Abstract

Recently, a huge number of people travel together and may meet in a particular location for a specific purpose such activity is termed as mass gatherings. Rally of politics, gathering at fairs, religious occasions, gathering at railways are the events of mass gatherings. Such gatherings pose severe threats for crowds, because huge number of people moving in small areas can promote the spread of dangerous diseases and enhance the threat of injury which eventually results in crowd stampedes. Crowd can rely on factors, such as individual’s emotion, elderliness, and consumption of liquor, which influence the severity of harm. Such factors can make crowds to be more violent. Thus in such places several issues should be addressed well
An Automated System for Detecting Congestion in Huge Gatherings

for avoiding unexpected situations. Nowadays, many researchers are showing lots of interest in computer vision area. Study of human movement topic in that area has been popular for modern technical decades. The popularity is due to a huge expansion of applications in video vigilance and crowd dynamics. Because the activity is of immense scientific concern, it offers different computational challenges and because of an expeditious upsurge in video vigilance technology deployed in both private and public areas. In this paper, we present a system for tracking and provide early information of hazardous locations in huge gatherings. It is based on optic flow estimations and detects sequences of crowd motion that are characteristic for devastating congestions. For optic flow computation, Lucas - Kanade method is employed to determine the optical flow vectors for the gathered video. Video sequences are segmented and optic flow is determined for respective segments. A threshold optic flow is chosen in such a way that the tracking of congested area in video is easily done by comparing it with respective segment's determined optic flow values. Finally, we present the location of crowd congestion which helps in taking further protective measures to handle unusual events.

References

- OpticalFlow
- CROSS: Modelling Crowd Behaviour with Social Cognitive Agents Journal of Artificial Societies and Social Simulation 16 (4) 1.
An Automated System for Detecting Congestion in Huge Gatherings


Index Terms

Computer Science
Artificial Intelligence

Keywords

Computer Vision
Congestion Detection
Large Gatherings
Optical Flow Estimation
Segmenting
Video

Approach
Frames
Processing.