



Priority Action Report

Facial Identification Subcommittee

Digital Multimedia SAC

Lora S Sims

February 13, 2017





Subcommittee Leadership

Position	Name	Organization	Term	Email
Chair	Lora S Sims	Ideal Innovations, Inc	4 yr	Lora.sims@idealinnovations.com
Vice Chair	Britt Toalson	Seattle Police Dept	3 yr	Britt.toalson@seattle.gov
Executive Secretary	Jane Wankmiller	MI State Police	4 yr	wankmillerj@Michigan.gov



Subcommittee Members



#	Name	Organization	Term	Email
1	Walt Bruehs	FBI	3 yr	Walter.bruehs@ic.fbi.gov
2	Terry Cowman	Iowa Department of Public Safety	1 yr	cowman@dps.state.ia.us
3	Mark Dolfi	LA Co Sheriff Dept	4 yr	madolfi@lasd.org
4	Patrick Flynn	U of Notre Dame	4 yr	flynn@nd.edu
5	Neal Gieselman	AWARE, Inc	2 yr	Neal.gieselman@gmail.com
6	Matthew Graves	US Army Criminal Investigation Lab	3 yr	mgraves9@gmail.com
7	Ping Ma	University of Georgia	1 yr	pingma@uga.edu
8	Trish Murphy	Dept of Defense	4 yr	patramu@nctc.gov
9	P. Jonathan Phillips	NIST	3 yr	jonathon@nist.gov
10	Todd Putorti	New York State Department of Motor Vehicles	3 yr	todd.putorti@dmv.ny.gov
11	Kirt Simmons	AR Children's Hospital	4 yr	simmonske@archildren.org
12	Debra Tennant	Federal Bureau of Investigation	1 yr	debra.tennant@ic.fbi.gov
13	Antonio Trindade	US Border Patrol	3 yr	Antonio.trindade@dhs.gov
14	Steve Wilkins	Pierce Co Sheriff's Dept	2 yr	swilkin@co.pierce.wa.us



Affiliates (1 of 2)



#	Name	Organization	Email
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4	Edward German	Macon County Sheriff's Office	ed@onin.com
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12	Reuben Moreton	Metropolitan Police Service	reuben.moreton2@met.police.uk



Affiliates (2 of 2)



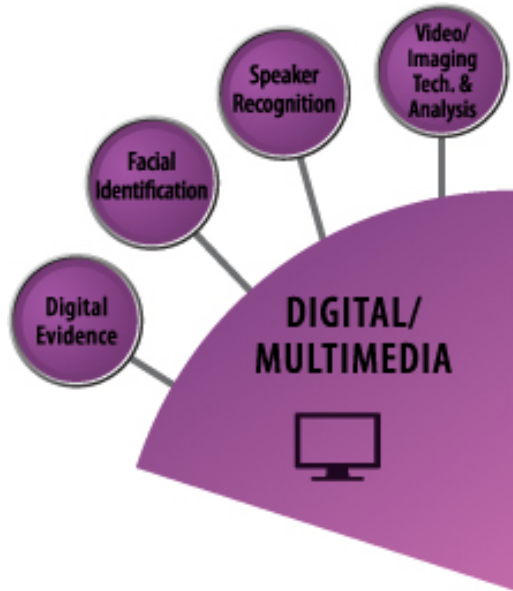
#	Name	Organization	Email
13	Johanna Morley	Metropolitan Police Service	johanna.morley@met.police.uk
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22	Caroline Wilkinson	Liverpool School of Art and Design	c.m.wilkinson@ljamu.ac.uk
23	Summer Yonley	Ideal Innovations, Inc	summer.yonley@idealinnovations.com



July 26-29, 2016 Phoenix, AZ



Discipline Description



The Mission of the OSAC Facial Identification Subcommittee is to develop consensus standards and guidelines for the image-based comparisons of human facial features and to provide recommendations for the research and development necessary to advance the state of the science.



Summary of Standards/Guidelines Priority Actions

Priority	Working Title of Document
1	Facial Image Comparison Feature List for Morphological Analysis
2	Capture And Equipment Assessment For Face Recognition Systems
3	Guidelines for Postmortem Facial Image Capture
4	Guidelines for Training Program in Facial Comparison
5	Guidelines for Facial Comparison Methods & Facial Comparison Overview





Standards/Guidelines Development Priority 1 Document

Document Title: **Facial Image Comparison Feature List for Morphological Analysis**

Scope: To provide a standardized list to be considered when conducting morphological analysis

Objective/rationale: Aids in providing a systematic way of comparing features of the face/head

Issues/Concerns: Does not cover the entire comparison process

Task Group Name: One-to-one

Task Group Chair Name: Matthew Graves

Task Group Chair Contact Information:

mgraves9@gmail.com

Date of Last Task Group Meeting: July 26-29, 2016



Standards/Guidelines Development Priority 1 Document

Key Components of Standard:

