```
::Detector
# image
# outputFilepath
# debugMode
# outputImage
# detectMethodCalled
# detectorSpecificFieldsInitialised
# origin
# ERR_OUTPUT_WITHOUT
 DETECT
#ERR OUTPUT FILE
# ERR_INVALID_IMAGE
#OUTPUT_EXTENSION
# IMG_EXTENSION
# WIN_OUTPUT_IMAGE
#KEY ESC
#KEY SAVE
+ Detector()
+ ~Detector()
+ detect()
+ outputResults()
# initialise()
# initialiseDetectorSpecific
FieldsIfNotSet()
# setDetectorSpecificFields
InitialisationFlag()
# initialiseDetectorSpecific
Fields()
# initialiseImageDependent
Fields()
# initialiseDetectorSpecific
ImageDependentFields()
# initialiseImageOrigin()
# isValidInputImage()
# detect()
# detectInDebugMode()
# detectInReleaseMode()
# polygonAngle()
# polygonAngle()
# minAreaRectCentre()
# findGoodPointsForAngle()
# findGoodIntersectionPoints()
# displayResultsInWindow()
# outputResultsToFile()
# outputResultsToImage()
# storeOutputImageOnDisk()
# outputResultsToCsvFile()
# outputResultsToCsvFile()
# processImageAndDetect()
# clearPreviousDetectionResults()
# createTrackbars()
# createTrackbarsWindow()
# createDetectorSpecificTrackbars()
# processPressedKeyRequest()
# displayImage()
# printOutputErrorMessage()
                Δ
multiscale::analysis
         ::ClusterDetector
# clusterednessIndex
 avgr
      neupbegree
# entityPileupDegree
#eps
# minPoints
# clusters
- OUTPUT_CLUSTEREDNESS
- OUTPUT_PILE_UP
 TRACKBAR_EPS
TRACKBAR_MINPOINTS
- MIN POINTS MIN
- MIN POINTS MAX
- EPS MIN
- EPS_MAX
- EPS_REAL_MIN
- EPS_REAL_MAX
+ ClusterDetector()
+ ~ClusterDetector()
+ getEps()
+ getMinPoints()
+ getClusters()
+ setEps()
+ setMinPoints()
# initialiseDetectorSpecific
Fields()
# createDetectorSpecificTrackbars()
# clearPreviousDetectionResults()
# processImageAndDetect()
# detectEntitiesInImage()
# detectAndAnalyseClusters()
# detectClusters()
# convertEntities()
# convertNonPiledUpEntities()
# convertPiledUpEntities()
# addEntitiesToClusters()
# analyseClusters()
# analyseClustersOriginDependent
Values()
# updateClusterOriginDependent
Values()
# getClusterConvexHull()
# computeClusterednessIndex()
# computeAveragePileUpDegree()
# outputResultsToCsvFile()
# convertEpsValue()
# getValidMinPointsValue()
                Δ
multiscale::analysis
    ::SimulationClusterDetector

    thresholdedImage

    height

    width

- entityHeight

    entityWidth

 THRESHOLD
 THRESHOLD_MAX
- ENTITY THRESH
- DATAPOINT_WIDTH

    DATAPOINT_THICKNESS

+ SimulationClusterDetector()
```

+ ~SimulationClusterDetector()
- initialiseDetectorSpecific
ImageDependentFields()
- initialiseThresholdedImage()
- detectEntitiesInImage()
- isEntityAtPosition()
- getEntityCentrePoint()
- getEntityContourPoints()

- computePileUpDegreeAtPosition()

- outputClusterTriangularShape()- outputClusterRectangular

- outputClusterCircularShape()

- outputResultsToImage()- outputClusterToImage()- outputClusterShape()

Shape()

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