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Comparative Study on Traditional and Modern Techniques Used in Forensic Photography and Videography

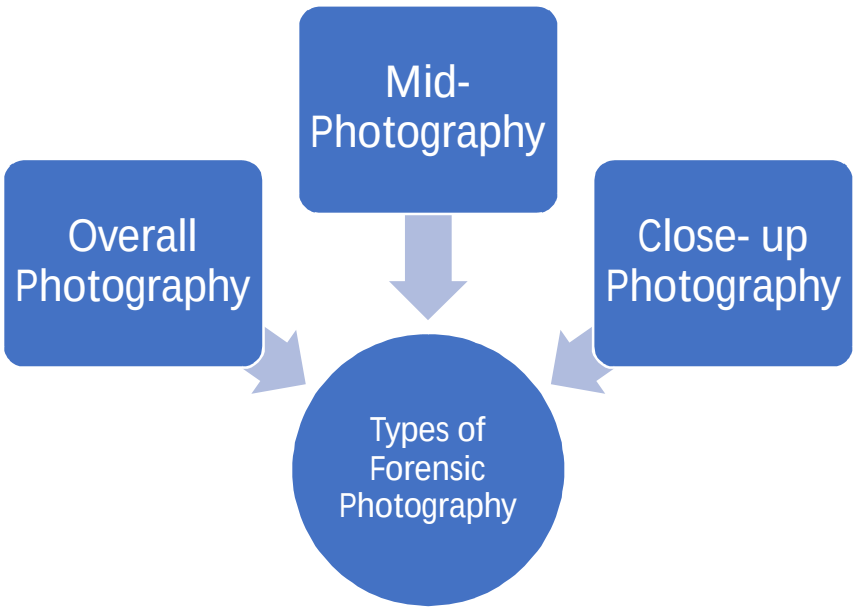
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Abstract: ***Photography and videography are the most crucial parts of documenting any crime scene. Crime scene photography and videography help the investigation progress correctly. They also assist in refreshing the memories of the investigative personnel. Clues and minute details missed during the search and collection can also be considered later. These methods are essential for reconstructing crime scenes, as they provide a visual sequence of events. To execute photography and videography, specific methods and techniques are used, complying with rules and regulations set by recent laws. Conventional and non-conventional methods are employed to capture images and videos. In this digital era, our procedures have also been influenced by artificial intelligence and machine learning. Advanced cameras and equipment are now used to document the happenings. Technologies like omics, carbon dot powder, sensitive detection methods, and more are employed in the process. We will compare traditional techniques with newer ones, explaining why some have been replaced and what new methods are now used. The use of robots, available only in some countries, is also making a difference in the process.***
Keywords: Crime scene, traditional techniques, robots, modern photography and videography, Osmic technique, New Laws.

I. INTRODUCTION

A. *Forensic Photography*

A method by which the evidence, scattered or broken things, corpses, documents, weapons found at the scene, fingerprints, footprints, traces of things, etc, are being captured by a forensic photographer. He is a specially trained person who gets to knows how to take a photo at the scene of a crime. [1][2]



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B. Equipment Needed

- Tripod
- Memory Card
- Camera (DSLR)
- Battery
- Personal Protective Equipment

C. Forensic Videography

Presents a scene differently than either sketching or photography. Giving a better "feel" for the scene, as well as being more intuitive, may help "see" things on the crime scene.

D. Equipment Needed

- Personal Protective Equipment
- Video Camera
- Video kit with battery
- Memory card for Digital Camera
- Camera Cleaning Supplies
- Flashlight
- Tripod [3][4]

E. Two General Categories of Forensic Video

a) *The Scene Video*: - The scene video is a video equivalent of the walk-through taken by the team leader, and the first is a continuous process, ideally without interruption from beginning to end. Along the way, each scene is captured on video. As videoing continues, the videographer slowly walks through, capturing as much as possible.

b) *The Topic Video*: - A Mid-Range Video. A new paradigm for forensic video/ documentary scene videoed twice: -

i) Done after the scene video [5] [6]

ii) Secondarily, during the photographic archiving

- Process using the digital capability of SLR cameras.
- Captures individual and specific parts of the scene
- Visible evidence and immediate evidentiary relationships.
- Records are individual from the perspective of the photographer taking establishing video using the same SLR cameras.
- Captures evidential relationships in mid- range format.

