



# Video/Imaging Technology and Analysis (VITAL) Subcommittee

Digital and Multimedia SAC  
Carl Kriigel, Subcommittee Chair





# Subcommittee Leadership

Position	Name	Organization	Term	Email
Chair	Carl Kriigel	Defense Forensic Science Center	3 years	Carl.Kriigel@gmail.com
Vice Chair	William Trenkle	Dept of Health and Human Services	3 years	William.Trenkle@hhs.gov
Executive Secretary	Christina Malone	Defense Forensic Science Center	3 years	Christina.a.Malone.civ@mail.mil



# Subcommittee Members



#	Name	Organization	Term	Email
1	Alice Thomas	U.S. Secret Service	3	<a href="mailto:alice.thomas@usss.dhs.gov">alice.thomas@usss.dhs.gov</a>
2	Julie Carnes	Target	4	<a href="mailto:Julie.carnes@target.com">Julie.carnes@target.com</a>
3	Melody Buba	FBI	3	<a href="mailto:Melody.Buba@ic.fbi.gov">Melody.Buba@ic.fbi.gov</a>
4	Kimberly Meline	FBI	4	<a href="mailto:Kimberly.meline@ic.fbi.gov">Kimberly.meline@ic.fbi.gov</a>
5	David Witzke	Foray Technologies	3	<a href="mailto:dlwitzke@foray.com">dlwitzke@foray.com</a>
6	Christopher Iber	FBI	4	<a href="mailto:Christopher.iber@ic.fbi.gov">Christopher.iber@ic.fbi.gov</a>
7	Robert Sanders	Wisconsin State Crime Lab (RET.)	3	<a href="mailto:sandersrc@doj.state.wi.us">sandersrc@doj.state.wi.us</a>
8	Wendy Dinova-Wimmer	2visualize, Inc.	4	<a href="mailto:wadw@visualizeinc.com">wadw@visualizeinc.com</a>
9	Kenneth James Hoerricks	Los Angeles Police Dept (RET.)	3	<a href="mailto:n2288@lapd.lacity.org">n2288@lapd.lacity.org</a>
10	Robert Young	City of Mesa, AZ	3	<a href="mailto:Robert.young@mesaz.gov">Robert.young@mesaz.gov</a>
11	Craig Thrane	CT Image Analysis	3	<a href="mailto:mjobigband@aol.com">mjobigband@aol.com</a>
12	Det. SGT James Young	Audio Video Analysis Unit Michigan State Police	3	<a href="mailto:youngj16@michigan.gov">youngj16@michigan.gov</a>
13	Keith Mancini	Winchester County Forensic Lab	2	<a href="mailto:kam8@westchestergov.com">kam8@westchestergov.com</a>
14	Rand Swartz	District IV Medical Examiner	2	<a href="mailto:Rswartz@coj.met">Rswartz@coj.met</a>
15	Amanda Noxon	Digital Image Analyst Michigan State Police	2	<a href="mailto:Noxona@michigan.gov">Noxona@michigan.gov</a>



# Subcommittee Members



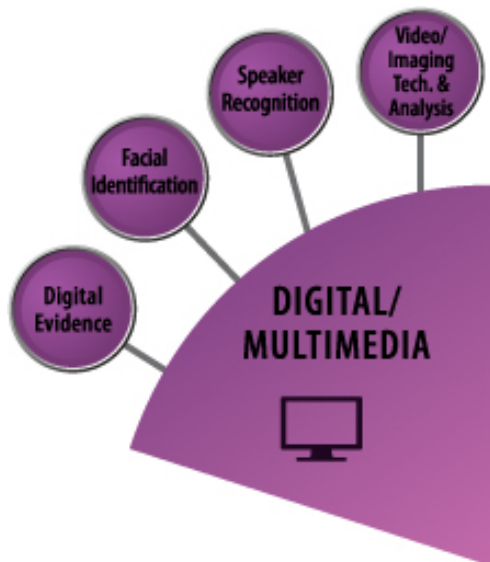
#	Name	Organization	Term	Email
16	Catalin Grigoras	University of Colorado Denver	4	<a href="mailto:Catalin.Grigoras@ucdenver.edu">Catalin.Grigoras@ucdenver.edu</a>
17	Margaret Pinson	ITS Institute for Telecommunications Sciences	4	<a href="mailto:mpinson@ntia.doc.gov">mpinson@ntia.doc.gov</a>
	<b>Affiliates/Guest</b>			
	Ruth Phillips	Metropolitan Police Service, UK		<a href="mailto:Ruth.C.Phillips@met.pnn.police.uk">Ruth.C.Phillips@met.pnn.police.uk</a>
	Dorothy Stout	Resolution Video, Inc.		<a href="mailto:Dorothy@resvid.com">Dorothy@resvid.com</a>



