VisibleTruth – Automated safeguarding and marketing based on ground truth

Development status

Phase 3

Technology validation and implementing it in real environment. Testing the technology outside of the laboratory and its adjustment to external conditions.

IP protection status

Withnout IP protection. SW is under the copyright.

Partnering strategy

Co-development, investment

Institution

jctt Jihočeské Univerzitní a Akademické centrum transferu technologií

University of South Bohemia in České Budějovice

Challenge

The most precious resource in the 21st century is information. On internet, the monopoly on information is already captured by giants like Facebook, Google, Amazon, and similar. We aim to cover a similar position in offline space. The data acquisition outside the internet is significantly more complicated and demands high-science solutions. We propose a camera surveillance and data analysis system, which effectively combines threat identification and behaviour investigation. The obtained information shows what people are doing or want, how they behave, and what they are going to do next.

Description

A fundamentally new method of detection of individuals in public places based on physical parameters, i.e., body proportions and body dynamics. First, a primary signal from a digital camera chip is utilized, corrected to compensate for chip production errors and optical path non-idealities. Only after such corrections, unique for our system, the resulting data matrix fits for physical parameters analysis (intelligent camera). The analysis is done in the camera; and the resulting data are just a set of values of the physical variables and, if requested, a heavily compressed videostream. Next, in the central computer, the data is stored in the database, trajectories of individuals are built, alerts and abnormalities are identified by artificial intelligence, etc. This heavily simplified dataset is much easier for control, cryptographic securitisation, etc. In brief, the product is a complete system of human video-tracking and analysis, namely: - Camera with on-board data processing that allows to process most data in place, bringing only important information to the centre. - Highly optimized data pipelines including custom protocols, real-time streaming, and a fault-tolerance network. - Real-time processing with industrial grade software, a complete database infrastructure, and a cloud storage. - Access through browser makes all features, including real-time streams and interactive annotations, easily accessible for a client. The core of solution is person identification and localization. It is done

simultaneously by gait and face features together with 3D coordinates reconstruction. Such an approach gives both information about identity and behaviour, which is both expressed in motion. This has two interleaved applications – security and behaviour analysis. Security allows us to identify and track given person with unprecedented confidence, even by incomplete information. The analysis shows a psychological portrait of the person, what (s)he likes, how much and how (s)he changes in time. Also, it can be used in predicting the detection of behaviour and abnormalities.

Commercial opportunity

Security cameras are quickly expanding and widely accepted technology The target audience is broad, including business and government structures, which own public areas, shopping malls, high-security places (like prisons, airports, power plants). Current solutions have severe limitations in stability of event detection and immediacy of response, because they are based on human observations and naïve usage of artificial intelligence ignoring the physical reality.