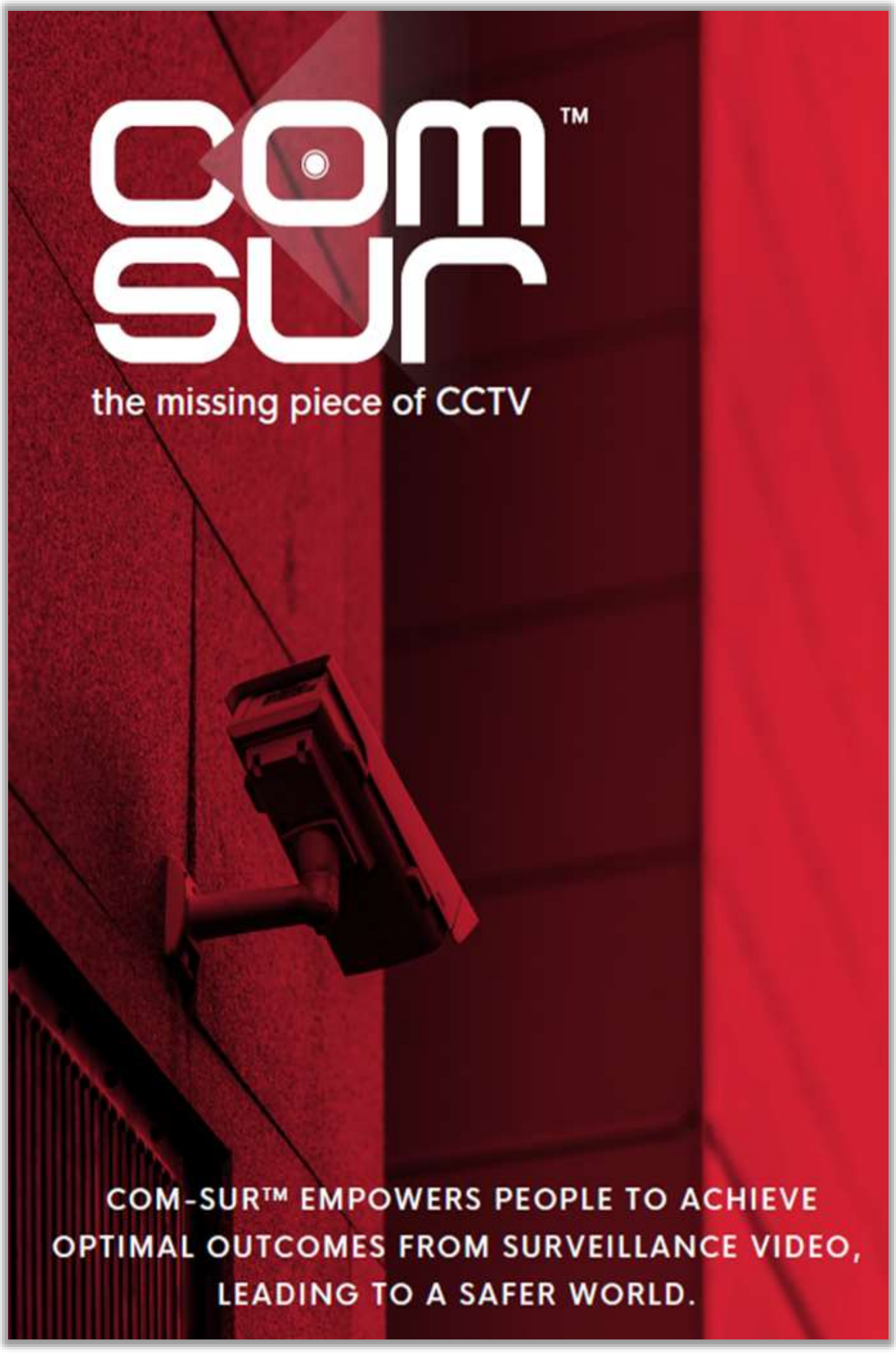
COM SUR™
the missing piece of CCTV
COM-SUR™ EMPOWERS PEOPLE TO ACHIEVE
OPTIMAL OUTCOMES FROM SURVEILLANCE VIDEO,
LEADING TO A SAFER WORLD.