# OSAC VITAL Members and Guest



# Discipline Description



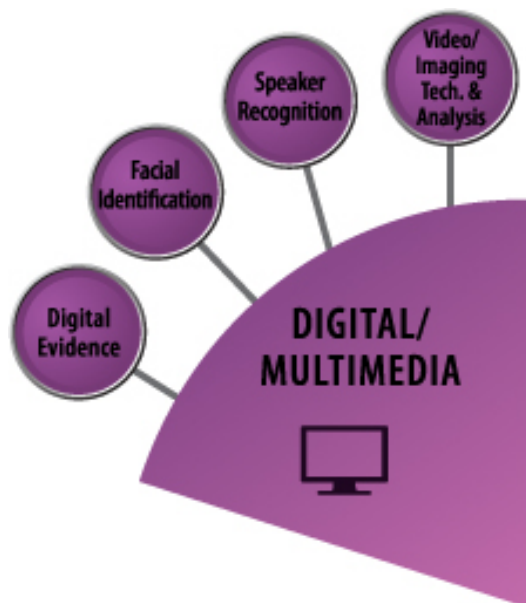
## The OSAC Subcommittee on **Video/Imaging Technology and Analysis (VITAL) (1/2)**

focuses on standards and guidelines related to the application of methods and technologies to

analyze information related to forensic imagery from a variety of systems.

This encompasses aspects of **capture, storage, processing, archiving, quality assurance and training.**

# Discipline Description

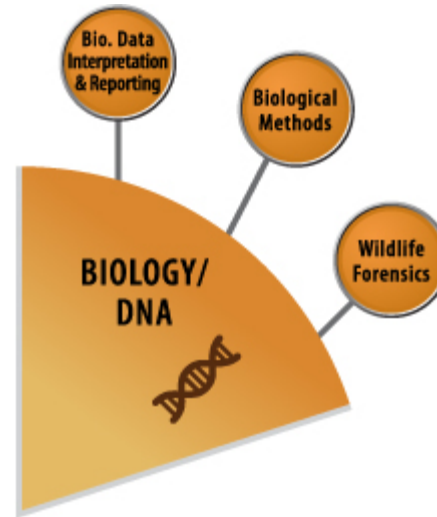
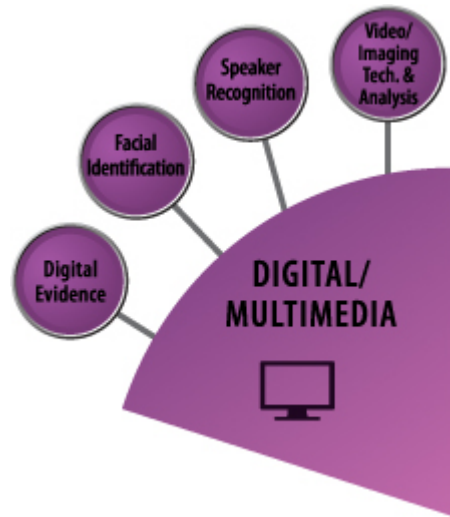


- The OSAC Subcommittee on **Video/Imaging Technology and Analysis (VITAL) (2/2)**

