Chapter 7
Digital Detection of Suspicious Behavior With Gesture Recognition and Patterns Using Assisted Learning Algorithms

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ABSTRACT

This chapter presents a study to identify with classification techniques and digital recognition through the construction of a prototype phase that predicts criminal behavior detected in video cameras obtained from a free platform called MOTChallenge. The qualitative and descriptive approach, which starts from individual attitudes, expresses a person in his expression, anxiety, fear, anger, sadness, and neutrality through data collection and feeding of some algorithms for assisted learning. This prototype begins with a degree higher than 40% on a scale of 1-100 of a person suspected, subjected to a two- and three-iterations training parameterized into four categories—hood, helmet, hat, anxiety, and neutrality—where through orange and green boxes it is signaled at the time of the detection and classification of a possible suspect, with a stability of the 87.33% and reliability of the 96.25% in storing information for traceability and future use.

INTRODUCTION

Bogota in Colombia, according to Chamber of Commerce of Bogota 2018 respondents (4,780) perceived insecurity in the city has increased. Over 30% of people who suffer from some form of aggression do not report because it is very difficult and there is little confidence that count for something. The(Mayor of Bogota, 2017) He reported that by 2016, the city had 532 video surveillance devices and only 302 were in operation, however, theft individuals increased by 64% by 2017 (Office of Information Analysis and Strategic Studies - OAIEE, 2017).

Computer vision has become a technology that properly applied, can help detect suspicious behavior in environments covered surveillance video. In most cities in Colombia the main causes of victimization are simple theft, bike theft, murder and quarrels among others, violating the integrity of its inhabitants, as well as spreading terror and fear.

Therefore, the question arises how the digital recognition of suspicious behavior by identifying gestures and patterns, will predict criminal behavior detected in video cameras using assisted learning algorithms? Based on the premise put forward by (Goffmann, 1971)"A person can stop talking but can not stop communicating with your body." In order to identify classification techniques and digital recognition suspicious behavior by detecting gestures and patterns, using algorithms assisted learning, so that through a prototype phase, to predict criminal behavior detected in video obtained from a free platform. With the support of the qualitative methodological approach and a descriptive study, which starts from the individual expressing attitudes a person in his expression, happiness, sadness and fear among others, through data collection and feeding of some algorithms for assisted learning, through a process simulation and testing with a control group (CG) and a experimental group (GE). This is able to build a reliable prototype,

BACKGROUND

Problematic

According to Norza, Peñaloza and Rodriguez (2016) perpetrators of crimes against life and personal integrity they increased by 49.61% during 2016, compared to the immediately preceding year. A total of 147,891 cases in 2015, he went on to have 221,256 in 2016. Likewise, we can see that being Bogota the capital of the heads republic with a 16.31% registration of occurrences of crimes nationwide. Theft 146,643 people had records, noting an increase of 45% over 2015. The 50.30% of the total was presented at: Bogota (25.84%), Antioquia (14.44%) and Valle (10, 01%).

This shows that criminal behavior and perceived insecurity in the cities especially in Bogota, is not only in perception; but they are a reality and are a problem that can be tackled from several disciplines. The certain suspicious attitudes that precede the crime early, could serve to generate the necessary alarms and take measures to prevent its occurrence. With the information provided by the OAIEE in 2019, evidence that measures such as increasing police in critical areas such as Transmilenio (transport stations), parks and school zones have not been very effective in cities, especially in Bogota.

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