```
::Detector
# avgClusterednessDegree
# avgDensity
# image
# outputFilepath
# debugMode
# outputImage
# detectMethodCalled
# detectorSpecificFieldsInitialised
#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 COMMENT
# LABEL_COMMENT_CONTENTS
# LABEL _EXPERIMENT_TIMEPOINT
 SPATIAL ENTITY
# LABEL_SPATIAL_ENTITY
 PSEUDO_3D_CLUSTEREDNESS
# LABEL SPATIAL ENTITY
 PSEUDO_3D_DENSITY
# LABEL SPATIAL ENTITY
PSEUDO 3D AREA
# LABEL_SPATIAL_ENTITY
 PSEUDO 3D PERIMETER
# LABEL SPATIAL ENTITY
 _PSEUDO_3D_DISTANCE_FROM
 ORIGIN
# LABEL_SPATIAL_ENTITY
 PSEUDO_3D_ANGLE_DEGREES
# LABEL_SPATIAL_ENTITY
 PSEUDO 3D SHAPE
# LABEL_SPATIAL_ENTITY
 PSEUDO_3D_TRIANGLE_MEASURE
# LABEL_SPATIAL_ENTITY
 _PSEUDO_3D_RECTANGLE
MEASURE
#LABEL SPATIAL ENTITY
 PSEUDO_3D_CIRCLE_MEASURE
# LABEL SPATIAL_ENTITY
 PSEUDO_3D_CENTROID
# LABEL_SPATIAL_ENTITY
 _PSEUDO_3D_CENTROID_Y
+ Detector()
+ ~Detector()
+ detect()
+ outputResults()
# initialise()
# initialiseDetectorSpecific
FieldsIfNotSet()
# setDetectorSpecificFields
InitialisationFlag()
# initialiseDetectorSpecific
Fields()
      iseImageDependent
# initial
Fields()
# initialiseDetectorSpecific
ImageDependentFields()
# initialiseImageOrigin()
# is ValidInputImage()
# detect()
# detectInDebugMode()
# detectInReleaseMode()
# polygonAngle()
# polygonAngle()
# minAreaRectCentre()
# findGoodPointsForAngle()
# findGoodIntersectionPoints()
# displayResultsInWindow()
# outputResultsToFile()
# outputResultsToImage()
# storeOutputImageOnDisk()
# outputResultsToCsvFile()
# outputResultsToCsvFile()
# outputSpatialEntitiesToCsvFile()
# outputAveragedMeasuresTo
CsvFile()
# outputResultsToXMLFile()
# outputResultsToXMLFile()
# addSpatialEntitiesToPropertyTree()
# constructPropertyTree()
# getCollectionOfSpatialEntity
Pseudo3D()
# processImageAndDetect()
# clearPreviousDetectionResults()
# createTrackbars()
# createTrackbarsWindow()
# createDetectorSpecificTrackbars()
# processPressedKeyRequest()
# displayImage()
# printOutputErrorMessage()
                 Δ
  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()
  # isNonEmptyCluster()
  # 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()

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

Shape()

- computePileUpDegreeAtPosition()

- outputClusterTriangularShape()- outputClusterRectangular

- outputClusterCircularShape()

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