- List of Facial Components (gross features considered in virtually all comparisons, e.g. Nose)
- List of Component Characteristics (details about the Facial Components, e.g. Root, Bridge, Tip, Nostrils, Columella, Alae)

Priority 1: Facial Image Comparison Feature List for Morphological Analysis



Task Group/Subcommittee Action Plan

Planned Actions	OSAC Process Stage (e.g., SDO 100)	Assignee	Estimated Completion Date
Seek approval from DM SAC to send to SDO (ASTM)	SDO 400	Matthew Graves	Complete
Send to SDO (ASTM)	SDO 500	Matthew Graves	March 1, 2017





Standards/Guidelines Development Priority 2 Document

Document Title: **Capture And Equipment Assessment For Face Recognition Systems**

Scope: Provide best practices for collection to ensure the images captured are suitable for Face Recognition (FR) system use

Objective/rationale: Provides an overview of the considerations a practitioner should take when making decisions for the capture of facial images.

Issues/Concerns: none

Task Group Name: Systems & Capture

Task Group Chair Name: Neal Gieselman

Task Group Chair Contact Information:

Neal.gieselman@gmail.com

Date of Last Task Group Meeting: July 26-29, 2016



Standards/Guidelines Development Priority 2 Document

Key Components of Standard:

- Image capture process as it relates to the following:
 - Controlled acquisition (when all imaging parameters can be adjusted as needed to optimize the resulting image, e.g. passport offices)
 - Semi-controlled acquisition (when some aspects of the environment or subject can be controlled, but not all aspects of both)
 - Ad-hoc acquisition (when neither the environment nor the subject can be controlled, e.g. surveillance, cell phones, and third party imagery).



Priority 2: Capture And Equipment Assessment For Face Recognition Systems

Task Group/Subcommittee Action Plan

Planned Actions	OSAC Process Stage (e.g., SDO 100)	Assignee	Estimated Completion Date
Seek approval from DM SAC to send to SDO (ASTM)	SDO 400	Neal Gieselman	Complete
Send to SDO (ASTM)	SDO 500	Neal Gieselman	Completed
Processing through ASTM	SDO 700	Neal Gieselman	In process





Standards/Guidelines Development Priority 3 Document

Document Title: **Guidelines for Post Mortem Facial Image Capture**

Scope: Provide guidelines for capturing postmortem facial images of unidentified human remains in a controlled (morgue) and semi-controlled (field) settings to facilitate Facial Recognition (FR) searches or facial comparison that may contribute to determining the identity of the unidentified person.

Objective/rationale: Provides an overview of the optimal processes and techniques for the capture of postmortem facial images of human remains in order to maximize their utility in FR searches and facial image comparisons.

Issues/Concerns: May have some time and financial implications on morgues.

Task Group Name: Systems & Capture

Task Group Chair Name: Neal Gieselman

Task Group Chair Contact Information:

Neal.gieselman@gmail.com

Date of Last Task Group Meeting: July 26-29, 2016



Standards/Guidelines Development Priority 3 Document

Key Components of Standard:

- Image capture environment (lighting, camera position, and background)
- Preparation of the subject body (head position, head coverings and accessories, shoulder position)
- Preparation of the subject face (obscuring matter, hair, wounds or fragments, mouth, eyes, eyeglasses, prosthetics)
- Use of video
- Documenting scars, marks, tattoos (SMT).



Priority 3: Guidelines for Post Mortem Facial Image Capture

Task Group/Subcommittee Action Plan

Planned Actions	OSAC Process Stage (e.g., SDO 100)	Assignee	Estimated Completion Date
Seek approval from DM SAC to send to SDO (ASTM)	SDO 400	Neal Gieselman	Complete
Send to SDO (ASTM)	SDO 500	Neal Gieselman	Completed
Processing through ASTM	SDO 700	Neal Gieselman	In process



Standards/Guidelines Development Priority 4 Document

Document Title: **Guidelines for Training Program in Facial Comparison**

Scope: Provides recommendations for a training program to achieve competency in facial comparison tasks. Objective/rationale: Providing guidelines for training programs specific subject matter, relevant to facial reviewers and facial examiners required to conduct comparisons from the basic to the advanced level

Issues/Concerns: Does not address the specific content of agencies training program but instead provides an overview of recommended topics and levels of training.

Task Group Name: Training

Task Group Chair Name: Steve Wilkins

Task Group Chair Contact Information:

swilkin@co.pierce.wa.us

Date of Last Task Group Meeting: July 26-29, 2016



Standards/Guidelines Development Priority 4 Document

Key Components of Standard:

- Overview of different roles and what training should be achieved at each role (e.g. manager should have an awareness of all things, facial examiner should be proficient in the majority of subjects)
- Categories of Training (e.g. overview, skills & techniques, knowledge of processes, court preparation & presentation)



Priority 3: Guidelines for Training Program in Facial Comparison

Task Group/Subcommittee Action Plan

Planned Actions	OSAC Process Stage (e.g., SDO 100)	Assignee	Estimated Completion Date
Combine “Recommendations for a Training Program in Facial Comparison & Guidelines” and “Recommendations for Facial Comparison Training to Competency”	SDO 200	Steve Wilkins	completed
Subcommittee, DM SAC, & RC review		Steve Wilkins	April 1, 2017
Submit packet	SDO 300	Steve Wilkins	May 1, 2017





Standards/Guidelines Development Priority 5 Document

Document Title: Guidelines for Facial Comparison Methods & Facial Comparison Overview

Scope: Describes current methods for facial comparison and to provide guidelines for their appropriate use. Provides Overview of how facial comparisons are used in the security, intelligence, law enforcement, and forensic communities.

