

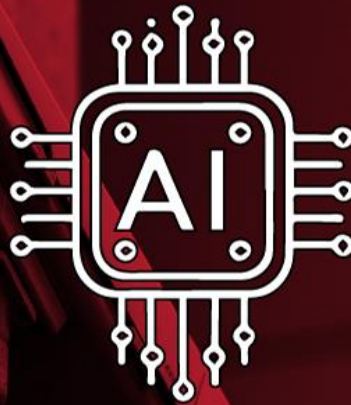
comTM
sur
the missing piece of CCTV

GET THE BOOK



**"SEE WHAT THE
CAMERA SAW"**

THE FOOTAGE WHISPERER



**'BETTER' AI VIA DAILY AUDITS
NO MORE DATA WALL**

100+ TOPICS - AIRPORTS TO ZOOS

GAUTAM D. GORADIA



UTILITY VALUE OF
COM-SUR™ FOR
AGRICULTURE AND
ALLIED INDUSTRIES

WELCOME



AUDIT HOURS OF FOOTAGE IN MINUTES
FIND OUT HOW COM-SUR, THE BEST
'MOUSETRAP' WILL HELP

["Seeing is believing - See what the camera saw"](#)

CCTV and other forms of video surveillance are commonly used in agriculture and allied industries, but footage is often only reviewed reactively. Our company realized this problem early-on and has developed the world's only CCTV video footage auditing software that encourages daily auditing (hours in minutes) of CCTV footage, filling the gap for a complete "workflow". The software works with existing cameras and VMS, regardless of type/brand, and provides a standardized approach for intelligent incident reporting. Our software also offers exceptional investigative capabilities.

'COM-SUR' – THE WORLD'S ONLY
CCTV/SURVEILLANCE VIDEO FOOTAGE
AUDITING, SMART BACKUP, AND
STANDARDIZED INTELLIGENT INCIDENT
REPORTING SOFTWARE – THE MISSING PIECE
OF CCTV/SURVEILLANCE VIDEO

COM-SUR is the world's only CCTV/surveillance video footage auditing, smart backup, and standardized intelligent incident reporting software that serves as a complete workflow and force multiplier. It helps audit 24 hours of footage in minutes, reduces data size, creates standardized intelligent reports, and delivers business intelligence. COM-SUR helps unlock hidden information in CCTV/surveillance video footage and enables people to gain actionable intelligence, improve homeland security, prevent crime and losses, identify and mitigate threats and hazards, and improve operational efficiency. It empowers people to gain new jobs as CCTV/surveillance video footage auditors and start new businesses of auditing video footage. Like MS Office, COM-SUR is an enabler that makes it easy to work with CCTV and other surveillance cameras in a standardized way, leading to better decision-making. It also offers exceptional investigative capabilities.

BETTER AI VIA DAILY AUDITS – NO MORE DATA
WALL

COM-SUR delivers 'BETTER' AI by transforming how organizations approach CCTV video

surveillance, auditing, and post-event analysis. By generating a constant stream of real-time, site-specific data—Continuous Frontier Data—COM-SUR ensures that AI systems are never starved for fresh, actionable insights, which is key for building custom models and addressing key challenges like data exhaustion, data walls, and data cascades that often hinder AI from performing at full potential.

A key to making AI more effective lies in continuous learning from real-world incidents through daily and post-event auditing. COM-SUR enables AI models to evolve based on audit findings and incidents that go beyond real-time detection. By auditing daily footage, capturing exceptions, and feeding this data back into AI models, COM-SUR significantly improves the accuracy of AI systems, helping to reduce false alarms and enhance detection capabilities. This continuous feedback loop ensures that AI learns from what might have been missed in real-time, making it smarter and more reliable over time.

By integrating Reinforcement Learning from Human Feedback (RLHF) and Explainable AI (XAI), COM-SUR ensures that AI systems are continuously refined, transparent, responsible, and contextually aware. However, recognizing that AI can only perform tasks it's programmed for, human intelligence and intervention remain essential in verifying and refining AI outcomes. With COM-SUR, businesses can leverage AI as a powerful tool while maintaining human oversight, ensuring more accurate and informed decision-making—ultimately leading to 'BETTER' AI. This not only enhances surveillance but also paves the way for Augmented Intelligence, where AI-driven insights empower human operators while keeping them at the center of decision-making.

