Abstract

In this paper, we give a new vanishing point detection algorithm, called the normalized unit sphere. By normalizing homogeneous coordinates in the original image space, we transform image points onto a normalized unit sphere. Further, we transform straight lines in image space into circles on normalized unit sphere. As a result, the vanishing point detection is implemented by searching the intersections of circles on the normalized unit sphere. This algorithm not only bounds the search space but treats the finite vanishing points and the vanishing points at infinity with the same way. The experimental results on synthetic and real data show good performance of this algorithm.

References

- R. Hartley and A. Zisserman. Multiple View Geometry in Computer Vision. Cambridge
2003.

**Index Terms**

Computer Science  
Image Processing

**Keywords**

Vanishing Point Detection  
Normalized Unit Sphere  
Canny Edge Detector  
Least-Square Method  
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