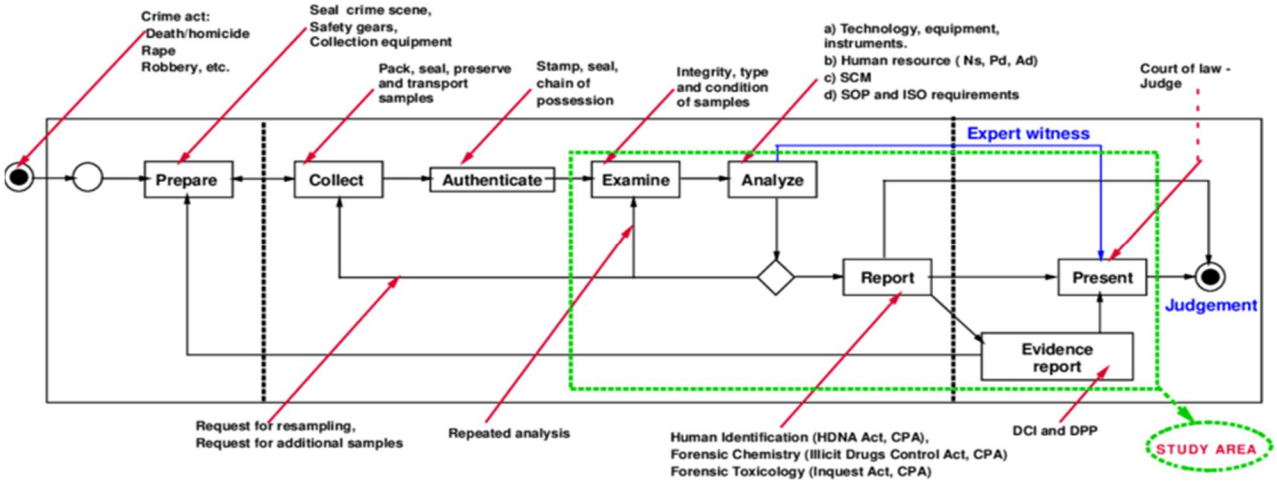
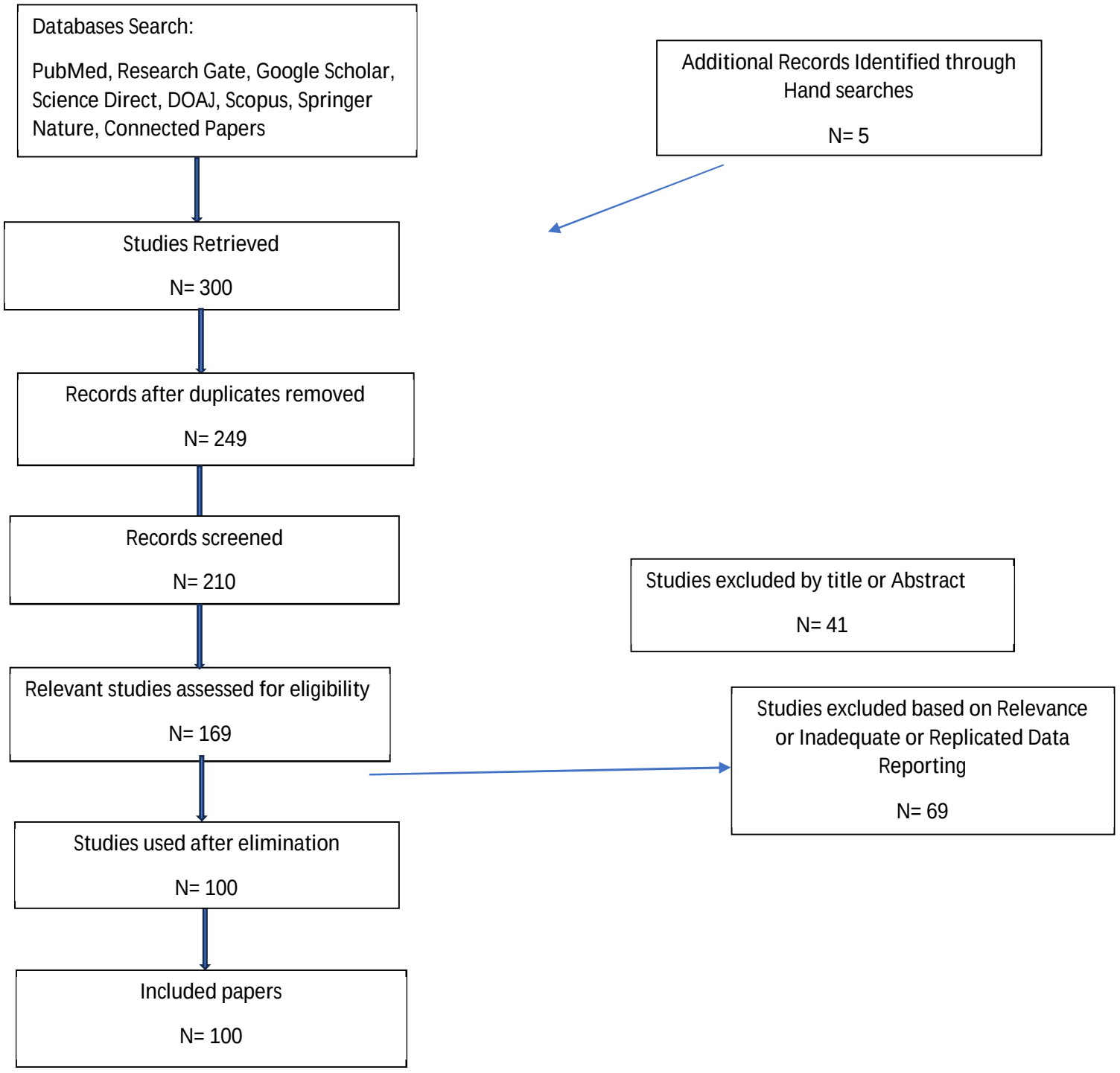


Figure 1- Overview of the Crime Scene Investigation Process

Reference- https://www.researchgate.net/figure/Process-flow-chart-for-forensic-science-services-in-Tanzania-and-the-study-area_fig1_335930376

II. METHOD AND METHODOLOGY



A. Literature Review

In the field of forensic science, photography and videography play a crucial role in documenting and analysing evidence. Traditional photography methods have been used for decades to capture images of crime scenes, victims, and evidence. However, with the advent of digital technology, modern photography and videography methods have become increasingly popular.

