_of\_samples> \* k size. For each input vector (a row of the matrix samples), the method finds the k nearest neighbors. In case of regression, the predicted result is a mean value of the particular vector's neighbor responses. In case of classification, the class is determined by voting. For each input vector, the neighbors are sorted by their distances to the vector. In case of C++ interface you can use output pointers to empty matrices and the function will allocate memory itself. If only a single input vector is passed, all output matrices are optional and the predicted value is returned by the method. The function is parallelized with the TBB library. Returns:automatically generated

#### findNearest public float findNearest([Mat](http://docs.google.com/org/opencv/core/Mat.html) samples, int k, [Mat](http://docs.google.com/org/opencv/core/Mat.html) results, [Mat](http://docs.google.com/org/opencv/core/Mat.html) neighborResponses, [Mat](http://docs.google.com/org/opencv/core/Mat.html) dist) Finds the neighbors and predicts responses for input vectors.Parameters:samples - Input samples stored by rows. It is a single-precision floating-point matrix of <number\_of\_samples> \* k size.k - Number of used nearest neighbors. Should be greater than 1.results - Vector with results of prediction (regression or classification) for each input sample. It is a single-precision floating-point vector with <number\_of\_samples> elements.neighborResponses - Optional output values for corresponding neighbors. It is a single- precision floating-point matrix of <number\_of\_samples> \* k size.dist - Optional output distances from the input vectors to the corresponding neighbors. It is a single-precision floating-point matrix of <number\_of\_samples> \* k size. For each input vector (a row of the matrix samples), the method finds the k nearest neighbors. In case of regression, the predicted result is a mean value of the particular vector's neighbor responses. In case of classification, the class is determined by voting. For each input vector, the neighbors are sorted by their distances to the vector. In case of C++ interface you can use output pointers to empty matrices and the function will allocate memory itself. If only a single input vector is passed, all output matrices are optional and the predicted value is returned by the method. The function is parallelized with the TBB library. Returns:automatically generated

#### getAlgorithmType public int getAlgorithmType() SEE: setAlgorithmTypeReturns:automatically generated

#### getDefaultK public int getDefaultK() SEE: setDefaultKReturns:automatically generated

#### getEmax public int getEmax() SEE: setEmaxReturns:automatically generated

#### getIsClassifier public boolean getIsClassifier() SEE: setIsClassifierReturns:automatically generated

#### load public static [KNearest](http://docs.google.com/org/opencv/ml/KNearest.html) load(java.lang.String filepath) Loads and creates a serialized knearest from a file Use KNearest::save to serialize and store an KNearest to disk. Load the KNearest from this file again, by calling this function with the path to the file.Parameters:filepath - path to serialized KNearest Returns:automatically generated

#### setAlgorithmType public void setAlgorithmType(int val) getAlgorithmType SEE: getAlgorithmTypeParameters:val - automatically generated

#### setDefaultK public void setDefaultK(int val) getDefaultK SEE: getDefaultKParameters:val - automatically generated

#### setEmax public void setEmax(int val) getEmax SEE: getEmaxParameters:val - automatically generated

#### setIsClassifier public void setIsClassifier(boolean val) getIsClassifier SEE: getIsClassifierParameters:val - automatically generated

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* [Next Class](http://docs.google.com/org/opencv/ml/LogisticRegression.html)
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