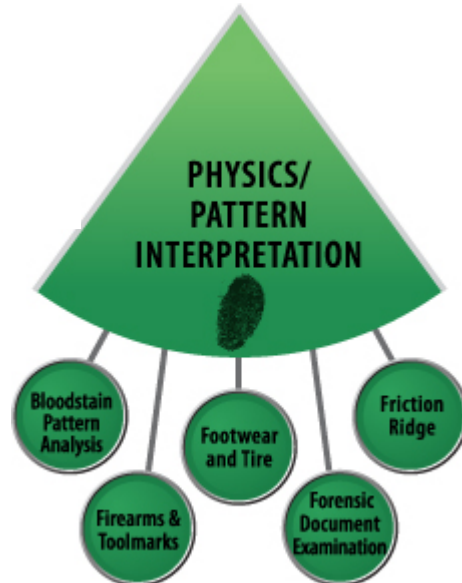
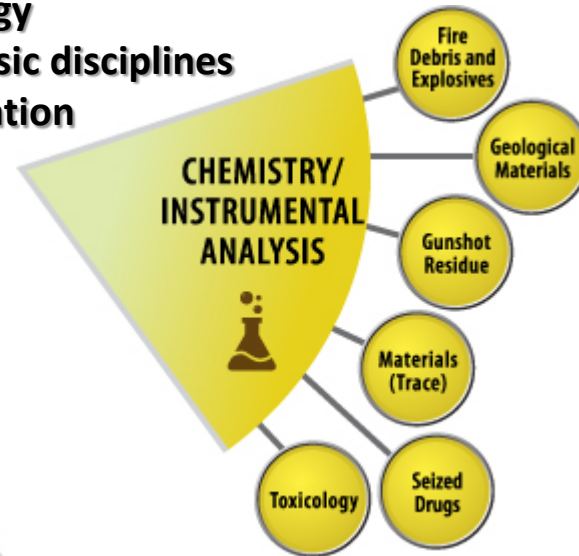
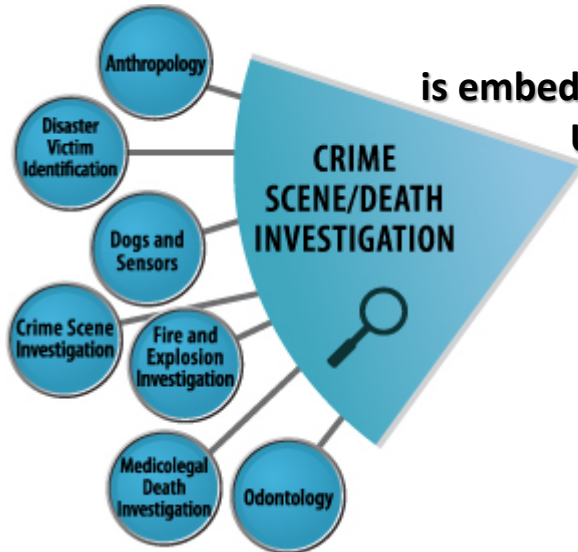
Major areas of interest include:

- **Photography** - forensic photographic acquisition and documentation
- **Image Analysis** – examination and evaluation pertaining to an image and/or image-related data for rendering an opinion
- **Video Analysis** - the acquisition, examination and evaluation pertaining to a video and/or video-related data for rendering an opinion.





**Imaging Technology  
is embedded across all forensic disciplines  
Used for Documentation  
and Analysis**







# VITAL Summary of Standards/Guidelines Priority Actions

Priority	Working Title of Document
Imaging Task Group #1	Guidelines for the Forensic Use of Photogrammetry
Imaging Task Group #2	Standards for Image Authentication
Video Task Group #1	Guidelines for Data Retrieval from Digital Video Recorders (DVR)
Video Task Group #2	Guidelines of Video Analysis
Photography Task Group #1	Latent Print Evidence Photography
VITAL Subcommittee #1	Training Guidelines for Video Analysis, Image Analysis and Photography



# Standards/Guidelines Development Priority 1 Document

Document Title: **Guidelines for the Forensic Use of  
Photogrammetry**



<http://www.forensicvideoservices.co.uk/>



# Standards/Guidelines Development Priority 1 Document

Document Title: **Guidelines for the Forensic Use of  
Photogrammetry**

**Scope:** Photogrammetry involves the process of **obtaining dimensional information as regards objects and people depicted in imagery.**

For forensic purposes, photogrammetry provides information including, but not limited to, the **heights of individuals, velocity of vehicles, and/or lengths of objects.**

**Objective/rationale:** Document provides personnel with guidelines regarding appropriate practices when performing photogrammetric examinations for forensic purposes.