HOW COM-SUR SMARTLY REDUCES 'VIDEO' STORAGE SIZE

COM-SUR employs an innovative approach to smartly reduce the amount of video to be audited and consequently the storage size of videos. Regardless of the video's frame rate, COM-SUR captures a single image of the consolidated 'moment' of 'that' one second, when the I, P, and B frames come together. This method significantly reduces data size without sacrificing vital information. It goes without saying that when multiple cameras are displayed in a grid view, say 4x4, the storage size is further reduced since all the cameras are captured as a single image. Since no suggestion is being made to replace the actual video with images, COM-SUR acts as a wonderful supportive technology both to audit (review) just 86400 frames representing 24 hours and reducing the data size at the same time.

CHALLENGES FACED BY AGRICULTURE AND ALLIED INDUSTRIES

1. Crop health and safety issues:

Farmers and agribusinesses need to monitor crop health and safety to prevent disease, pests, and other threats from damaging their crops.

2. Compliance issues:

Agriculture and allied industries operate in a highly regulated environment and are subjected to continuous scrutiny and inspections from various regulatory bodies and other local and global authorities. Farmers and agribusinesses must comply with numerous laws and regulations related to food safety, environmental protection, and worker safety.

3. Theft and vandalism:

Agricultural facilities, equipment, and crops can be targeted by thieves and vandals, causing significant financial losses for farmers and agribusinesses. Perpetrators often conduct pre-operational surveillance of the target area, making it important to detect suspicious activity during this phase to prevent an incident.

4. Animal welfare issues:

Farms and livestock facilities must ensure that animals are treated humanely and provided with proper care, which can be difficult to monitor and enforce.

5. Trespassing and unauthorized access:

Unauthorized individuals entering agricultural premises can pose a security risk, potentially leading to theft, property damage, or safety hazards.

6. Livestock predation:

Livestock farms may face challenges from predators, such as wild animals, which can harm or kill livestock and affect the overall productivity and profitability of the operation.

7. Natural disasters:

Agriculture is susceptible to natural disasters like floods, droughts, storms, wildfires, and extreme weather events. These can cause significant damage to crops, infrastructure, and equipment.

8. Biosecurity risks:

Disease outbreaks among livestock or crops can have devastating consequences for agriculture. Maintaining strict biosecurity measures and

monitoring for potential disease threats is crucial.

9. Equipment and machinery safety:

Agriculture involves the use of heavy machinery and equipment, which can pose safety risks to workers. Ensuring proper training, maintenance, and adherence to safety protocols is essential.

10. Insider threats:

Agriculture and allied industries have to deal with insider threats from disgruntled employees or even unwitting staff who fail to follow proper security and safety measures.

11. Humongous growth of surveillance video:

The exponential growth of surveillance cameras has resulted in an unprecedented surge in surveillance video. Effectively managing this data has become a daunting challenge due to the massive storage capacity required, especially considering the prolonged retention periods necessary for security, incident investigation, or legal purposes. Furthermore, the prevalence of high-resolution video with increasing megapixels compounds the storage demands, making efficient data management an urgent priority for organizations grappling with the immense volume of surveillance footage.

USE OF VIDEO SURVEILLANCE IN AGRICULTURE AND ALLIED INDUSTRIES

Most farms and agribusinesses have video surveillance covering the following areas:

- Entry and exit points
- Fields and crops
- Livestock facilities

- Water sources and irrigation areas
- Equipment storage and maintenance areas
- Processing and packaging areas
- Farm offices and administrative areas
- Perimeter and access points

Further, drones (UAVs) are used to monitor crop health, irrigation, and other activities on a farm. Farms and agribusinesses generally need to review and analyze recorded CCTV video footage from time to time of their daily operations as well as incidents/accidents at their plants. This footage is also used for training employees in order to prevent future recurrences.

