Abstract

This paper proposes a new approach for Dominant Local Feature Based Rotation Invariant Texture Classification. Texture classification plays an important role in computer vision and image processing applications. The applications include medical image analysis, understanding, remote sensing, object based image coding and image retrieval. As the demand of increase in applications, texture classification has received considerable attention over the last several decades and numerous novel methods have been proposed. The proposed approach extracts the features with dominant local binary patterns (DLBP) in a texture image. The conventional LBP approach is extended to the dominant local binary pattern
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(DLBP) approach in order to effectively capture the dominating patterns in texture images. Unlike the conventional LBP approach, which only exploits the uniform LBP, given a texture image, the DLBP approach computes the occurrence frequencies of all rotation invariant patterns defined in the LBP groups. These patterns are then sorted in descending order. The first several most frequently occurring patterns should contain dominating patterns in the image and those patterns only taken for the classification. Therefore, are the dominant patterns. It is shown that DLBP approach is more reliable to represent the dominating pattern information in the texture images. Using this developed approach several testings have been done. For testing purpose Brodatz, Outex images, have been used and compared with six published texture features in the experiments. It is experimentally demonstrated that the proposed method achieves the highest classification accuracy in texture data bases and image conditions.

References

Dominant Local Feature based Rotation Invariant Texture Classification


Index Terms

Computer Science

Emerging Trends in Technology

Keywords

Dominant Local Binary Pattern  Texture Classification  Gabor Filter