HOW COM-SUR™ COMPLEMENTS IMINT (IMAGERY INTELLIGENCE) INITIATIVES

WELCOME

IMINT, short for Imagery Intelligence, is a critical defense intelligence discipline that leverages imagery from a variety of sources, including satellites, aerial photographs, drones, and Unmanned Aerial Vehicles. Its primary purpose is to identify and assess objects and entities within these images. IMINT is utilized by defense forces for surveillance, detecting changes on the Earth's surface, mission planning, and analyzing combat outcomes. Additionally, it serves as a means to evaluate the military and industrial capabilities of potential adversaries. IMINT is also utilized by international organizations to uphold peace, verify treaties, and regulate arms proliferation.

HOW DOES COM-SUR COMPLEMENT IMINT (IMAGERY INTELLIGENCE) INITIATIVES?

COM-SUR serves as a complementary tool to IMINT initiatives by aiding imagery analysts in the analysis of both still images and videos captured by drones and UAVs. In the case of video analysis, COM-SUR converts videos into images, thereby reducing the volume of data to be analyzed while minimizing information loss. This feature is especially valuable for post-facto analysis. Most importantly, the 'Smart Media Player' offered by COM-SUR provides a high level of flexibility, finesse, and a wide range of features, making the analysis process efficient and user-friendly. COM-SUR simplifies the analysis process by providing a standardized approach that is easy to use, reducing the burden on the imagery analyst.

How does COM-SUR achieve the above?

1. Converting live video to images

When deployed on a PC, COM-SUR has the capability to convert live drone and UAV video feeds into images at regular intervals of 'one second'.

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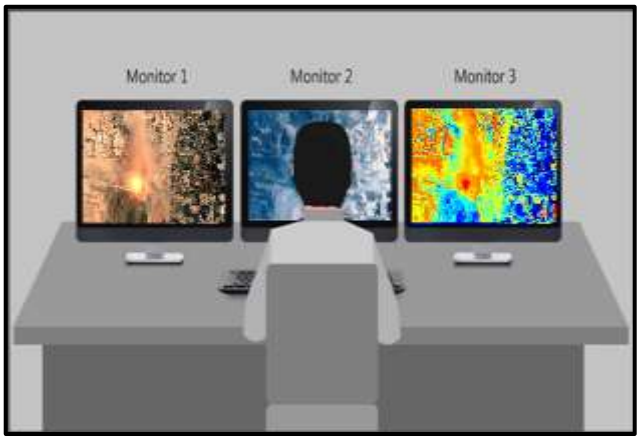
For instance, if a video is being viewed at 25 frames per second, COM-SUR captures the consolidated "moment" of every second, resulting in a much smaller data size of just 86,400 images per day (equivalent to 24 hours at 3600 images per hour) for analysis by the imagery analyst or mission supervisor.

This conversion of live video feeds into images enables instantaneous post-facto analysis, which is crucial for supporting combat operations and taking necessary corrective and preventive actions. It also assists the imagery mission supervisor in detecting missed events during live monitoring, thereby enhancing the overall effectiveness of IMINT initiatives.



Imagery analyst (IA) monitoring the live video feed from multiple monitors using various filters for ease of forensics and detection.

2. Converting recorded video to images

In addition to its ability to convert live video feeds into images, COM-SUR provides support for the analysis of recorded videos obtained from unmanned aerial vehicles (UAVs) and drones. This functionality is made possible through the seamless integration of COM-SUR with RIP-IT, a video frame extraction tool that was also developed by our team. An important advantage of utilizing both COM-SUR and RIP-IT in tandem is that it facilitates the reviewing of videos in a side-by-side dashboard view, thereby enabling imagery analysts to connect the dots more rapidly.