REMOTE VIDEO AUDITING

Remote Video Auditing (RVA) has been adopted by some farms and agribusinesses as a tool for monitoring and improving animal welfare. RVA involves the use of cameras to remotely monitor animal welfare practices and ensure that they meet industry standards and regulations. It is commonly used in the meat and poultry industries, where animal welfare is a major concern. RVA works by capturing video footage of animal handling and processing activities, which is then reviewed by trained auditors who assess compliance with industry standards and regulations.

PRECISION AGRICULTURE

Precision agriculture, also known as precision farming or site-specific crop management, is a farming approach that uses advanced technology and data analysis to optimize crop production and minimize waste. It involves collecting and analyzing data on soil conditions, weather patterns, and crop growth, and using

this information to make more informed decisions about planting, fertilizing, irrigating, and harvesting crops. There are several types of specialised cameras used in precision agriculture as follows:

1. Multispectral cameras: Multispectral cameras capture images of crops in multiple spectral bands, providing information on crop health, vigor, and stress. This data can be used to identify areas of the field that may require additional irrigation, fertilizer, or pest management.

2. Hyperspectral cameras: Hyperspectral cameras capture images in many narrow, contiguous spectral bands, providing even greater detail on crop health and composition. This data can be used to identify specific crop species or varieties, detect nutrient deficiencies, and monitor the impact of environmental factors such as drought or flooding.

3. Thermal cameras: Thermal cameras capture images of crops in the infrared spectrum, providing information on plant temperature and stress. This data can be used to identify areas of the field that may be experiencing water stress or disease, and to optimize irrigation and pest management strategies.

4. RGB cameras: RGB cameras capture images in the red, green, and blue wavelengths, providing information on crop growth and canopy cover. This data can be used to estimate biomass and yield, as well as to detect weed or pest infestations.

5. 3D cameras: 3D cameras capture images of crops in three dimensions, providing information on plant height, spacing, and structure. This data can be used to optimize planting density, detect nutrient deficiencies, and monitor the impact of environmental factors such as wind or hail.

LIVE MONITORING – CHALLENGES

Several farms and agribusinesses have a dedicated control room with operators, set up for live monitoring of CCTV as well as other cameras such as drones. However, live monitoring comes with its own set of challenges of video blindness, poor attention span, boredom, operator bias, false alerts, and so on.

Moreover, these cameras continuously capture and record humungous amounts of video and image data. It therefore becomes a daunting task for the operators to review and analyse this data whenever the need arises. Thus, it may be noted that benefits from video surveillance systems can accrue only when they are used optimally, suggestions for which are enumerated further on, in this document.

COMPLIANCE - GENERAL

Conformity or compliance in any organization means adherence to laws and/or rules and regulations, various standards, as well as data storage and security requirements as laid down by government bodies, governing bodies of the respective industry, or the management of the organization. When an organization complies with the requirements mandated by government and/or governing bodies, then it is termed as ‘regulatory compliance’ which enables the organization to run in a legal and safe manner.

COMPLIANCE - AUDITS

Several organizations carry out compliance audits on a regular basis to avoid the potential consequences of non-compliance. A compliance audit examines how well an organization adheres to compliance requirements. Some organizations use video surveillance to monitor compliance issues and audit recorded

video footage from time to time for investigating and preventing compliance issues. Auditing video provides actionable insights on the level of compliance within the organization.

“CCTV AND OTHER FORMS OF VIDEO SURVEILLANCE ARE NOT ENOUGH – WE MAKE IT WORK FOR YOU”

While it is not being suggested that optimal usage of video surveillance can cure all issues, several issues of the following kind can be addressed by doing just a little 'more' with respect to making the optimal use of video surveillance systems:

- Crop health and safety issues
- Animal welfare issues
- Biosecurity risks
- Compliance issues
- Worker health and safety issues
- Recces/suspicious movements /activities
- Vandalism
- Insider job/security lapses
- Unauthorized/unlawful activities/visitors
- Intrusions, especially by animals
- Accidents/Causes of potential accidents
- Equipment malfunction/tampering/other technical issues

- Fraud/loss/corruption/theft
- Staff negligence
- Inattentive staff (e.g. guard sleeping)
- Issues with female staff
- Cameras/recorder malfunctions

So, what is the 'more' that needs to be done?