**Task Group Name:** Image Analysis

**Task Group Chair Name:** Chris Iber

**Task Group Chair Contact Information:**

[Christopher.iber@ic.fbi.gov](mailto:Christopher.iber@ic.fbi.gov)

**Date of Last Task Group Meeting Update:** 24JAN17



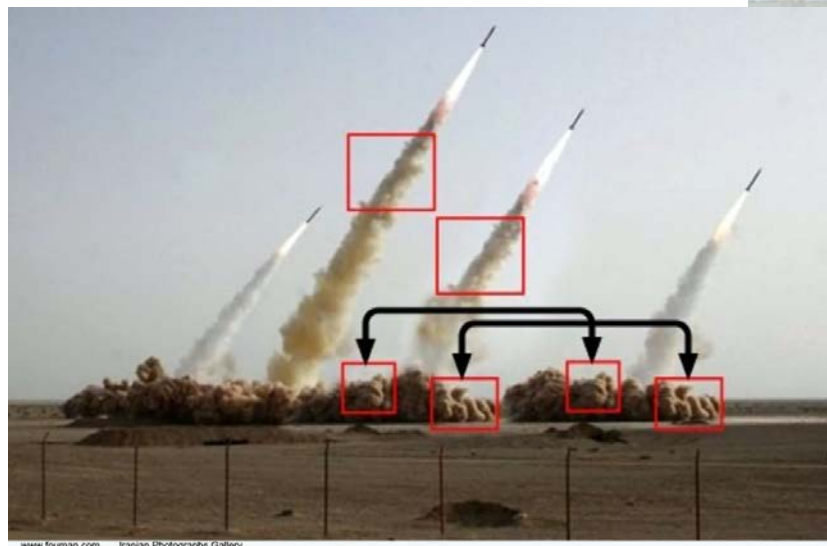
# Standards/Guidelines Development Priority 1 Document

## Key Components of Standard:

- Provide personnel with recommendations regarding appropriate practices when performing photogrammetric examinations as a part of forensic analysis.
- Provides basic information, including the evidentiary value of photogrammetric examinations, common questions asked of forensic photogrammetry, and ways to report results including the reporting of estimation of uncertainty and mitigation of same.
- Multiple methodologies for photogrammetric examinations, and thus, does not particularly espouse any one methodology.

# Standards/Guidelines Development Priority 2 Document

Document Title: **Standards for Image Authentication**





# Standards/Guidelines Development Priority 2 Document

Document Title: **Standards for Image Authentication**

**Scope:** Image Authentication is a subtask of Image Analysis. This document addresses issues specific to Image Authentication.

Questions involved in authentication include **issues of image manipulation, image creation, and consistency with prior knowledge about the circumstances depicted.**

**Objective/rationale:** This document will provide personnel with guidance regarding practices appropriate when performing image authentication as part of image analysis

**Issues/Concerns/Safety:** Consideration will include vicarious trauma from evaluation of images that depict disturbing subject matter.

**Task Group Name:** Imaging Analysis

**Task Group Chair Name:** Chris Iber

**Task Group Chair Contact Information:**

[Christopher.iber@ic.fbi.gov](mailto:Christopher.iber@ic.fbi.gov)

**Date of Last Task Group Meeting:** 13JAN2017



# Standards/Guidelines Development Priority 2 Document

## Key Components of Standard:

- Provenance of the image
- Metadata Analysis
- Photo Response Non-Uniformity (PRNU)
- Detection of Manipulation
- Detection of Image Creation
- Detection of Staging
- Continuity Issues
- Image Processing



