Overview of implemented algorithms

This list gives an overview of the feature extraction algorithms provided by ImFEATbox. For each function, the feature categories it has been assigned to and the number of extracted features (in case all features from the function are being extracted) are shown.

Function	Description	Categories	# features
AffineMomentsF.m	Features based on Blur and Affine moments calculated from the image	overall: global, moments Parts: none	6
ConnectivityF.m	Features based on connectivity of detected objects in the image	overall: local, texture Parts: none	47
DCTF.m	Features extracted from the discrete cosine transform of the image	Overall: global, transform Parts: corr	2901
DHankelF.m	Features extracted from the discrete Hankel transform of the image	overall: global, transform Parts: corr	75
DistanceTrafoF.m	Features based on various distance transforms of the image (Euclidean, quasi-Euclidean, cityblock, chessboard distance)	overall: global, transfom Parts: corr	56
EBRandIBRF.m	Features extracted from invariant image regions detected by using edges or pixel intensity	overall: local, form, textire Parts: corr	1211
FormFactorF.m	Various Features based on the form of objects in the image	overall: global, form Parts: corr	32
FourierTrafoF.m	Features extracted from the Fourier transform of an image	overall: global, transform Parts: corr, moments	300
FractalDimensionF.m	Features based on self similarity of image structures	overall: global, form Parts: none	27
GaborFilterF.m	Features calculated from images transformed by means of Gabor filters	overall: global, transform Parts: gradient, entropy, texture	3600
GillesF.m	Features calculated from the region around extracted Gilles key points	overall: local, entropy Part: none	6
GLCMF.m	Features based on the Gray Level Co-Occurence matrices calculated from the image	overall: global, texture, form Parts: corr, entropy	672
GradientF.m	Features based on image gradients	Overall: global, texture, gradient Parts: entropy	81
HarrisF.m	Features calculated from corner points identified using a Harris Detector	overall: local, texture Parts: none	10

feature overview

Function	Description	Categories	# features
HistogramF.m	Features calculated from the images histogram	overall: global, texture Parts: entropy	6
HoughTrafoF.m	Features extracted from the cirular and/or linear Hough transform of the image	overall: global, form, transform Parts: moments	393
HuF.m	Features based on Hu moments calculated from the image	overall: global, moments Parts: none	8
IntensityF.m	Features based on intensity measures calculated from the image	overall: global, texture Parts: corr, entropy	7
LawF.m	Features calculated from the result of filtering the image with 25 combinations of 5 filters (spot, ripple, edge, waves and lowpas filter)	overall: local, texture, moments Part: none	58
LacunarityF.m	Features based on lacunarity of the image	overall: local, texture Parts: corr	6
LineProfileF.m	Features extracted along 4 lines placed horizontally, vertically and diagonally on the image	overall: local, texture Parts: moments, corr	122
LocalBinaryPatternF.m	Features based on comparing intensity of pixels with its surrounding neighbors in a defined region	overall: local, texture Parts: none	1024
LoGF.m	Features calculated from detected blobs in the image employing the Laplacian of Gaussian (convolve image with Gaussian kernel, then apply Laplacian operator)	overall: local, texture Parts: moments	261
LOSIBF.m	Extracting features employing the Local Oriented Statistic Information Booster, which combines textural information with statistical information	overall: texture Parts: none	34
MSERF.m	Extract features using the method of Maximum Stable Extremal Region to detect image blobs	overall: local, texture Parts: none	15
QuadtreeDecompositionF.m	Extract features from homogenous regions defined by subdividing the image until the subimages meet a certain criterion of homogeneity	overall: local, texture Parts: none	5
RCovDsF.m	Features calculated with infinit-dimensional Region Covariance Descriptors by exploiting two feature mappings (random Fourier features, Nyström method)	overall: corr Parts: moment	15

feature overview

Function	Description	Categories	# features
RunLengthF.m	Extract features based on the length of runs of pixels with similar intensity in the image	overall: texture, global Parts: none	44
SalientRegionF.m	Extract features based on maps of detected salient regions in the image	overall: texture, local Parts: moments	8
SectorF.m	Features calculated from the number of non-zero pixels in different image sectors	overall: local Parts: none	5
SkeletonizationF.m	Features extracted from the medial axis transformation (skeleton representation) of the image	overall: global, transform Parts: corr	17
SURF.m	Features calculated from detected points employing the method of Speeded Up Robust Features	overall: texture Parts: none	11
SVDF.m	Features extracted after using Singular Value Decomposition on the image	overall: global, texture Parts: none	780
TopHatTrafoF.m	Features calculated from the white Top Hat transform of the image	overall: transform, global, form Parts: moments	60
UnitaryTrafoF.m	Features calculated from 4 unitary transforms of the image: Walsh-Hadamard, Hilbert, Chirp Z and Radon transform	overall: transform, global Part: none	73
WaveletTrafoF.m	Features calculated from the wavelet transform of the image. Implemented are 3 wavelets: haar (or db1), coiflets 1 and discrete meyer	overall: global, transform Parts: corr, moments, entropy	4759
ZernikeF.m	Features based on Zernike moments calculated from the image	overall: global, moments Parts: none	92
		Total # of features:	**16827**