1) AUDIT CCTV AND OTHER SURVEILLANCE VIDEO FOOTAGE DAILY AS A STANDARD OPERATING PROCEDURE

'Auditing' means 'seeing' what the cameras 'saw'. Auditing of CCTV and other surveillance video footage should be done daily (continuous investigation) to identify potential issues and threats. Auditing is a dedicated and systematic process that helps address challenges related to live monitoring and alert-based systems. Auditing helps in evaluating analyzing incidents to improve existing policies, procedures, and processes. Concerned personnel should be trained to become video footage auditors, and the audit teams should be rotated to avoid complacency/collusion. Daily auditing of CCTV and other surveillance video footage can also help in adhering to the principles of Kaizen and TQM for business improvement.

2) DOCUMENT AUDIT FINDINGS/INCIDENTS

Audit findings/incidents should be documented in a standardized template to find the root cause to prevent future recurrences. Historical data of such findings/incidents can reveal

patterns that can help take better informed corrective and preventive action. If the entire industry reports incidents in a standardized template, relevant authorities can derive business intelligence from the data and take action for the collective benefit of the agriculture and allied industries.

3) ENSURE DISASTER RECOVERY OF CCTV AND OTHER SURVEILLANCE VIDEO FOOTAGE – LIKE A 'BLACKBOX'.

CCTV and other surveillance video footage must be stored at multiple locations in order to ensure that even if the recorder/storage device is stolen, destroyed or tampered with the data is never lost. Further, any backed-up data must easily be searchable and retrievable; else, it is going to be a nightmare finding the relevant video.

4) DISPLAY DYNAMIC INFORMATION AT RELEVANT PLACES

Document and display details of information that is dynamic in nature in relevant areas. For example:

1. List of officials on duty (who can be contacted in case of any emergency/grievance).
2. List of authorized security personnel deployed at the farm or the agribusiness.
3. List of habitual offenders/suspects likely to visit the farm or the premises of the agribusiness (a 'Watch out' list).

5) USE A POWERFUL NEW SIGNAGE

"WE AUDIT CCTV VIDEO FOOTAGE EVERYDAY".

One size, one color, one powerful message.
Across the nation.

DE-CENTRALIZED SURVEILLANCE +
CENTRALIZED SURVEILLANCE = OPTIMAL
RESULTS

Organizations with multiple locations struggle with centralized video surveillance due to infrastructure cost, internet bandwidth, and operator limitations. De-centralized surveillance offers higher accountability at each location and better situational awareness, leading to more chances of discovering exceptions.

NEW SKILL – ‘CCTV VIDEO FOOTAGE AUDITOR’

In a groundbreaking move, the Ministry of Skill Development of India has established National Occupational Standards for the crucial skill of CCTV Video Footage Auditing. The Ministry of Education has also introduced a course to teach this skill to students in grades 11 and 12. This initiative will not only create new job opportunities and business ventures for those seeking a fresh career path but also for retirees from both the armed forces and the private sector. Additionally, this skill will help activate the millions of CCTV cameras currently underutilized, bringing them out of 'sleep mode' and enhancing their effectiveness.

CONCLUSION

"You see, but you do not observe"—a famous quote by Sherlock Holmes in A Scandal in Bohemia (1891, by Sir Arthur Conan Doyle)—perfectly illustrates the need for human insight in surveillance. While computers can 'see,' it is human observation that truly interprets and acts on what is seen. COM-SUR simplifies and enhances this critical process, leading to more

effective and insightful results.

"Cameras don't lie"—but how will you know unless you 'see' what the cameras 'saw'? Don't wait for things to go wrong. Start auditing your CCTV footage with award-winning COM-SUR today.

In closing, we present three guiding principles that will revolutionize video surveillance:

1. Auditing is fundamental—everything else is peripheral.
2. Cameras have lenses—humans have eyes.
3. Let's make cameras 'accountable.'