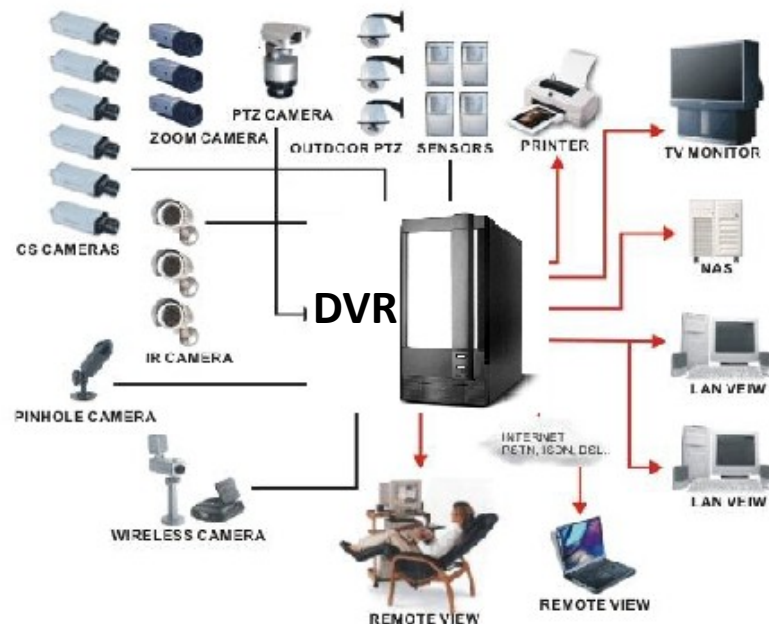


# Standards/Guidelines Development Priority 3 Document

Document Title: **Guidelines for Data Retrieval from Digital Video Recorders (DVR)**



[www.solutionhousepk.com](http://www.solutionhousepk.com)



[www.lenvica.com](http://www.lenvica.com)





# Standards/Guidelines Development Priority 3 Document

Document Title: **Guidelines for Data Retrieval from Digital Video Recorders (DVR)**

**Scope:** This document is intended to provide procedures for the **collection of data from digital video recorders (DVRs) that ensure playback while maintaining best evidence.**

**Objective/rationale:** This document will provide the **best methods for the retrieval** of video/audio data evidence and any associated metadata.

These best practices, guidelines and recommendations are intended to provide responding law enforcement personnel guidance in securing and collecting data from DCCTV systems.

This will ensure that best methods are utilized to retrieve the recorded data and maintain its integrity.

**Task Group Name:** Video Analysis

**Task Group Chair Name:** Julie Carnes

**Task Group Chair Contact Information:**

[Julie.carnes@target.com](mailto:Julie.carnes@target.com)

**Date of Last Task Group Meeting:** 13JAN2017



# Standards/Guidelines Development Priority 3 Document

## Key Components of Standard:

- Recognizing DCCTV Evidence and its Nature
- Types of Digital Video Recording Systems
- DVR Recordings
- Steps to Take Upon Scene Arrival
- Assessing the Recording System for Output



# Standards/Guidelines Development Priority 4 Document

Document Title: **Guidelines for Video Analysis**



[www.businessinsider.com](http://www.businessinsider.com)



# Standards/Guidelines Development Priority 4 Document

Document Title: **Guidelines for Video Analysis**

**Scope:** This document is intended to provide procedures for the **tasks performed during the examination of video evidence.**

**Objective/rationale:** This document will provide the best methods for the **scientific examination, comparison or evaluation of video.**

These best practices, guidelines and recommendations are intended to provide analyst with procedures to work with video evidence.

This will ensure that best methods are utilized to retrieve the recorded data and maintain its integrity.

**Task Group Name:** Video Analysis

**Task Group Chair Name:** Julie Carnes

**Task Group Chair Contact Information:**

[Julie.carnes@target.com](mailto:Julie.carnes@target.com)

**Date of Last Task Group Meeting:** 24JAN2017



# Standards/Guidelines Development Priority 4 Document

## Key Components of Standard:

- Safe guarding video - Working copies
- Identifying the area of interest in the video
- Processing/Clarification techniques
- Comparison/Content Analysis
- Human Factors/Bias
- Output/Reporting

# Standards/Guidelines Development Priority 5 Document

Document Title: **Latent Print Evidence Photography**







# Standards/Guidelines Development Priority 5 Document

Document Title: **Latent Print Evidence Photography**

**Scope:** The scope of this document is to provide recommendations on the best practices for properly trained and qualified personal to capture images of latent print evidence **using a digital single lens reflex camera or a flatbed scanner** that are suitable for comparison purposes.

