



FACADE CLASSIFICATION FOR DAMAGE DETECTION

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For rescue management after natural disasters in urban areas, information about severe building damages is very important. The building damages could be detected automatically by means of image analysis. As final goal, the information could directly flow to a GIS-based disaster management system.

An object-oriented spectral segmentation (software "eCogniton"), based on previous explicit knowledge, is used to classify facade elements. This is more robust against shadows and foreground objects than approaches based on primary point and line segmentation.

Between the found elements, represented e.g. by their central point or line, geometric relations can be examined. The results can be used for several purposes:

Assuming that an intact facade has some geometric properties like flatness and rectangularity, one single oblique image can already be rectified, and scattered deviations from the constraints can be determined.

With a couple of images, the elements found in each of them can be matched to give identical points for a general threedimensional reconstruction of the scene. Using such coarse object structures promises to be more robust in finding suitable initial values than using image edges and corners, which may be used to refine the first result.

Furthermore, if applied to endangered areas, some parameters can be derived that are of interest for robustness assessment, like relative window size and distance.