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"ALL THAT GLITTERS IS NOT GOLD". AI AND OTHER AUTOMATED TECHNOLOGIES IN SURVEILLANCE: CUTTING THROUGH THE HYPE AND UNVEILING THE REALITY:

In the realm of video surveillance, there's a **cacophony** of buzzwords being bandied about by camera manufacturers and Video Management System (VMS) providers. **"AI-powered", "Edge computing", "Deep learning"** - these terms are often used as shiny baubles to dazzle potential customers. this article aims to cut through the **hype** and understand the **reality.**

1. **Limited Scope**: Automated technologies are not omniscient. They can only perform tasks they've been **explicitly programmed for.** They **falter** when faced with **unexpected** or **unknown** situations. The world of surveillance is **dynamic and unpredictable.** Automated technologies will not always be up to the task. Remember, a doctor would **never** start treatment without reviewing an AI's suggestion of a malignancy.

2. **Specificity of AI Applications**: AI's success in one domain **doesn't guarantee** its effectiveness in another. Each application of AI requires specific training and tuning. Just because AI excels in natural language processing or image recognition **doesn't mean** it will perform equally well in video surveillance.

3. **Continuous Training**: AI technologies require **continuous training** to improve their accuracy and adapt to new situations. This necessitates a high investment of time and resources, which is often glossed over in the sales pitch.

4. **Processing Power and Expense**: The promise of edge computing - processing data on the device itself - is often touted as a solution to bandwidth and latency issues. However, the reality is that managing high-resolution feeds from hundreds or thousands of cameras **requires substantial processing power and storage** capacity, leading to substantial hardware and software costs.

5. **False Positives**: Automated technologies are **notorious** for generating **false positives.** In the context of surveillance, this could lead to unnecessary alerts, wasted resources, and potentially missed threats.

6. **Human Oversight**: AI is a **tool, not a replacement for human judgment.** Even when AI systems provide suggestions or insights, **human oversight** is always necessary to make final decisions. In conclusion, while an automated technology can be a powerful tool in video surveillance, it is not a panacea. Users need to have **realistic expectations** about its **capabilities,** understand the **limitations,** and look beyond the shiny exterior of the hype.

MEGAPIXEL CRAZE AND OVERWRITTEN FOOTAGE:

The relentless pursuit of higher megapixels in surveillance cameras has inadvertently i**ncreased storage requirements** without addressing the fundamental issue of **efficiently accessing relevant footage.** As video data accumulates, older footage gets overwritten, leading to challenges in reverting to pertinent recordings after a certain period. This limitation underscores the necessity for a solution that can intelligently manage and retrieve critical footage while minimizing storage overheads.

LIMITATIONS OF DVR/NVR/VMS/CLOUD STORAGE SYSTEMS:

Despite the increase in the number of cameras and advancements in technology, traditional DVR/NVR/VMS/Cloud storage systems **fall short** in delivering optimal outcomes due to several reasons:

- **Time-Consuming Playback**: Real-time **playback of 24 hours of footage** is **time-consuming and impractical.** Video data is typically stored in a compressed format to save storage space. This involves encoding the video data when it is recorded. The encoding process transforms the video data into a format that is more efficient to store. When you playback the video, the compressed data needs to be transformed back into a format that can be displayed on your screen. This process is called decoding. The **decoding** happens in real-time as you're watching the video. In the context of a DVR, NVR, or VMS/Cloud storage system, when you select a video for playback, the system reads the compressed video data from the storage device and decodes it in real-time to display the video on your screen, which is the first challenge.

- **Network Issues**: Remote access and playback can be **bandwidth-intensive,** especially for high-resolution videos, and more so when multiple cameras are being played back. Decoding multiple video streams in real-time requires substantial CPU and GPU (in some cases) resources. The more cameras you have, the more processing power you'll need.

