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Wide area surveillance: Situational awareness for security automation

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Wide area surveillance refers to an automated monitoring process that involves data acquisition, analysis, and interpretation for understanding object behaviors. Automated surveillance systems are mostly used for military, law enforcement, and commercial applications. Sensors of different types and characteristics in surface-based or aerial-based platforms are used for the acquisition of data of large areas sometimes covering several square miles. Intelligent visual surveillance is becoming more popular in applications such as human identification, activity recognition, behavior analysis, anomaly detection, alarming, etc. Detection, tracking, and identification of moving objects in a wide area surveillance environment have been an active research area in the past few decades. Object motion analysis and interpretation are integral components for activity monitoring and situational awareness. Real-time performance of these data analysis tasks in a very wide field of view is an important need for monitoring in security and law enforcement applications. Although huge strides have been made in the field of computer vision related to technology development for automatic monitoring systems, there is a need for robust algorithms that can perform detections of individuals in a surveillance environment. This is mainly because of certain constraints such as partial occlusions of the body, heavily crowded scenes where people are very close to each other, etc. We present a robust automated system which can detect and identify people by automated face recognition in a surveillance environment and track their actions and activities by a spatio-temporal feature tracking mechanism.

Biography

Vijayan K Asari is a Professor in Electrical and Computer Engineering and an Endowed Chair in Wide Area Surveillance at the University of Dayton, USA. He is the Director of the Center of Excellence for Computer Vision and Wide Area Surveillance Research at UD. He received his PhD degree in Electrical Engineering from the Indian Institute of Technology, Madras. He holds three patents and has published more than 450 research papers in the areas of image processing and computer vision. He received several teaching, research and advising awards. He is a Senior Member of IEEE and SPIE.

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