Towards the optimised field retrieval of audio-visual (AV) surveillance media

Creating a process for retrieval of surveillance (aka CCTV) evidence that enables expert analysis of the content and supports forensic statements of (un)certainty.

Key details

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Police region	North West
Collaboration and partnership	This project is supported by the College of Policing's bursary scheme.
Level of research	Masters
Project start date	August 2024
Date due for completion	January 2025

Research context

Aims

- To identify requirements that support comprehensive and forensically valid investigation of, and observations from, surveillance evidence.
- Produce an advanced forensic retrieval protocol and equipment list for field-acquisition of content and supporting data that meets these requirements and places no undue burden on the resources of investigative bodies.

- Trial the protocol in field scenarios and produce a set of validated observations from the acquired content and supporting data.
- To ensure the protocol is compatible with the Level 3 standards of the NPCC (National Police Chiefs' Council) Framework for Video Based Evidence, Forensic Science Regulator's Codes of Practice, and BS EN ISO/IEC 27037:2016, with reference to Section 7.3 (CCTV collection, acquisition and preservation).

Rationale

NPCC retrieval standards at Level 1 and 2 are mainly for non-technical and basic technical staff, and demand compliance with manufacturers' intended methods, with a caveat that internal standard operating procedures, information on Knowledge Hub or the Metropolitan Police's SMART CCTV database fall under this category as 'proven and recorded methods'.

Non-technical and basic technical retrievals are not comprehensive enough to support some of the analytical methods available to audio-visual (AV) forensic laboratories. Advanced methods are only referred to as 'retrieval from corrupted media' and 'data extracted directly from the hard drive' or any laboratory activity. In a laboratory environment, retrieval activities fall under ISO 17025 but field activities are not covered.

Device functions that affect the sensory, encoding and security of the AV content must be accounted for forensically (motion detection, colour settings, faults, activity logs, camera specifications and compatibilities). The lack of environmental information at the time and location of incidents, such as lighting, weather, ambient noise and structural features affecting the conduct and acquisition functions of surveillance equipment, restricts the scientifically supported validity of observations made by forensic AV analysts.

Research methodology

- Research phase: Managed largely through the literature search process and supporting tools. There are few academic sources that relate to the field recovery of AV data. Most writing on the subject has been produced in the industrial and law enforcement fields. Consultation with national and international stakeholders from law enforcement and industry to identify currently desirable data points.
- Fieldwork phase: Requires calibration equipment, likely to be based on test charts from BS EN 62676-4:2015, with potential for tests of Rotakin and Vidilabs. Equipment to be sourced as loans

from manufacturers, universities and investigators.

- Test setup: Requiring target objects and subjects in the field of view of multiple CCTV systems over a period of 24 hours. Relevant footage retrieved and calibrations completed using supplied protocols. Calibrations and content analysis to be validated, with the accuracy of the results informing the conclusions.

Research participation

Inviting recognised audio and video forensic experts to contribute their experiences of missing or insufficient data points when asked for analysis of audio and video evidence.