- **Data Size and Bandwidth**: High-resolution videos from multiple cameras result in large data sizes, posing challenges for **storage and network bandwidth.** DVRs, NVRs, and VMS/Cloud storage systems need to read the recorded video data from storage devices. If **multiple high-resolution video streams** are being accessed simultaneously, it can put a strain on the storage subsystem. Also, high-speed playback of high-resolution video requires a lot of bandwidth. If the network connection is not fast enough, the video playback can be **choppy or delayed.**

- **Latency and Data Cap:** There can be a **delay (latency)** between the server (where the video is stored) and the client (where the video is being viewed). This latency can affect the **smoothness** of the video playback. Some internet service providers impose data caps, which can limit the amount of video that can be viewed.

- **Cost and Complexity**: Automated technologies that aim to address these issues come with **high costs, increased complexity and become unaffordable** when there are hundreds/thousands of cameras.

- **Restricted to CCTV cameras only**: These technologies are generally **restricted to CCTV cameras only.** They are not designed to work with other sources of surveillance video cameras like Drones, UAVs, Body-Worn, Dashcams etc.

- **Very limited investigative capabilities**: The above technologies **offer no features** to enhance the quality of video, forensics filters, and lag when videos from multiple sources are used during an investigation. For example, they cannot work with recorded video and images that are gathered from a scene of crime and offer **no capabilities of frame matching** which would be a great asset to help join the dots.

To mitigate some of the above issues, systems often offer features like Fast Forward, Skip, Silence/No-Motion,

Event Search, Thumbnail Search, and so on. However, while these features can help, reviewing surveillance footage can still be a **very time-consuming and frustrating task,** especially when one is trying to carry out RVA (remote video auditing).

ENTER COM-SUR™:

COM-SUR addresses these challenges in innovative ways:

- **Smooth as silk**: Since COM-SUR **eliminates** the need for encoding/decoding, playback of the **images** created by COM-SUR is literally as smooth as silk. During investigation, this **smoothness** and the ability to go back and forth with efficiency becomes very essential (including zooming/panning into multiple cameras), something that is generally found as impossible or very **sluggish and cumbersome** when working with a DVR/NVR/VMS/Storage system because, there is resource-consuming processing involved before the videos are displayed to the user.

- **Data Size Reduction**: By 'capturing' all the cameras as a **single image,** COM-SUR reduces the data size hugely, alleviating storage and network load.

- **'Relevant' Data Sets for AI Models**: Images created by COM-SUR are 'site-specific'. They can be used to **train AI models** which will deliver better accuracy and lesser bias because the model is trained on site-specific and continuous flow of new images.

- **Remote Video Auditing (RVA)**: COM-SUR allows for **efficient RVA** by having the auditor remotely access the PC running COM-SUR, significantly reducing the load on the network.

- **Backup and Disaster Recovery**: COM-SUR provides a **smart backup** feature and allows users to sync the data to cloud storage services like Dropbox, Google Drive, or OneDrive, ensuring that the data is always available.

- **Camera type agnostic**: COM-SUR works **with all types of cameras;** CCTV, Drones, Body-Worn, Dashcams, and even videos shot using Mobile Phones. It offers **exceptional investigative** features including forensics filters, frame matching, exceptional Pan and Zoom, and also one-click reporting in PowerPoint, Word, etc.

- **Institutional Library**: COM-SUR's ability to create an **institutional library** of important findings ensures that any data that is useful can be searched at the click of a button even after years to come.

IMPORTANCE OF DAILY AUDITING:

Daily auditing of CCTV footage is crucial for several reasons:

- **Complete Context**: Auditing provides the **complete context** of what the camera saw, ensuring that no detail is missed. This is particularly important in scenarios where one does not know 'which frame' will provide crucial information.

- **Detecting Anomalies**: Regular auditing can help detect anomalies or incidents that might **not trigger** motion detection or other automated alerts.

- **Ensuring Operational Efficiency, Business Continuity, Risk Mitigation, Compliance, Health and Safety, etc.:** Regular auditing **can help identify gaps** helping businesses to take quicker corrective and preventive action, leading to continuous improvement (Kaizen).

- **Legal Compliance**: In some industries, regular auditing of CCTV footage is a legal requirement for **compliance** purposes.

