SURVEILLANCE VIDEO ARCHIVES INVESTIGATION ASSISTANT

Faster and more efficient investigations with SURVANT

The SURVANT project

SURVANT is a user-centred system designed with privacy in mind, an innovative tool capable to analyse video footage from surveillance video archives to identify relevant information about people, events and objects. The SURVANT system ensures a prompt examination of relevant videos from heterogeneous sources via a user-friendly interface and inter- and intra-camera advanced video analytics by means of reasoning and inference technologies. The SURVANT system is also conceived to integrate tools for the management of personal and sensitive data from videos, being compliant with the privacy-by-design and privacy-by-default approaches.

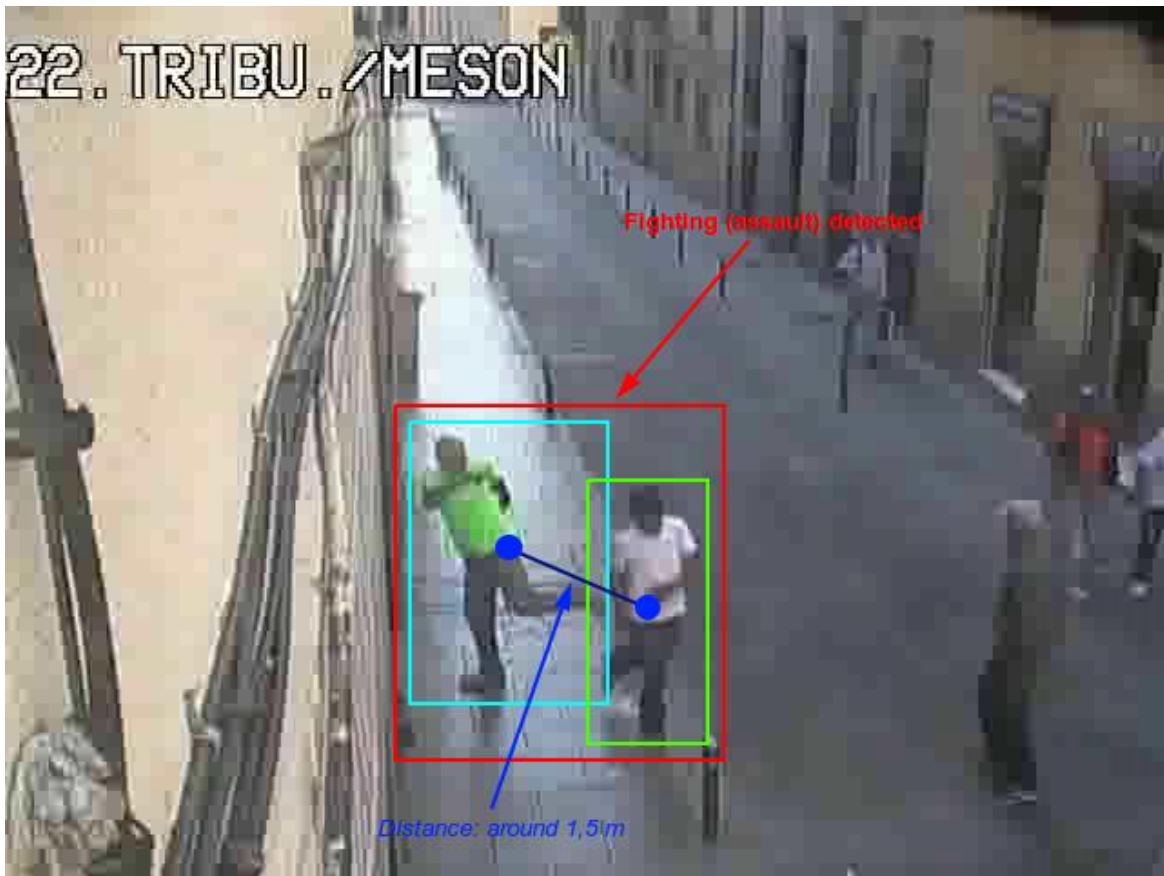**SURVANT makes criminal investigations smarter**

The analysis of video archives footage performed by the SURVANT system enables prompt and effective detection of malicious events and suspects, improving the effectiveness of fighting against crime.

Traditional investigation practices are dramatically improved in terms of their effectiveness, time and cost consumption, making SURVANT a unique product in the market thanks to SURVANT ability of:

- ✓ Reducing the gaps between surveillance operator's capabilities and the growing volume of crimes, by automating the collection of relevant video content.
- ✓ Decreasing the investigation time spent by Low Enforcement Practitioners for video footage analysis, from hours to minutes.
- ✓ Enabling simple definition of complex queries, management of heterogeneous video repositories and effective support over the whole investigation process, by providing malicious event detection, geolocation and correlation among videos and intuitive user interface.
- ✓ Providing smart and systematic visualization of investigations' findings that enable workforce savings and more accurate results.

Know how to be more efficient with SURVANT

The SURVANT system is able to detect a wide range of real-life events from the recordings of surveillance cameras, ranging from lower-level events that may involve single persons or objects (walking, standing, running, moving, falling down, lying down, etc.), middle-level events each involving a person and an object (e.g. entering a vehicle, riding a motorbike, exiting a building, picking or throwing an object), up to group events that may involve a number of people (fighting, chasing, meeting, etc.). This is accomplished by a sophisticated detection mechanism meant to recognize the presence of people and objects within each frame of the videos, along with their movement and trajectory throughout the videos themselves.

Starting from these detections, the underlying reasoning component enables investigators to derive and infer higher-level events potentially associated with a certain crime (assault, theft, vandalism, etc.). For instance, in the event of an assault, a typical scenario might unfold as such:

- ✓ a person is chasing another person;
- ✓ suddenly, the chasing person gets closer to (meets) the chased one;
- ✓ the assailing person may pick or hold an object (e.g. a knife);
- ✓ the assailing person may kick or punch (fighting) the victim, who may fall to the ground (falling down)
- ✓ the assailing person then runs away
- ✓ other people may gather (meet) in the street to see what has just happened
- ✓ an accomplice may wait for the criminal with a vehicle for a quick escape (riding a motorbike).

SURVANT's Trajectory Mining will refine criminal researches

This module plays an important role in the reconstruction of the trajectories followed by suspicious persons and vehicles.
From a technical point of view, its main purposes are:

- Construct a directed graph from all the detections based on visual, spatial and temporal similarity
- Move forward and backward in time from this query based on the scores on the graph (most similar nodes)
- Merge forward and backward paths
- Repeat this process starting from all the neighbours of the query
- Rank the trajectories according to their relevance to the query

The SURVANT next event

SURVANT has been selected for the exhibition of the Security Research Conference and Expo 2018 (SRE 2018). The event is jointly organised by the European Commission and the Austrian Presidency and will take place in Brussels from the 5th until the 6th of December 2018. The main topics that will be discussed are: "Making Europe a safer place: demonstrating the impact of security research – Challenges and barriers" and "Projects Afterlife: From the lab to real life". On December 6th, eight thematic panels will focus on specific issues such as addressing multi-country disaster situations, citizens awareness in the context of security research, management of dematerialised borders, cybercrime, maritime security, protection of public spaces, radicalisation and response to terrorist attacks.

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