3. Aggregating images from live or recorded video

COM-SUR offers several features that simplify the process of aggregating relevant scenes from multiple live or recorded video sources and converting them into PowerPoint reports. Some of the key benefits of COM-SUR's image aggregation capabilities are as follows:

1) Simplified image capturing process: COM-SUR streamlines the process of capturing important moments from recorded videos. Rather than pausing a video, pressing the screenshot key, playing the video, pasting the image, and repeating the process, the imagery analyst can simply press the F6/F7 keys while the video is playing, which captures the scene and aggregates it in COM-SUR's 'collection dialog box'. This saves time and allows for greater focus on the video. Keys F8 and F9 capture multiple items of interest from a single source or snip items of interest from multiple sources. All four keys also work with live video as well.

2) Quick next steps: The 'collection dialog box' offers various quick next steps, such as creating reports and tagging important images. By providing a tagging system, COM-SUR enables the creation of an institutional library that facilitates easy comparisons between different imagery data sets. This library can be leveraged for future use, providing a valuable resource for training, analysis, and mission planning.

3) Advanced forensic and detection tools: COM-SUR offers tools like false colors and filters, which are particularly useful in forensics and detection.

4) Video creation and playback: COM-SUR can recreate a video from relevant images and embed it into a PowerPoint presentation. During the audit process, COM-SUR offers various playback mechanisms along with the flexibility to zoom, pan, and more.

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HOW COM-SUR™ COMPLEMENTS IMINT (IMAGERY INTELLIGENCE) INITIATIVES

Research: Here is an excerpt from the following article (link provided below):

"You need somebody who's trained and is accountable in recognizing that that is a woman, that is a child and that is someone who's carrying a weapon," he said. "And the best tools for that are still the eyeball and the human brain."

Article: Military Is Awash in Data from Drones, Article published in the New York Times (2010)

Key points:

1. Military drones are producing huge amounts of video intelligence making it difficult for analysts to keep up.

2. Analysts watch the video live and pass warnings about insurgents to troops in the field, but only a small fraction of the stored video is retrieved for intelligence purposes.

3. The military is turning to the television industry to learn how to quickly share video clips and display a mix of data to make analysis faster and easier.

4. Video feeds are used to catch insurgents and find their houses or weapons caches. Commanders are reluctant to send convoys without drone surveillance.

5. Air Force officials have managed to keep up with the most urgent assignments and can correlate video data with still images and phone conversations to build a fuller picture of threats.

6. Reaper drones will be able to record video in up to 65 directions, creating even more data.

7. The Air Force is adding analysts to help handle the growing volume of data and funnelling feeds directly to ground troops to avoid overwhelming intelligence centers. Automated systems are limited, and human judgement is still needed.

https://www.cnet.com/tech/tech-industry/military-is-awash-in-data-from-drones/

Conclusion

In conclusion, the field of IMINT has greatly benefited from advancements in technologies such as AI, ML, and DL. However, it is important to note that the final decision always rests with human image analysts, as their expertise and judgment are critical for making sense of the data collected.

COM-SUR is a powerful tool that complements IMINT initiatives by simplifying the analysis, aggregation, and presentation of large volumes of imagery data in standardized formats. Its features, including converting live and recorded video to images, false colors, filters, and creating PowerPoint reports, make the analysis process faster and easier.

In summary, while technology can greatly enhance the analysis of IMINT data, human intervention and expertise remain essential for making informed decisions. COM-SUR streamlines the analysis of IMINT data and can greatly benefit from the application of human judgment to make critical decisions.

Further Research: RAND Corporation papers:
Paper 1 - The Future of Air Force Motion Imagery Exploitation - Lessons from the Commercial World
https://www.rand.org/content/dam/rand/pubs/technical_reports/2012/RAND_TR1133.pdf

Paper 2 - Motion Imagery Processing and Exploitation (MIPE)
https://www.rand.org/content/dam/rand/pubs/research_reports/RR100/RR154/RAND_RR154.pdf

Both papers provide valuable insights into the challenges faced by the IMINT community and offer recommendations for improving its capabilities. It is encouraging to note that COM-SUR's features and capabilities align with several of these recommendations. By providing advanced tools for analyzing and aggregating imagery data, COM-SUR helps address some of the key challenges faced by IMINT analysts. The adoption of COM-SUR can lead to significant improvements in the efficiency and effectiveness of IMINT operations.

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