Priority Action Report

Facial Identification

Digital Multimedia SAC

Lora S. Sims

22 Feb 2016

Subcommittee Leadership

Position	Name	Organization	Term	Email
Chair	Lora Sims	Ideal Innovations, Inc.	4 yr	Lora.sims@idealinnovations.com
Vice Chair	Britt Toalson	Seattle Police Dept	2 yr	Britt.toalson@seattle.gov
Executive Secretary	Cary Rodrigues	NCTC	2 yr	Cary_rodrigues@yahoo.com

Subcommittee Members

#	Name	Organization	Term	Email
1	Walt Bruehs	FBI	2 yr	Walter.bruehs@ic.fbi.gov
2	Mark Dolfi	LA Co Sheriff Dept	4 yr	madolfi@lasd.org
3	Patrick Flynn	U of Notre Dame	4 yr	flynn@nd.edu
4	Neal Gieselman	AWARE, Inc	2 yr	Neal.gieselman@gmail.com
5	Matthew Graves	US Army Criminal Investigation Lab	3 yr	mgraves9@gmail.com
6	Scott McCallum	US Government	3 yr	sxottsrq@gmail.com
7	Trish Murphy	Dept of Defense	4 yr	patramu@nctc.gov
8	P. Jonathan Phillips	NIST	3 yr	jonathon@nist.gov
9	Kirt Simmons	AR Children's Hospital	4 yr	simmonske@archildresn.org
10	Antonio Trindade	US Border Patrol	3 yr	Antonio.trindade@dhs.gov
11	Jane Wankmiller	MI State Police	4 yr	wankmillerj@michigan.gov
12	Steve Wilkins	Pierce Co Sheriff's Dept	2 yr	swilkin@co.pierce.wa.us
13	Position open		3 yr	
14	Position open		3 yr	

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International Invited Guests

Country	Organization
Australia	Australian Federal Police
Australia	Department of Foreign Affairs and Trade
England	Liverpool John Moores University
England	Metropolitan Police Service
England	UK Home Office
France	Interpol
Israel	Israel Police Div of ID and Forensic Science
Netherlands	Netherlands Forensic Institute

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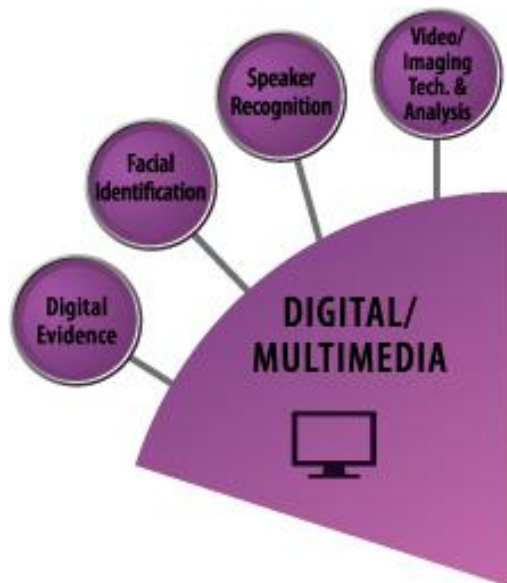
The Mission of the OSAC Facial Identification Subcommittee is to develop consensus standards and guidelines for the image-based comparisons of human facial features and to provide recommendations for the research and development necessary to advance the state of the science.

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 Facial Comparison Methods
5	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: Jan26-29, 2016

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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: Document Title
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 (ASB)	SDO 400	Matthew Graves	01 Mar 2016
Send to SDO (ASB)	SDO 500	Matthew Graves	TBD

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: Jan 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: Document Title
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 (ASB)	SDO 400	Neal Gieselman	01 Mar 2016
Send to SDO (ASB)	SDO 500	Neal Gieselman	TBD

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: Jan 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).

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Priority 3: Document Title
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 (ASB)	SDO 400	Neal Gieselman	01 Mar 2016
Send to SDO (ASB)	SDO 500	Neal Gieselman	TBD

Standards/Guidelines Development Priority 4 Document

Document Title: **Facial Comparison Overview**

Scope: Provides Overview of how facial comparisons are used in the security, intelligence, law enforcement, and forensic communities.

Objective/rationale: The methods used to compare faces will often depend on the purpose of the comparison.

Issues/Concerns: none

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: Jan26-29, 2016

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Standards/Guidelines Development Priority 4 Document

Key Components of Standard:

- 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 4: Document Title
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 (ASB)	SDO 400	Matthew Graves	01 Mar 2016
Send to SDO (ASB)	SDO 500	Matthew Graves	TBD

Standards/Guidelines Development Priority 5 Document

Document Title: **Guidelines for Facial Comparison Methods**

Scope: Describes current methods for facial comparison and to provide guidelines for their appropriate use.

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

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: Jan26-29, 2016

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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).

Priority 5: Document Title
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 (ASB)	SDO 400	Matthew Graves	01 Mar 2016
Send to SDO (ASB)	SDO 500	Matthew Graves	TBD

Summary of Standards/Guidelines Priority Actions

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Standards/Guidelines Reviewed For Technical Merit

Title	Developing Organization	Status*	OSAC Process Stage (e.g., RA 100)
Recommendations for a Training Program in Facial Comparison	FISWG	Reformatting	SDO 200
Guidelines and Recommendations for Facial Comparison Training to Competency	FISWG	Reformatting	SDO 200
Physical Stability of Facial Features of Adults	FISWG	In draft at SWG	
Facial Imaging Conditions	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

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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
  - Facial Image Enhancement Techniques
  - Reporting and Presenting Facial Identification Results
- Future multi-subcommittee standards/guidelines
  - Presenting Evidence in Court (e.g. how to use visual aids)
  - Reporting findings
  - Training
- 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