Studies have shown that digital photography can provide higher quality images and greater flexibility in terms of image enhancement and manipulation. Digital cameras can also capture images in low-light conditions, making them ideal for crime scene documentation. For videography, it is also very easily enhanced to a very high quality and manipulated, making it easier to analyse and interpret evidence. [7] [8]

III. RESULT AND DISCUSSION

A. *Traditional Photographic Techniques*

1) *BLACK AND WHITE FILM PHOTOGRAPHY* – Before the advent of digital photography, black and white film was widely used in forensic photography. It provided a permanent and tamper-evident record of evidence.
2) *COLOR FILM PHOTOGRAPHY* – Colour film was also used in forensic photography, particularly for documenting evidence such as blood stains, fingerprints, and other physical evidence.
3) *LARGE FORMAT PHOTOGRAPHY* – Large format cameras were used to capture detailed images of evidence, such as fingerprints, footprints, and other evidence.
4) *MACROPHOTOGRAPHY* – It was used to capture detailed images of small evidence such as fibres, hairs, and other microscopic evidence.
5) *ULTRAPHOTOGRAPHY* – It was used to detect and document evidence that was not visible to the naked eye, such as blood stains, semen, and other bodily fluids.
6) *INFRARED PHOTOGRAPHY* – It was used to detect and document evidence that was not visible to the naked eye, such as heat patterns, blood stains, and other thermal evidence.
7) *MULTIPLE EXPOSURE TECHNIQUE*: This technique involved taking multiple exposures of the same scene to capture different aspects of the evidence.
8) *STEREO PHOTOGRAPHY*: Stereo photography was used to create 3D images of evidence, such as crime scenes and physical evidence.
9) *PHOTOGRAMMETRY*: Photogrammetry was used to create detailed measurements of evidence, such as the size and shape of objects.
10) *DARKROOM TECHNIQUES*: Darkroom techniques, such as developing and printing film, were used to enhance and preserve photographic evidence. [9] [10] [11]

Not only are there other aspects that are crucial in traditional photography, like: -

➢ Camera Equipment-
- Film cameras (35mm, medium format, large format)
- Lens selection (wide-angle, telephoto, macro)
- Tripods and camera stabilizers
- Lighting equipment (strobes, floodlights, reflectors)

➢ Lighting Techniques-
- Natural light: using available light at the crime scene
- Artificial light: using strobes, floodlights, or other light sources to illuminate the crime scene or evidence
- Low-light photography: capturing images in low-light conditions (e.g., using infrared or ultraviolet light)
- High-contrast lighting: using strong light sources to create high contrast between light and dark areas of the crime scene or evidence [12] [13]

➢ Composition Techniques-
- Rule of thirds: dividing the image into thirds to create a balanced composition
- Leading lines: using lines or shapes to lead the viewer's eye to the subject
- Framing: using natural or artificial frames to surround the subject
- Symmetry: using symmetrical composition to create a sense of order and balance.

➢ Film Development and Printing
- Black and white film development: using chemicals to develop black and white film
- Colour film development: using chemicals to develop colour film [14] [15]
- Printing: creating physical prints of photographs using enlargers and photographic paper

➢ Traditional Photography Methods-
- Wet plate collodion process: a historical method of creating photographs using a wet plate process
- Dry plate process: a historical method of creating photographs using a dry plate process
- Daguerreotype process: a historical method of creating photographs using a daguerreotype process

➢ Traditional Photography Tools-
- Camera obscura: a device used to project an image onto a surface
- Photographic plates: glass or metal plates coated with light-sensitive materials
- Photographic paper: paper coated with light-sensitive materials used to create prints. [16] [17] [18]

