Abstract

The recognition of objects is one of the main goals for computer vision research. This paper formulates and solves the problem of three-dimensional (3D) object recognition for Polyhedral objects. A multiple view of 2D intensity images are taken from multiple cameras and used to model the 3D objects. The proposed methodology is based on extracting set of features from the 2D images which include the Affine, Zernike and Hu moments invariants to be used as inputs to train artificial neural network (ANN). Various architectures of ANN were explored to recognize a shape of Polyhedral objects. The experiments results show that 3D objects can be sufficiently modeled and recognized by set of multiple 2D views. The best ANN architecture was twenty input and single output model.

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Index Terms

Computer Science  Artificial Intelligence

Keywords

3d Object Recognition  Moments  Features Extraction  Classifications  Back Propagation