Objective/rationale: Selection of the appropriate method to use for a facial comparison depends on the image quality, the training and experience of the practitioner, and the purpose of the examination. The methods used to compare faces will often depend on the purpose of the comparison.

Issues/Concerns: The best method to utilize based on operational conditions must be understood and if the time or effort to do a full examination cannot be conducted, there are associated risks (i.e., greater chance of error).

Task Group Name: One-to-one

Task Group Chair Name: Matthew Graves

Task Group Chair Contact Information:

mgraves9@gmail.com

Date of Last Task Group Meeting: July 26-29, 2016



Standards/Guidelines Development Priority 5 Document

Key Components of Standard:

- Pros and cons of each type of facial comparison methodology (holistic comparison, morphological analysis, photo-anthropometry, and superimposition)
- Recommended practice to address different type of comparisons (facial review versus facial examination).
- Overview of applications (intelligence gathering for identity management, screening and access control, investigative and operational tool, and forensic identification)
- General procedures for assessment, examination, evaluation, conclusions, and quality management
- Current methods (holistic comparison, morphological analysis, photo-anthropometry, and superimposition) for facial image comparison.



Priority 5: Guidelines for Facial Comparison Methods & Facial Comparison Overview

Task Group/Subcommittee Action Plan

Planned Actions	OSAC Process Stage (e.g., SDO 100)	Assignee	Estimated Completion Date
Combine with Facial Comparison Overview	SDO 200	Matthew Graves	March 31, 2017
Subcommittee review	SDO 200	Matthew Graves	April 2017
RC & DM SAC review	SDO 300	Matthew Graves	July 2017
Complete QIC Form 6: SDO Process Request form	SDO 300	Matthew Graves	Aug 2017



Summary of Standards/Guidelines Priority Actions

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1	Facial Image Comparison Feature List for Morphological Analysis
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Standards/Guidelines Reviewed For Technical Merit



Title	Developing Organization	Status*	OSAC Process Stage (e.g., RA 100)
Physical Stability of Facial Features of Adults	FISWG	Public comment	At SWG
Image Processing to Improve Facial Recognition Searches	FISWG	Public comment	At SWG
Factors To Consider in Facial Image Assessment	FISWG	In draft	At SWG
Metadata Usage	FISWG	Reformatting	SDO 200
Facial Recognition System Methods and Techniques	FISWG	Reformatting	SDO 200
Facial Recognition System Bulk Data Transfer	FISWG	Reformatting	SDO 200



Research Gaps Identified

- Validation of Physical Stability
 - Literature review of relevant studies [scientific, medical, academic, and professional] regarding the physical stability of the facial features of adults detailed within the current Physical Stability of Facial Features of Adults document.
 - In addition to the literature review, the conclusions reached based on relevant research should be presented to the subcommittee in layman's terms for incorporation into the document.
- Post Capture Imaging Processing
 - Best practices and scientifically validated techniques to improve facial image quality for biometrics and forensics
- Human Factors in Facial Image Comparison
 - Research to determine effective strategies for training in facial comparison and to develop testing material.
 - Research to validate the methods used by trained examiners to compare faces and establish effective case management and bias mitigation strategies.
- Assessment of the accuracy of getting Facial Images from DNA
 - Research to perform an objective evaluation of the performance of claimed techniques by vendor(s) who are selling technology that purports to create an accurate adolescent facial image from DNA.

Additional Items of Interest

- Future standards/guidelines by Facial Identification Subcommittee
 - Post Capture Factors Affecting Facial Image
 - Factors Affecting Visualization of Facial Images
 - Reporting and Presenting Facial Identification Results
- Current multi-subcommittee standards/guidelines
 - Virtual Subcommittee #1: ISO 17020/17025
 - Virtual Subcommittee #2: ANSI/NIST-ITL 1-2011
 - Virtual Subcommittee #3: ACE Process Map
 - Virtual Subcommittee #4: Training, Continuing Education & Professional Development
 - OSAC Wide Conclusions Task Group
- Future multi-subcommittee standards/guidelines
 - Presenting Evidence in Court (e.g. how to use visual aids)
 - Reporting findings
- Leverage those already on the affiliate list and encourage others within the community to join OSAC to assist with document development, research, etc.
 - 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 Facial Identification Subcommittee