B. Traditional Videographic Techniques

1) *ANALOG VIDEO RECORDING* - Analog video recording was widely used in forensic videography before the advent of digital technology. Analog video cameras recorded video signals onto magnetic tape.
2) *VHS (VIDEO HOME SYSTEM) RECORDING* - VHS was a popular format for analogue video recording in forensic videography. VHS tapes were widely used to record crime scenes, suspect interviews, and other evidence.
3) *BETAMAX RECORDING* - Betamax was another analogue video recording format used in forensic videography. Betamax tapes were known for their high video quality and were often used for critical evidence recording.
4) *U-MATIC RECORDING* - U-Matic was a professional analogue video recording format used in forensic videography. U-Matic tapes were known for their high video quality and were often used for critical evidence recording.
5) *FILM-BASED VIDEOGRAPHY* - Film-based videography involved recording video images onto film stock. This technique was used in forensic videography for high-quality video recording.
6) *TIME-LAPSE VIDEOGRAPHY* - Time-lapse videography involves recording video images at regular intervals to capture changes in a scene over time. This technique was used in forensic videography to capture evidence such as surveillance footage.
7) *STOP-MOTION VIDEOGRAPHY* - Stop-motion videography involves recording video images one frame at a time to create a slow-motion effect. This technique was used in forensic videography to capture evidence such as fingerprints or footprints.
8) *MACRO VIDEOGRAPHY* - Macro videography involves recording video images of small objects or details. This technique was used in forensic videography to capture evidence such as fibres or hair.
9) *LOW-LIGHT VIDEOGRAPHY* - Low-light videography involved recording video images in low-light conditions. This technique was used in forensic videography to capture evidence such as surveillance footage in low-light environments.
10) *NIGHT VISION VIDEOGRAPHY* - Night vision videography involved recording video images in complete darkness using specialized equipment. This technique was used in forensic videography to capture evidence such as surveillance footage at night.[19] [20]

Apart from these, there are other requirements: -

➢ Video Camera Equipment-
- Analog video cameras (VHS, Betamax, U-Matic)
- Film-based video cameras (16mm, 35mm)
- Lens selection (wide-angle, telephoto, macro)
- Tripods and camera stabilizers
- Lighting equipment (strobes, floodlights, reflectors)

➢ Traditional Videography Tools-
- Video tape recorders (VTRs)
- Film projectors [21] [22] [23] [24]
- Video cameras with built-in time-lapse and stop-motion capabilities
- Specialized lighting equipment (e.g., strobes, flood lights)

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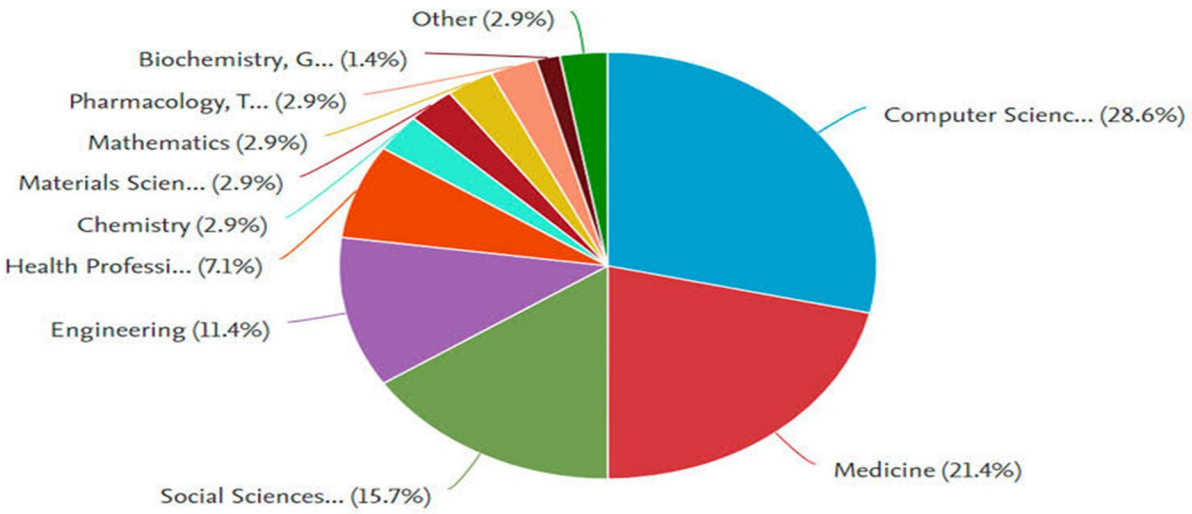


Figure 2 – Illustrating the increase in technology in the Forensic field
Reference – https://www.mdpi.com/2227-9032/11/5/634

- As we can see from this graph how the use of technology has increased multi-fold. In 2023, according to the Bureau of Labour Statistics (BLS), there will be a 13 percent increase in jobs for forensic technicians nationally between 2022 and 2032. BLS indicates that this growth rate is due to the new technologies that are increasing the availability and reliability of objective forensic information. In fact, over 22,000 publications are there on new advances in forensic science. Let's dive deeper into some of the advanced techniques used in forensic photography and videography.[25] [26] [27]

C. Advanced and Modern Photographic Techniques:

1) ALTERNATIVE LIGHT PHOTOGRAPHY (ALP) - It is a technique that uses specialized cameras and lighting to reveal details that are not visible to the naked eye. This technique is particularly useful in forensic photography, where it can be used to:

- Reveal bruising beneath the skin's surface
- Detect injuries that may not be immediately apparent
- Enhance details in fingerprints and footprints
- Reveal hidden writing or symbols on surfaces

ALP cameras use specialized filters and lighting to capture images in different wavelengths of light. For example, the Omni-chrome camera uses blue light and orange filters to reveal bruising beneath the skin's surface.

