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A Human's Heat Signature & Background Subtraction Hybrid Approach For Crowd Counting and Analysis

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A new method was developed based on human thermal and motion characteristics for crowd counting and classification. An important technique for automated crowd estimation and type determination is described. Without any camera calibration or assumption of prior information about the input images, the proposed methodology estimates crowd density and no human interference is required so that it can be used effectively in a fully automated crowd control system. For crowd counting purposes, two new features have been proposed: the first reflects human thermal characteristics and is represented by the ratio between their temperature and the temperature of their ambient environment. The second defines the features of human motion and is determined by the ratio between the velocity of human motion and the rigidity of the ambient environment. For human beings, each ratio should surpass a certain predetermined threshold. Improved crowd counting efficiency is achieved using these investigated characteristics and less time was taken. In addition, the two features are combined and used together for one of three key forms of crowd classification, which are: fully mobile, fully static, or a combination of both types. There are also several beneficial features of the proposed system as it is, privacy protection of crowd counting system, effective for homogeneous and in-homogeneous crowds, does not rely on any direction in motion detection, does not require a particular crowd size. The experimental findings show the approach's efficacy.

Biography

Mayank Khurana is an Artificial Intelligence enthusiast. He is pursuing B.Tech. with specialization in Artificial Intelligence and Data Science at SRM University in India. Mayank is founder of Codify and president of Codigo Crew (Coding Clubs). He is also Student mentor in Incubation, SRM University and president at CodeChef SRM Chapter. He has also developed Emotional AI and City Guide projects. Mayank grew up in Haryana, one of the states in India and is passionate about Deep Learning.

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