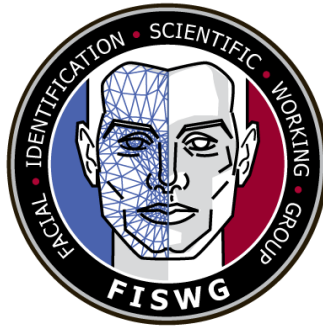




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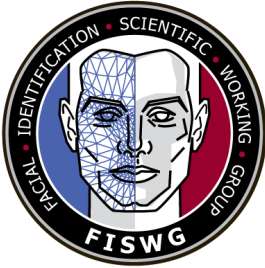
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Guideline for the Use of ACE-V in Facial Reviews following Facial Recognition System Results

1. Scope

1.1 The purpose of this document is to provide guidance for the use of Analysis, Comparison, Evaluation, and Verification (ACE-V) methodology for facial reviews following Facial Recognition System (FRS) results.

1.2 This document does not address applying ACE-V in a one-to-one comparison for facial examinations. For guidance on applying ACE-V in one-to-one comparisons for facial examinations, see (FISWG Guideline for the Use of ACE-V Methodology in One-to-One Examinations).

2. Referenced Documents

2.1 *ASTM Standards:*

E3149 Facial Image Comparison Feature List for Morphological Analysis

2.2 *FISWG Documents:*

FISWG Facial Comparison Overview and Methodology Guidelines

FISWG Role-Based Training In Facial Comparison

FISWG Glossary

FISWG Minimum Guidelines for Facial Image Comparison Documentation

FISWG Image Factors to Consider in Facial Image Comparison

FISWG Image Processing Techniques for Facial Image Comparison

FISWG Facial Image Comparison Best Practices for Markups & Annotations

FISWG Guideline for the Use of ACE-V Methodology in One-to-One Examinations

2.3 Other Standards:

OSAC Standard Framework for Developing Discipline Specific Methodology for ACE-V

3. Terminology

3.1 Definitions:

3.1.1 *Analysis, n*—(1) the first step of the ACE-V method (2) the assessment of an image to determine suitability for comparison, including the ability to discriminate significant features.

3.1.2 *Comparison, n*—(1) the second step of the ACE-V method (2) the examination of two or more samples to establish similarities and dissimilarities.

3.1.3 *Evaluation, v*—(1) the third step of the ACE-V method, where a practitioner assesses the value of the details observed during the analysis and comparison steps and reaches an opinion (2) ascertaining the value of dissimilarities and similarities between two or more samples.

3.1.4 *Examination, v*—a comparison of image(s)-to-image(s) often used in a forensic application.

3.1.5 *One-to-many comparison, v*— the process of comparing the facial features in one image to the facial features in two or more images by a trained practitioner.

3.1.5.1 Discussion: The ‘two or more images’ may come from a gallery or collection of images provided to the practitioner for comparison

3.1.6 *One-to-one comparison, n*— the direct comparison of facial features in one image to facial features in another image by a trained practitioner.

3.1.7 *Review, v*— a comparison of image-to-image often used in either investigative and operational leads or intelligence gathering applications.

3.1.8 *Verification, n*—(1) the final step of the ACE-V method; (2) the review or independent analysis of the assessment, comparison, and evaluation performed by another qualified practitioner.

3.2 Acronyms:

3.2.1 *ACE-V, v*—Analysis, Comparison, Evaluation, and Verification

4. Significance and Use

4.1 This document outlines recommendations for the application of ACE-V in facial reviews.

4.2 Facial review is a comparison of image-to-image results often from a search of a facial image in an FRS, used in either investigative and operational leads or intelligence gathering applications. A broad range of purposes and levels of rigor are involved in facial reviews that may require some level of documentation.

4.3 Within the confines of facial reviews, ACE-V provides a suite of tools that can be applied in full or in part to an agency's facial review process. Any implemented component should be standardized in its use and formal documentation for the inclusion or exclusion of any step(s) of ACE-V should be available.

4.4 Upon receiving a candidate list, the practitioner assesses the list to identify potential candidates which are subject to further review. The documentation of ACE-V during a facial review should follow FISWG Minimum Guidelines for Facial Image Comparison Documentation.

5. Applying ACE-V in Facial Review

5.1 ACE-V should be followed as outlined.

5.2 *Analysis*: The step prior to a review in which a practitioner assesses the questioned image(s) based on overall quality and usability factors to determine whether the image is suitable for search and comparison. Detailed documentation of facial features or characteristics is not required.

5.2.1 Analysis should include, but is not limited to, the following considerations.

5.2.1.1 Imaging factors (see FISWG Image Factors to Consider in Facial Image Comparison).

5.2.1.2 Image capture timeframe (known or estimated date and time).

5.2.1.3 Image alterations (e.g., filters, enhancements).

5.2.1.4 Metadata.

5.2.2 The determination of image suitability is based on the practitioner's assessment of whether an image has sufficient detail and is deemed to be suitable for use. If deemed suitable, the practitioner will move on to the comparison step.

5.3 *Comparison*: The step during which the practitioner performs a visual, side-by-side comparison of the questioned image and the candidate list. This process involves applying morphological analysis (see ASTM E3149 Facial Image Comparison Feature

List for Morphological Analysis) and considering the physical stability of facial features (see annex of ASTM E3149 Facial Image Comparison Feature List for Morphological Analysis). Through this comparison, the practitioner may narrow the list to the most probable candidate, if any.

5.3.1 Practitioners should note any similarities or dissimilarities, along with any associated considerations where necessary (see step 5.1.1). Dissimilarities that can be explained by subject variance (such as expression, pose, weight, or age changes) between images or imaging conditions should also be noted.

5.3.2 The practitioner may produce visual aids in which they annotate images to demonstrate the noteworthy facial features in the comparison (see FISWG Facial Image Comparison Best Practices for Markups & Annotations).

5.4 *Evaluation*: The step during which the practitioner evaluates the weight of the findings, similarities and dissimilarities of probable candidates, to form an opinion (e.g., a negative result or investigative/operational lead). This evaluation is based on the quality, quantity, specificity, reproducibility, expected variation, and persistence of the findings. Information gathered in the analysis phase should also be considered. In the context of one-to-many facial reviews, evaluation is often conducted for the purpose of determining whether information supports further investigative or operational action. This evaluative activity does not constitute a formal proposition-based assessment or forensic examination.

5.4.1 Expected variations that should be considered during the evaluation include, but are not limited to:

5.4.1.1 Stability of features (see annex of ASTM E3149 Facial Image Comparison Feature List for Morphological Analysis).

5.4.1.2 Imaging Factors (see FISWG Image Factors to Consider in Facial Image Comparison).

5.5 *Verification*: step in which the analysis, comparison, and evaluation steps should be completed by a second, independent practitioner.

5.5.1 Due to the nature of the cases or operational needs, verification by a second practitioner may, but does not always, take place. It is recommended that some form of verification should be conducted and if process deviates, it should be documented.

5.5.2 Where practicable, verification conducted without prior knowledge of the reviewing practitioner's opinions (i.e., blind verification) is recommended. Agencies may also consider procedures that further limit contextual bias during verification.

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