2) HIGH-SPEED BALLISTICS PHOTOGRAPHY - High-Speed Ballistics Photography is a technique that uses high-speed cameras to capture detailed images of bullet holes, gunshot wounds, and shattering glass. This technique is useful in forensic photography because it allows ballistics specialists to:

- Analyse the trajectory of projectiles
- Reconstruct crime scenes
- Determine the type of firearm used
- Identify the location of the shooter

High-speed cameras can capture images at speeds of up to 1 million frames per second, allowing for detailed analysis of fast-moving events.

3) 3D FORENSIC FACIAL RECONSTRUCTION - 3D Forensic Facial Reconstruction is a technique that uses software to create 3D models of human remains. This technique is useful in forensic photography because it allows forensic pathologists and anthropologists to:

- Extrapolate a possible physical appearance from skeletal remains
- Identify victims
- Reconstruct crime scenes

3D facial reconstruction software uses algorithms to create a 3D model of the face based on the shape and structure of the skull. This model can then be used to create a digital image of the victim's face.

4) *VIDEO SPECTRAL COMPARATOR 2000* - The Video Spectral Comparator 2000 (VSC2000) is a machine that uses advanced spectroscopy to analyse paper evidence. This technique is useful in forensic photography because it allows investigators to:
   - Reveal obscured or hidden writing
   - Determine paper quality and origin
   - "Lift" indented writing from damaged documents

The VSC2000 uses a combination of infrared and ultraviolet light to analyse the paper and reveal hidden details.

5) *DIGITAL SURVEILLANCE* - Digital surveillance is a technique that uses digital devices to monitor and analyse data. This technique is useful in forensic photography because it allows investigators to:
   - Access and analyse hidden files on gaming systems
   - Monitor online activity
   - Track digital evidence

The XFT device is a tool that allows investigators to access and analyse hidden files on gaming systems, such as Xbox.

6) *CARBON DOT POWDERS* - Carbon dot powders are a type of fluorescent powder that can be used to enhance fingerprints. This technique is useful in forensic photography because it allows investigators to:
   - Reveal latent fingerprints
   - Enhance existing fingerprints
   - Make fingerprints easier to analyse

Carbon dot powders work by absorbing light and emitting a fluorescent glow, making fingerprints easier to see and analyse.

7) *ARTIFICIAL INTELLIGENCE* - Artificial intelligence (AI) is a technique that uses machine learning algorithms to analyse data. This technique is useful in forensic photography because it allows investigators to:
   - Analyse images and compare evidence
   - Predict suspect characteristics from DNA samples
   - Automate routine tasks

AI can be used to analyse images and compare evidence, allowing investigators to quickly identify matches and connections. AI can also be used to predict suspect characteristics from DNA samples, allowing investigators to create a digital image of the suspect.

8) *HYPERSPECTRAL IMAGING* - Hyperspectral imaging is a technique that uses specialized cameras to capture images in multiple wavelengths of light. This technique is useful in forensic photography because it allows investigators to:
   - Reveal hidden details in evidence
   - Analyse the composition of materials
   - Identify substances

   Hyperspectral imaging cameras can capture images in hundreds of wavelengths of light, allowing investigators to analyse the spectral signature of materials and substances.

9) *THERMAL IMAGING* - Thermal imaging is a technique that uses specialized cameras to capture images of heat signatures. This technique is useful in forensic photography because it allows investigators to:
   - Reveal hidden details in evidence
   - Analyse the temperature of surfaces
   - Identify heat sources

Thermal imaging cameras can capture images of heat signatures, allowing investigators to analyse the temperature of surfaces and identify heat sources.

10) *LASER-INDUCED BREAKDOWN SPECTROSCOPY (LIBS)* - LIBS is a technique that uses a high-powered laser to analyse the composition of materials. This technique is useful in forensic photography because it allows investigators to:
   - Analyse the composition of materials
   - Identify substances
   - Reveal hidden details in evidence

LIBS works by using a high-powered laser to create a plasma on the surface of a material, which is then analysed using spectroscopy. [28] [29] [30]

11) *RAMAN SPECTROSCOPY* - Raman spectroscopy is a technique that uses a laser to analyse the composition of materials. This technique is useful in forensic photography because it allows investigators to:
   - Analyse the composition of materials
   - Identify substances

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- Reveal hidden details in evidence

Raman spectroscopy works by using a laser to excite the molecules in a material, which then emit light that is analysed using spectroscopy.

12) *COMPUTED TOMOGRAPHY (CT) SCANNING* - CT scanning is a technique that uses X-rays to create detailed images of the internal structure of objects. This technique is useful in forensic photography because it allows investigators to:
    - Analyse the internal structure of objects
    - Reveal hidden details in evidence
    - Identify substances [31] [32] [33] [34]

CT scanning works by using X-rays to create detailed images of the internal structure of objects, which can then be analysed using specialized software.

13) *3D SCANNING* - 3D scanning is a technique that uses specialized cameras and software to create detailed 3D models of objects. This technique is useful in forensic photography because it allows investigators to:
    - Analyse the shape and structure of objects
    - Reveal hidden details in evidence
    - Create detailed 3D models of crime scenes

3D scanning works by using specialized cameras and software to create detailed 3D models of objects, which can then be analysed using specialized software.