**Objective/rationale:** The purpose of this document is to describe a procedure to ensure that a digital imaging system (camera/scanner) can capture a latent print image at an **achievable resolution that enables recording of level 3 details.**

**Issues/Concerns:** These recommendations take into consideration the minimum resolution requirements for utilizing the photographs for comparison purposes and the current state of the development of digital imaging.

**Task Group Name:** Photography

**Task Group Chair Name:** Robert Sanders

**Task Group Chair Contact Information:**

[sandersrc@doj.state.wi.us](mailto:sandersrc@doj.state.wi.us)

**Date of Last Task Group Meeting Update:** 24JAN17



# Standards/Guidelines Development Priority 5 Document

## Key Components of Standard:

- Recommended Photographic Equipment
- Photographic Procedures
- Latent Print Photography Protocol
- Camera Resolution Calibration
- Lens Considerations
- Flatbed Scanners



# Standards/Guidelines Development Priority 6 Document

Document Title: **Training Guidelines for Video Analysis,  
Image Analysis and Photography**





# Standards/Guidelines Development Priority 6 Document

Document Title: **Training Guidelines for Video Analysis, Image Analysis and Photography**

**Scope:** This document recommends topics and guidelines for training within the disciplines of video analysis, image analysis and photography.

**Objective/rationale:** This document will provide guidelines and recommendations to assist organizations in **designing a training program** for forensic video analysts, image analysts, and photographers **to ensure competency in the completion of forensic tasks and analyses.**

**Issues/Concerns:** Training topics introduced in this document may not fit the needs of individual organizations when job specific duties are limited to a subset of those listed. Each organization should determine the minimum training guidelines for examinations performed.

**Task Group Name:** VITAL Subcommittee Task Groups

**Task Group Chair Name:** Carl Kriigel

**Task Group Chair Contact Information:**

Carl.Kriigel@gmail.com

**Date of Last Task Group Meeting Update:** 24JAN17





# Standards/Guidelines Development Priority 6 Document

## Key Components of Standard:

- Categories of Training
- Job Categories
- Training Sources
- Training Evaluation and Documentation



# Research Gaps Identified by VITAL



- **Vehicle Comparison Study**

- To date, research in photographic comparison has focused on human identification, particularly faces.
- Image analysts are often requested to compare vehicles to determine whether a vehicle depicted in surveillance video or captured images is the same as a vehicle linked to a suspect, or alternatively, determine the Make, Model and Year of the questioned vehicle.
- The study would determine the accuracy of examiners in making these types of comparisons/determinations, particularly at varying degrees of “Quality” within submitted imagery.



# Research Gaps Identified

- **Software Validation Repository**
  - Accredited digital evidence laboratories (DELs) are required to validate software used for any purpose, including enhancement, processing, and analysis.
  - DELs spend significant amounts of time to test and validate software used in analysis, however, to date no effort has been made to standardize the process used for testing and validation.
  - Few DELs share lists of previously validated software or information related to their testing procedures.



# Research Gaps Identified

- **Determination of the size of the smallest detail required for tire and footwear comparisons**
  - Only anecdotal evidence exists for the minimum resolution required when recording shoe and/or tire impressions and marks.
  - Without knowing the size of the smallest detail required for comparison, there is no way to verify if the current, arbitrary standards for recording such impressions are valid or if those standards can be used in OSAC documents.
  - Research exists for latent prints, but not for tires/shoes.



