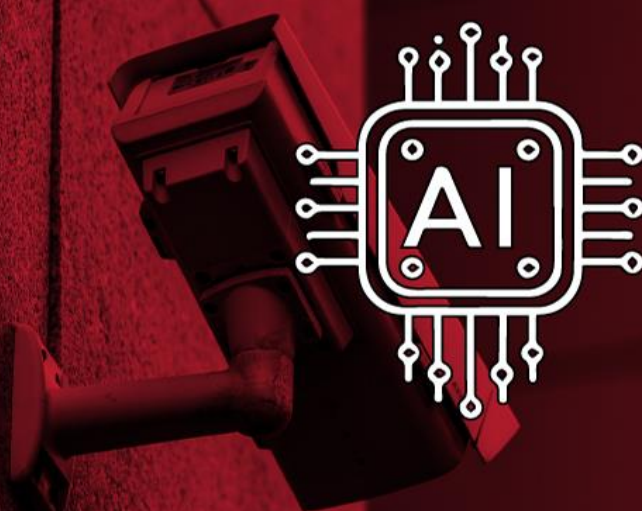




# "SEE WHAT THE CAMERA SAW"

## 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  
RAILWAYS

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 railways world over, 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 screenshot 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 screenshots, 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 RAILWAYS

#### 1. Trespassing and unauthorized access:

Unauthorized individuals trespassing on railway tracks or accessing restricted areas pose significant safety risks. Railways need to address these issues to prevent accidents and maintain the integrity of their infrastructure.

#### 2. Vandalism and property damage:

Railways may face incidents of vandalism, graffiti, or property damage. These acts not only impact the aesthetics of the infrastructure but can also affect the safety and reliability of railway operations.

#### 3. Theft and robbery:

Railways are vulnerable to theft and robbery, both in terms of cargo and personal belongings of passengers. Valuable goods transported by



rail can be targeted, and passengers may become victims of theft or robbery in stations or on trains.

#### 4. Passenger and worker safety:

Ensuring passenger and worker safety is a top priority for railways. This includes preventing accidents, derailments, and collisions. Further, there have been several reported instances of kidnappings, especially of women and children from railway platforms which is a major concern for railways.

#### 5. Infrastructure maintenance:

Maintaining and upgrading railway infrastructure is a significant challenge for many railways. This includes tracks, signals, bridges, and tunnels.

#### 6. Overcrowding:

Railways often face challenges related to crowd management, especially during peak travel times or major events. This can lead to delays, reduced efficiency, and safety concerns.

#### 7. Terrorism and sabotage:

Railways can be targeted by terrorists or individuals seeking to cause harm or disrupt services. Sabotage attempts, such as tampering with tracks or signaling systems, can pose serious security risks. Perpetrators often conduct pre-operational surveillance of the target area, making it important to detect suspicious activity during this phase to prevent an incident.

#### 8. Fire and hazardous materials:

The presence of hazardous materials on trains or in railway stations increases the risk of fire or other incidents. Effective fire prevention,

detection, and response systems are crucial to safeguard passengers, staff, and property.

#### 9. Insider threats:

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

#### 10. 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 AT RAILWAY FACILITIES

Most railway facilities have video surveillance covering the following areas:

- Station entry and exit points
- Stations and platforms
- Ticketing areas
- Trains and other railway vehicles
- Maintenance facilities
- Perimeter fences

- Railway yards
- Parking areas

Further, railway authorities generally review and analyse recorded CCTV footage to investigate incidents of theft, vandalism, or terrorist activities on trains or railway stations, as well as accidents or near misses in order to identify their causes to improve safety measures, as well as assist Police/other Law Enforcement Agencies.

Besides CCTV, railways use other forms of video surveillance as follows:

#### 1. Drones:

Railways employ drones equipped with cameras for aerial surveillance. Drones can provide a broader perspective of railway infrastructure, monitor tracks, identify potential safety hazards, and assist in emergency response situations.

#### 2. Body worn cameras:

Railway personnel, such as station staff, ticket inspectors, and security personnel are being provided with body worn cameras to record incidents, interactions with passengers, and any potential security threats.

#### 3. Train-mounted cameras:

Railways in some countries have cameras installed on the exterior or interior of trains in order to capture video footage during the journey. These cameras can monitor passenger behavior, detect incidents of vandalism or unauthorized access, and provide evidence in case of accidents or security incidents.

#### 4. Thermal imaging cameras:

Thermal imaging cameras can be utilized in railway surveillance to detect the presence of unauthorized individuals, track intrusions, or identify hotspots in electrical systems or rolling stock. They are particularly useful in low-light conditions or adverse weather situations.

### LIVE MONITORING – CHALLENGES

Several railway facilities have a dedicated control room with operators, set up for live monitoring of CCTV and other cameras.

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 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 CCTV video footage from time to time for investigating and preventing compliance issues. Auditing CCTV 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:

- Accidents/Causes of potential accidents
- Potential causes of fire
- Health and safety issues
- Vandalism

- Recces/suspicious movements/activities
- Insider job/security lapses
- Bullying/violence/disputes
- Overcrowding
- Kidnapping/kidnapping attempts
- False allegations and/or claims
- Sexual harassment and/or other kinds of abuse
- Unauthorized/unlawful activities/visitors
- Loss/fraud/theft
- Intrusions, especially by animals
- Inattentive staff (e.g. guard sleeping)
- Unruly staff/visitors/outside workers/security guards
- Parking issues
- Unclaimed/unattended objects
- Housekeeping issues
- Issues with female staff or passengers
- 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 all railway facilities report incidents in a standardized template, relevant authorities can derive business intelligence from the data and take action for the collective benefit of all railways.

## 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 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 authorised staff at the railway facility.
2. List of authorized security personnel deployed at the railway facility.
3. List of habitual offenders/suspects likely to visit the railway facility's premises (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.'