14) *VIRTUAL REALITY (VR) AND AUGMENTED REALITY (AR)* - VR and AR are techniques that use specialized software and hardware to create immersive and interactive experiences. This technique is useful in forensic photography because it allows investigators to:
    - Analyse crime scenes in an immersive and interactive way
    - Reveal hidden details in evidence
    - Create detailed 3D models of crime scenes [35] [36][37][38]

15) *MICRO PHOTOGRAPHY* – It is a specialized form of photography that focuses on capturing subjects at an incredibly small scale, revealing details that are invisible to the naked eye. Key characteristics of micro photography: -
    - Extreme Magnification
    - Lighting and Contrast Techniques
    - Scientific and Research Focus
    - Post-Processing and Image Stacking
    - Art and Aesthetics

    Applications of Micro Photography-

    a) Science Research and Documentation
    b) Medical and Biological Imaging
    c) Material Analysis and Quality Control
    d) Forensics and Criminal Investigations
    e) Art and Education

Techniques for Micro Photography-

i. Sample Preparation
ii. Lighting Techniques
iii. Focus Stacking
iv. Imagin Stacking and Post-Processing
v. Stability and Precision
vi. Microscopes and Equipment

16) *Macro Photography* – It is a specialized form of photography that involves capturing subjects at an incredibly close range, revealing minute details that are often invisible to the naked eye. Key characteristics of Macro Photography: -
    - Magnification
    - Close Proximity
    - Shallow Depth of Field
    - Fine Art and Nature Subjects

- Lighting Challenges
- Unique Perspectives

Applications of Macro Photography-

a) Nature and Wildlife
b) Insert and Small Creatures
c) Flowers and Plants
d) Product and Food Photography

Techniques for Macro Photography-

i. Depth of Field Control
ii. Lighting Considerations
iii. Composition and Framing
iv. Dealing with Subject Movement [39] [40]

D. Advanced and Modern Videographic Techniques:

1) HIGH-DEFINITION (HD) AND 4K RESOLUTION CAMERAS - HD and 4K resolution cameras provide high-quality video evidence with improved clarity and detail. These cameras can capture video at resolutions of up to 3840 x 2160 pixels, which is four times the resolution of standard HD cameras.

Some of the benefits of using HD and 4K resolution cameras in forensic videography include:

a. Improved image quality and clarity
b. Enhanced analytical capabilities
c. Increased ability to capture detailed evidence, such as fingerprints and DNA
d. Better evidence preservation and management

Some examples of HD and 4K resolution cameras used in forensic videography include:

e. DSLR cameras, such as the Canon EOS 5D Mark IV
f. Action cameras, such as the GoPro Hero8 Black
g. Security cameras, such as the Avigilon H3 Bullet camera [41]

2) DIGITAL SINGLE-LENS REFLEX (DSLR) CAMERAS - DSLR cameras offer high-quality video and still images, making them ideal for forensic videography. These cameras can capture video at resolutions of up to 3840 x 2160 pixels and can be equipped with a variety of lenses to suit different applications.

Some of the benefits of using DSLR cameras in forensic videography include:

a. High-quality image capture
b. Flexibility in lens selection
c. Ability to capture both video and still images
d. Portability and ease of use

Some examples of DSLR cameras used in forensic videography include:

e. Canon EOS 5D Mark IV
f. Nikon D850
g. Sony Alpha a7S III [42] [43]

3) ACTION CAMERAS - Action cameras, such as GoPro's, are small, portable, and can capture high-quality video in a variety of environments. These cameras are often used in forensic videography to capture evidence in tight spaces or in situations where a larger camera would be impractical.

Some of the benefits of using action cameras in forensic videography include:

a. Small size and portability
b. High-quality image capture
c. Ability to capture video in tight spaces
d. Ease of use and affordability

Some examples of action cameras used in forensic videography include:

e. GoPro Hero8 Black
f. DJI Osmo Action 2
g. Yi 4K+

4) *DRONES* - Drones equipped with high-definition cameras can capture aerial footage of crime scenes, provide a unique perspective and help investigators to reconstruct events. These cameras can capture video at resolutions of up to 3840 x 2160 pixels and can be equipped with a variety of lenses to suit different applications.

   Some of the benefits of using drones in forensic videography include:

   a. Ability to capture aerial footage of crime scenes
   b. Unique perspective on evidence
   c. Ability to capture video in hard-to-reach areas
   d. Portability and ease of use

   Some examples of drones used in forensic videography include:

   e. DJI Phantom 4 Pro
   f. DJI Inspire 2
   g. Autel EVO II

5) *360-DEGREE CAMERAS* - 360-degree cameras can capture a complete scene, provide a comprehensive view of the environment and help investigators to identify potential evidence. These cameras can capture video at resolutions of up to 3840 x 2160 pixels and can be equipped with a variety of lenses to suit different applications.

   Some of the benefits of using 360-degree cameras in forensic videography include:

   a. Ability to capture a complete scene
   b. Comprehensive view of the environment
   c. Ability to identify potential evidence
   d. Portability and ease of use

   Some examples of 360-degree cameras used in forensic videography include:

   e. Nikon Key Mission 360
   f. Garmin VIRB 360
   g. Ricoh Theta V

6) *VIRTUAL REALITY (VR) AND AUGMENTED REALITY (AR) TECHNOLOGIES* - VR and AR technologies can be used to create immersive and interactive experiences, allowing investigators to analyse crime scenes more engagingly and effectively. These technologies can be used to recreate crime scenes, analyse evidence, and identify potential suspects.