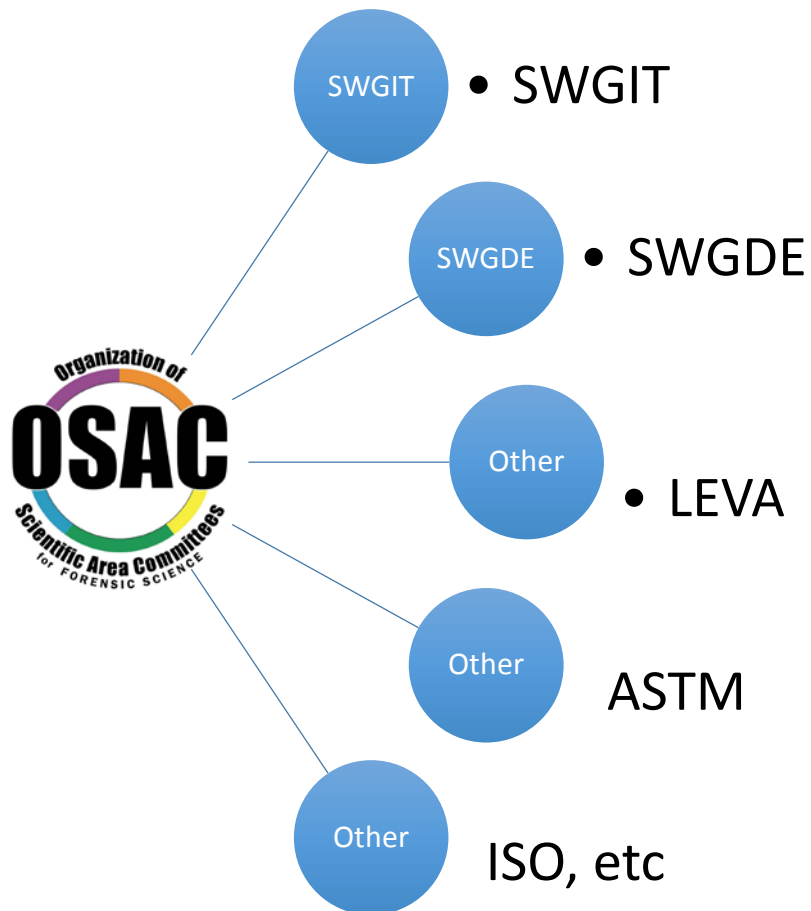
# Additional Items of Interest

- Future Work
  - Body Worn Cameras
  - Photographic Comparisons document range of conclusions is being reviewed at DM and Pattern SAC level
- VITAL Collaboration Activities
  - Scientific Working Group on Digital Evidence (SWGDE)
  - American Academy of Forensic Sciences (AAFS)
  - International Association for Identification (IAI)
  - Law Enforcement Video Association (LEVA)
  - International Association of Forensic & Security Metrology (IAFSM)



# OSAC Goal

## one stop shop for best practices in forensic sciences





# How Can You Participate?

- The VITAL subcommittee invites participation on task group work
- Complete the OSAC membership application form found at: <https://www.nist.gov/forensics/osac-application.cfm>
- Please be sure to specify your interest in the **Video & Imaging Technology and Analysis Subcommittee** (VITAL)
- Subcommittee can reach out to activate applicant names to become affiliates on task group work



# What Does This Mean to You?

- Be patient with the changes
- Be aware of the changes - stay informed
- Ask questions
- Subscribe to NIST OSAC Newsletter
- Attend public meetings
- Contact me or other OSAC leaders you have heard from today
- Good Forensic Science is worth the effort



March 2016

NIST Statement on ASTM: E2329-14 | 30,000 Public Criminal Justice Agencies Receive Free Access to ASTM Committee E30 on Forensic Science's Standards | OSAC Vacancies | Upcoming Public Comment Periods for Standards/Guidelines Under Consideration for the OSAC Registry | Research & Development Needs | Message from the OSAC Affairs Director: Report on 2016 Public Status Reports & Open Discussions



# Questions

Carl Kriigel

Chairman

OSAC Subcommittee on Video/Imaging Technology and Analysis (VITAL)

[Carl.R.Kriigel.civ@mail.mil](mailto:Carl.R.Kriigel.civ@mail.mil)

Carl.Kriigel@gmail.com



