Validate Privacy Constraints in Surveillance Systems

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Abstract. The paper introduces a video surveillance and event detection framework and application for semi-supervised surveillance use. The system development follows the guidelines of national strategy for surveillance systems. The aim is to generalize the interoperability, compatibility and legality in camera surveillance systems in Hungary. The system's intended use is in automatic mode on camera feeds that are not actively watched by surveillance personnel, and should raise alarms when unusual events occur. We present the current detector filters, and the extendable modular interface. Filters include local and global unusual motion detectors, left/stolen object detector, motion detector, tampering/failure detector, etc. It has been tested in real life situation for police street surveillance.

Keywords: surveillance, image processing, annotation, content based retrieval

1 Introduction

Visual surveillance and activity analysis has attained great interest in the field of computer vision research [2,3,4]. We provide a transparent and distributed architecture for easy integration of third party modules into a common framework to facilitate easier research collaboration and evaluation. The setup is hierarchical thus helping the scalability of the whole framework. Various complex surveillance related algorithms, such as analysis algorithm for static and moving cameras, automatic fight detection, shadow segmentation, discovery of unusual motion patterns are integrated into this framework. In the case of detecting unusual motion occurrences, we refer to the term unusual in statistical sense. The system development is driven by the recent published strategy for public surveillance systems [1]. The goal of the published strategy guidelines is to standardize the technical and service capabilities of surveillance systems. Furthermore the strategy focused on the harmonization of judicial and privacy constraints to the necessary technical solutions.