Some of the benefits of using VR and AR technologies in forensic videography include:

   a. Ability to recreate crime scenes
   b. Immersive and interactive experience
   c. Ability to analyse evidence in a more engaging way
   d. Potential to identify new leads and suspects

Some examples of VR and AR technologies used in forensic videography include:

   e. Oculus Rift
   f. HTC Vive
   g. Microsoft HoloLens

7) *ARTIFICIAL INTELLIGENCE (AI) AND MACHINE LEARNING (ML) ALGORITHMS* - AI and ML algorithms can be used to analyse video evidence, identify patterns, and detect anomalies, helping investigators to focus on the most critical aspects of a case. These algorithms can be used to analyse video footage, identify suspects, and detect potential evidence.
8) *OBJECT DETECTION AND TRACKING SOFTWARE* - Object detection and tracking software can be used to identify and track objects in video evidence, helping investigators to reconstruct events and identify potential evidence.
9) *BODY-WORN CAMERAS* - Body-worn cameras can be used by law enforcement officers to capture video evidence of interactions with the public, helping to improve transparency and accountability.
10) *DASH CAMERAS* - Dash cameras can be used in police vehicles to capture video evidence of traffic stops and other interactions with the public, helping to improve safety and accountability. [44] [45] [46]

From the above result, we have seen that the traditional and modern techniques and tools that are being used for both photography and videography have comparable differences. These can be listed as: - [47] [48] [49] [50]

FEATURES CONSIDERED	TRADITIONAL PHOTOGRAPHY	MODERN PHOTOGRAPHY
1) Capture medium	Uses film rolls to capture images, requiring development in a dark room	Uses a digital sensor to capture images directly as electronic data
2) Image viewing	Viewing the binder on the cameras provides a limited preview, with the final image only visible after film development	Real-time preview on the camera LCD screen, allowing immediate adjustments before taking the shot
3) Editing	Limited editing options in the darkroom through techniques like dodging and burning	Extensive digital editing capabilities with software like Adobe Photoshop and Premiere Pro, allowing for colour corrections, etc
4) Workflow	Slower workflow due to film development time and limited editing options	Faster workflow with instant image preview and rapid post-processing
5) Exposure control	Manual adjustments to aperture, shutter speed, and film ISO using dials on the camera	Automatic or manual exposure control with digital sensors, allowing for greater flexibility in lighting situations
6) Focus	Manual focusing with the lens often relies on experience and focusing aids	Auto focus system with sophisticated algorithms for precise focusing
7) Special Effects	Limited special effects are achievable through in-camera techniques like filters or multiple exposures	Wide range of digital effects and manipulation options in post-processing software
8) Impact on creative expression	Emphasis on technical mastery and careful planning due to the limitations of film	Greater freedom for experiments and creativity due to digital flexibility and post-processing capabilities
9) Other Medium	Uses film (example- 3.5mm) that requires chemical development	Uses digital sensors to capture and store images electronically differently
10) Process time	Time–intensive, requiring film development and printing	Instance preview and processing with immediate results
11) Image Quality	Offers natural grain and a distinct aesthetic, with limited resolution	High resolution, sharp images with dynamic range and clarity
12) Cost	Expensive due to film rolls, development, and manual tools	Cost-effective, involves an upfront investment in a digital camera

For Videography: -

FEATURES CONSIDERED	TRADITIONAL VIDEOGRAPHY	MODERN VIDEOGRAPHY
a) Equipment	Analog cameras with physical reels and tapes	Digital cameras with storage options like SD cards and cloud storage
b) Editing	Physical cutting and slicing of film	Non-linear editing with advanced software (example- Premiere Pro)
c) Resolution	Lower resolutions; quality degrades over generations	High-definition formats like 4k/ 8k with minimal quality loss
d) Accessibility	Required bulky equipment and professional handling	Compact, user-friendly cameras and smartphones for all users
e) Effects	Limited to practical, in-camera effects	Advanced CGI, AI-powered enhancements, post-production effects

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- Laws that are newly transformed named as –
  i) Indian Penal Code, 1860 to Bhartiya Nyaya Sanhita, 2023
  ii) Criminal Procedure Code, 1973 to Bhartiya Nagarik Suraksha Sanhita, 2023
  iii) Indian Evidence Act (1872) to Bhartiya Sakshya Adhiniyam, 2023
  Gives an account of how forensic photography and videography are playing a crucial role in not only gathering the evidence but also acknowledging the testimony to be visually recorded. [51]
- Bhartiya Sakshya Adhiniyam (BSA)- It introduces the evidentiary nature and admissibility of an electronic device as evidence.
  i) Clause 63 BSA provides a special procedure for the admissibility of electronic records.[52]
  ii) Clause 2 (d) of BSA- Defines documents to also include electronic or digital records.
- Apart from this, now, because of the risk of manipulation, audio and video recording in the search and seizure procedure is mandatory in BSA and BNSS.[53]
  i) Clause 105, 176 (3), and 176 (1) of BNSS deal with the same.
  ii) Clauses 173 (1) and 183 (6) of CrPC are being retained, which deal with the special victims with mental or physical disabilities.

