```
multiscale::analysis
              ::Detector
# avgClusterednessDegree
# avgDensity
# image
# outputFilepath
# debugMode
# outputImage
# detectMethodCalled
# detectorSpecificFieldsInitialised
# origin
# OUTPUT_CLUSTEREDNESS
#OUTPUT_DENSITY
# ERR_OUTPUT_WITHOUT
 DETECT
# ERR_OUTPUT_FILE
# ERR INVALID IMAGE
# CSV_EXTENSION
# IMG_EXTENSION
# XML_EXTENSION
# WIN_OUTPUT_IMAGE
# KEY_ESC
#KEY SAVE
# LABEL_ATTRIBUTE
# LABEL_COMMENT
# LABEL_COMMENT_CONTENTS
# LABEL_EXPERIMENT_TIMEPOINT
 _AVG_CLUSTEREDNESS
# LABEL_EXPERIMENT_TIMEPOINT
 AVG DENSITY
# LABEL_EXPERIMENT_TIMEPOINT
 _SPATIAL_ENTITY
# LABEL_SPATIAL_ENTITY
 _PSEUDO_3D
# LABEL_SPATIAL_ENTITY_TYPE
# LABEL SPATIAL ENTITY
 CLUSTEREDNESS
# LABEL_SPATIAL_ENTITY
 DENSITY
# LABEL_SPATIAL_ENTITY_AREA
# LABEL_SPATIAL_ENTITY
 PERIMETER
# LABEL_SPATIAL_ENTITY
 DISTANCE_FROM_ORIGIN
# LABEL_SPATIAL_ENTITY
 _ANGLE_DEGREES
# LABEL_SPATIAL_ENTITY
 SHAPE
# LABEL_SPATIAL_ENTITY
 TRIANGLE_MEASURE
# LABEL_SPATIAL_ENTITY
 RECTANGLE_MEASURE
# LABEL_SPATIAL_ENTITY
 CIRCLE_MEASURE
# LABEL_SPATIAL_ENTITY
CENTROID_X
# LABEL_SPATIAL_ENTITY
_CENTROID_Y
+ Detector()
+ ~Detector()
+ detect()
+ outputResults()
# initialise()
# initialiseDetectorSpecific
# setDetectorSpecificFields
InitialisationFlag()
# initialiseDetectorSpecific
Fields()
# initialiseImageDependent
Fields()
# initialiseDetectorSpecific
ImageDependentFields()
# initialiseImageOrigin()
# isValidInputImage()
# detect()
# detectInDebugMode()
# detectInReleaseMode()
# polygonAngle()
# polygonAngle()
# minAreaRectCentre()
# findGoodPointsForAngle()
# findGoodIntersectionPoints()
# displayResultsInWindow()
# outputResultsToFile()
# outputResultsToImage()
# storeOutputImageOnDisk()
# outputResultsToCsvFile()
# outputResultsToCsvFile()
# outputSpatialEntitiesToCsvFile()
# outputAveragedMeasuresTo
CsvFile()
# outputResultsToXMLFile()
# outputResultsToXMLFile()
# addSpatialEntitiesToPropertyTree()
# addAverageMeasuresToPropertyTree()
# constructPropertyTree()
# addSpatialEntityProperties
ToTree()
# addSpatialEntityTypeToPropertyTree()
# getCollectionOfSpatialEntity
Pseudo3D()
# processImageAndDetect()
# clearPreviousDetectionResults()
# createTrackbars()
# createTrackbarsWindow()
# createDetectorSpecificTrackbars()
# processPressedKeyRequest()
# displayImage()
# printOutputErrorMessage()
                 Д
  multiscale::analysis
          ::ClusterDetector
  # entityPileupDegree
  # eps
  # minPoints
  # clusters
  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()
  # getCollectionOfSpatialEntity
  Pseudo3D()
  # convertEpsValue()
  # getValidMinPointsValue()
  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()