"OH, BUT AUDITING IS SO MANUAL":

People often feel that 'auditing' is manual, and that there is no intelligence in it. But aren't most things in life manual? And isn't human intelligence finally needed to make real judgment, even with all the AI, ML, and such automated technologies? Isn't playback of a DVR/NVR/VMS/Cloud storage system also manual? Here are a few more examples related to visual information in daily life, all of which are manual:

1. **Browsing Social Media**: Scrolling through a social media feed is a manual process. Each post or photo must be individually viewed and processed.

2. **Watching Videos**: Whether it's on a streaming platform or social media, we manually select each video to watch. Even with autoplay, we still make the decision to continue watching or skip to the next video.

3. **Reading News or Articles Online**: We manually scroll through the text, read it, and process the information. We also decide when to move on to the next article.

4. **Navigating Maps**: When using digital maps, we manually zoom in and out and move the map around to view different areas.

5. **Online Shopping**: Browsing products in an online store is a manual process. We look at each product photo, read the descriptions, and make decisions based on this information.

In all these examples, just like with CCTV footage playback, there's a manual element involved in processing visual information. But what if the manual process is itself so efficient and easy?

"JUST SHOW ME WHAT'S IMPORTANT":

People often say, "oh but why should I see 24 hours of footage"? Just show me the important stuff. To which, the answer is **"in order to understand the perspective of a movie or the entire story, one has to see the entire movie.** So, while it's possible to focus on key events or anomalies, the **context** provided by the full footage can often be crucial in understanding the bigger picture."

CONCLUSION - COM-SUR™ - THE FUTURE OF CCTV TECHNOLOGY - AVAILABLE TODAY - AND IT WORKS WITH ALL NVR/DVR/VMS/CLOUD SOLUTIONS!

COM-SUR, with its innovative approach, provides a comprehensive solution for surveillance footage **auditing, smart backup,** and **standardized intelligent incident reporting.** It transforms a surveillance system from a reactive security tool into a proactive, **intelligence-gathering** system.

On a lighter note, you can jump up and down, pull your hair, or explore every other option out there, but the fact remains - **without COM-SUR,** your video surveillance efforts are **incomplete.** Imagine you're at a buffet. You try every dish, savor every flavor, but then you discover the dessert section - that's COM-SUR. No matter how much you've enjoyed the rest, your video surveillance efforts are like a meal without dessert until you add COM-SUR. It's the sweet finish that completes the experience.

The future of CCTV/surveillance footage auditing is not just here, it's been redefined, and it's spelt 'COM-SUR!'

"SEE WHAT THE CAMERA SAW - THE FOOTAGE WHISPERER":

This note references the transformative insights presented in the book "SEE WHAT THE CAMERA SAW - THE FOOTAGE WHISPERER." It brings out three important angles to video surveillance (a) Cameras have lenses – humans have eyes! (b) Auditing is fundamental – everything else is peripheral (c) Let's make cameras 'accountable'. Written by the author Gautam D. Goradia and enriched by contributions made by 15 eminent personalities, the book covers over 100 business verticals from airports to zoos (A to Z). This resource holds immense potential for all users of surveillance cameras, including police and law enforcement agencies worldwide. It advocates for the integration of these insights into policing curriculums, empowering officers to proactively leverage CCTV technology which can be very useful during public police interaction opportunities. This book is not just a collection of words, but a call to action and a plea for change.

OUR NATIONAL SERVICE AND SOCIETAL PURPOSE:

Embark on a journey through our National Service, a beacon of hope for the entire Indian police, paramilitary, and defence forces (page #47). Discover our Societal Purpose, a testament to our commitment to protecting three vulnerable targets globally, namely: (1) All places of worship (2) All budget-constrained government schools (3) All Zoos (page #48).

Dive into the first three chapters and let the saga unfold before your eyes:
https://comsur.biz/SEE_WHAT_THE_CAMERA_SAW_-_First_3_chapters_and_concluding_remarks.pdf

Ready for the full experience? Order your copy now and join us on this incredible journey:
https://bit.ly/49SY7Np