So, as we can see how forensic photography and videography have been highlighted in our new laws. That's why it becomes more necessary to highlight and discuss the methods and methodologies used for the same purpose. [54]

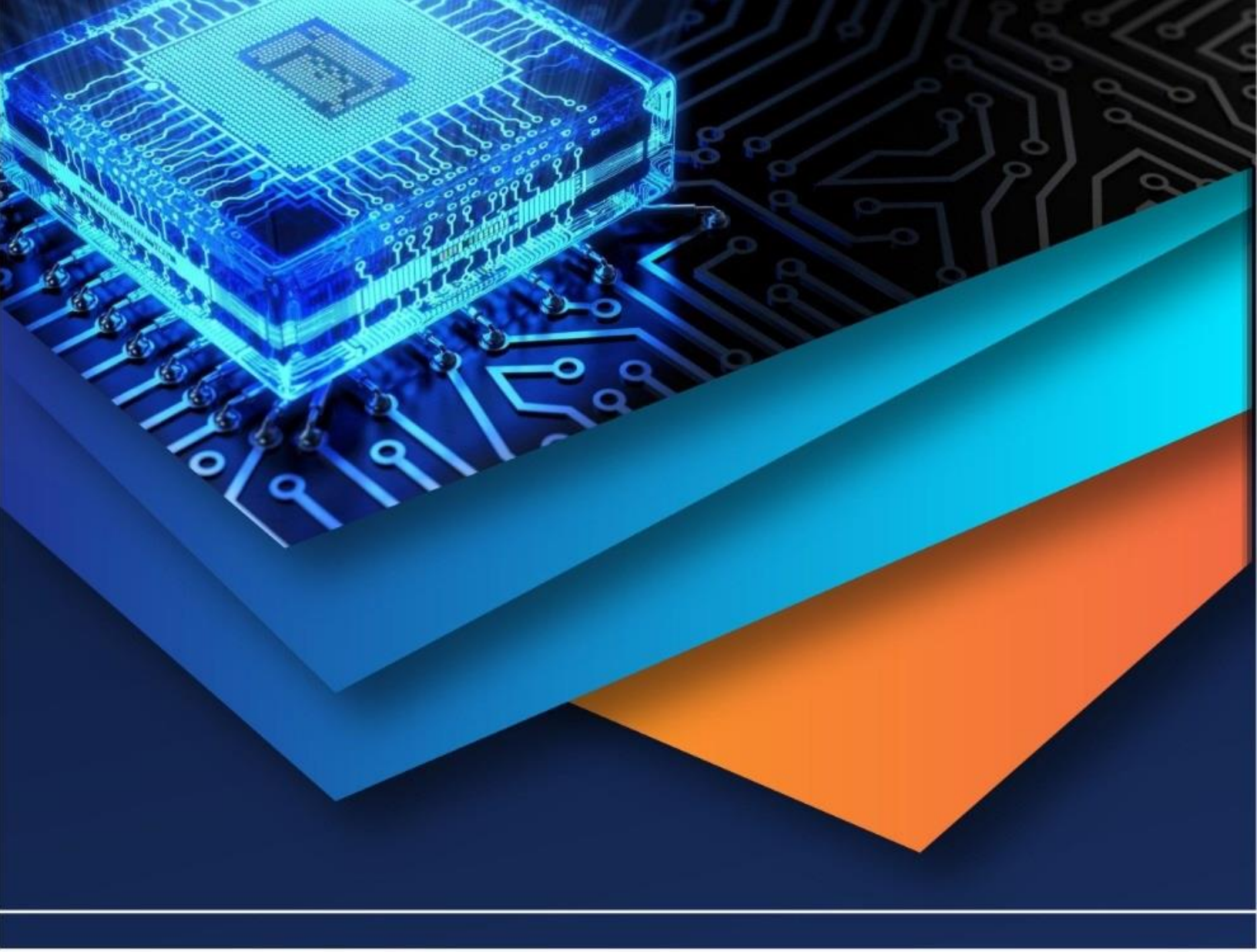
IV. CONCLUSION

Apart from having all the techniques used for recording purposes, these methods are showing very effective results. We have many new research and innovations which is still in progress, as photography and videography are not limited portion of the forensic domains. It expands its hands to all other branches as we are taking pictures of all the analysis and work that we are doing to prove the authenticity and authority of the method employed and the results gathered, which will ultimately play a significant role in proving someone's innocence or guilt. So, in last, I want to say that this comparison must be helpful to analyse the efficiency and effectiveness of the equipment used, along with the side research that is still going on to make the recording and result more authentic and reliable. The new laws focus on the importance of photography and videography in the field of forensics because each and every object and the analysis part are being covered and documented using photographs and video taping of the evidence and other methods and methodologies used as mentioned above specifically. [53] [54]

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