Abstract

In applications requiring objects extraction, cast shadows induce shape distortions and object fusions interfering performance of high level algorithms in video surveillance system. Shadow elimination allows to improve the performances of video object extraction, tracking and description tools. In this work, an approach to automatic shadow detection and extraction is proposed, which operates multiple properties derived from spectral, geometric and temporal analysis of shadows. A generic model that chooses the candidate shadow regions based on shadow direction is developed. Then, the validity of detected regions as shadows is verified using the capability of approach that allows associating to each photometric pixel its equivalent part of the shadow, while integrating the various parameters related to illumination and the surface. Simulation results show that the proposed approach is robust and efficient in detecting shadows for different background and changeable illumination conditions.

Index Terms

Computer Science

Pattern Recognition
Keywords
Visual surveillance  adaptive background subtraction  object extraction  shadow detection