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Guide for Facial Comparison Training of Reviewers to Competency

1 1. Scope

2 1.1 This guide is intended to provide minimum criteria for training of personnel who
3 will conduct facial comparisons at the reviewer level.

4 2. Referenced Documents

5 2.1 ASTM Standards:¹

6 ASTM E2916-13 Standard Terminology for Digital and Multimedia Evidence
7 Examination

8 ASTM E3149-18 Standard Guide for Facial Image Comparison Feature List for
9 Morphological Analysis

10 2.2 FISWG Standards:²

11 FISWG Facial Image Comparison Feature List for Morphological Analysis

12 FISWG Glossary

13 FISWG Guide for Mentorship of Facial Comparison Trainees in Role-Based Facial
14 Comparison

15 FISWG Guide for Role-Based Training in Facial Comparison

16 FISWG Minimum Training Criteria When Using Facial Recognition Systems

17 FISWG Physical Stability of Facial Features of Adults

18 3. Terminology

¹ For referenced ASTM standards, visit www.nist.gov/osac/astm-launch-code, or the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For Annual Book of ASTM Standards volume information, refer to the standard's Document Summary page on the ASTM website.

² For referenced FISWG documents, visit www.fiswg.org.

19 3.1 *Definitions:*

20 3.1.1 *unfamiliar faces*—Faces of unknown or recently learned people. Unfamiliar
21 faces characterize almost all of facial comparisons decisions made in forensic contexts,
22 as the observer has no previous history with the person they are required to identify.

23 3.1.2 *familiar faces*—Faces of people known to an observer. This includes the faces
24 of family, friends, and colleagues, but also the faces of celebrities and people we
25 encounter regularly (e.g., barista at a café). Familiarity is largely developed over
26 multiple, separate encounters.

27 3.1.3 *face matching*—A type of facial comparison task requiring a perceptual
28 decision whether two simultaneously presented faces (photo, video, live) depict the
29 same person or different people.

30 3.1.4 *holistic process*—The innate human ability of comparing faces by looking at
31 the face as a whole without specifically considering the component parts in isolation.

32 **4. Significance and Use**

33 4.1 A Facial Reviewer performs a comparison of image(s)-to-image(s) generally
34 resulting from the adjudication of a candidate list generated by a facial recognition
35 system (FRS).The comparison results are often used in either investigative and
36 operational leads or intelligence gathering applications.

37 4.2 The task of facial review includes, but is not limited to, the use of anFRS to
38 review one-to-many galleries. This task may also include environments involving high
39 volume throughput or escalations from facial assessment.

40 4.3 A Facial Reviewer requires a basic level of training to acquire general knowledge
41 and comprehension of the technology and major elements of the facial comparison
42 discipline and use of available tools (e.g., FRS, editing software).

43 4.4 The intended audience of this document includes organizations and individuals
44 involved in facial comparison at the reviewer level.

45 **5. Summary of Practice**

46 5.1 This guide provides the minimum criteria for training of facial reviewers and
47 should be read in conjunction with the FISWG Document Minimum Training Criteria
48 When Using Facial Recognition Systems

49 5.2 Organizations should include competency testing or a mentoring program as a
50 component of training. Competency testing may help identify opportunities for
51 continuing education and training. Quality assurance programs should also be a

52 component of training as they are a reliable means of measuring the quality of each
53 trainee's ability to perform work.

54 5.3 Minimum training requirements for facial reviewers include proficiency in the
55 following:

56 5.3.1 Familiarity with the history of facial comparisons in forensic science to include
57 past methods and their shortcomings.

58 5.3.2 An understanding of common terminology used in the discipline and should be
59 able to explain the following (including differences and limitations):

60 5.3.2.1 Human face recognition (familiar/eyewitness)

61 5.3.2.2 Automated facial recognition

62 5.3.2.3 Holistic face processing

63 5.3.2.4 Unfamiliar face matching

64 5.3.3 An understanding of the basics of image science including, but not limited to:

65 5.3.3.1 Human vision (e.g., color, perception)

66 5.3.3.2 Photography (e.g., sensors, distortion, subject to camera angle, illumination)

67 5.3.3.3 Components of digital images (e.g., pixels, resolution, compression)

68 5.3.3.4 Detection of alterations within images (e.g., excessive compression,
69 manipulation)

70 5.3.3.5 Properties of video (e.g., limitations, formats, extraction of still images)

71 5.3.3.6 Impact of digital imaging, scanning, and printing on facial features

72 5.3.3.7 The proper handling of digital media, write protection of that media, and
73 generating working copies.

74 5.3.4 An understanding of the principles of comparison including, but not limited to:

75 5.3.4.1 Process of Analysis, Comparison, Evaluation, and Verification (ACE-V)

76 5.3.5 Assessment of facial image quality to determine the value for comparison
77 based on the visibility of facial features

78 5.3.6 The differences between class and individual characteristics, as well as those
79 of transient and stable characteristics.

- 80 5.3.7 Methods of comparisons See FISWG Facial Comparison Overview and
81 Methodology Guidelines
- 82 5.3.8 Comparison results and the levels of support relevant to facial review (e.g.,
83 exclusion, investigative lead)
- 84 5.3.9 Familiarity with scientific research related to the validity of facial comparison
85 methods, including their strengths and limitations.
- 86 5.3.10 Understanding the complexity in comparing faces and the variability in
87 individual aptitude to perform facial comparison.
- 88 5.3.11 Understanding of the practical application and operational uses of facial
89 images.
- 90 5.3.12 Overview and effects of bias (e.g., cognitive, confirmation, contextual)
- 91 5.3.12.1 Ability to distinguish between relevant and irrelevant task information
- 92 5.3.13 Knowledge of automated FRS, to include, but not limited to:
- 93 5.3.13.1 User input and operation
- 94 5.3.13.2 System operation and output
- 95 5.3.14 Facial recognition algorithm limitations including, but not limited to:
- 96 5.3.14.1 Demographics performance variations
- 97 5.3.14.2 Imaging conditions (e.g., image quality, subject to camera angle)
- 98 5.3.14.3 Accessories (e.g., eyeglasses, jewelry)
- 99 5.3.14.4 Obstructions (e.g., masks, scarves, head coverings)
- 100 5.3.15 Familiarity in applying basic image processing operations (e.g., brightness
101 and contrast adjustments, rotations, cropping) and an understanding of the impact of
102 these operations on facial appearance.
- 103 5.3.16 Familiarity with the bones that comprise the skull and the overlaying
104 musculature.
- 105 5.3.17 Knowledge of the FISWG Facial Image Comparison Feature List for
106 Morphological Analysis (see also, ASTM E3149-18 Standard Guide for Facial Image
107 Comparison Feature List for Morphological Analysis).
- 108 5.3.18 Knowledge of and ability to explain the physical stability of facial features
109 in relation to aging, expression, weight changes, health changes; and knowledge of

110 intentional alterations and how they can affect the facial features. See FISWG Physical
111 Stability of Facial Features of Adults

112 5.3.19 Knowledge of temporary (e.g., cosmetics, wounds, and abrasions) and
113 permanent (e.g., scars, surgical alterations, tattoos, piercings) changes of the facial
114 features.

115 5.3.20 Minimum training requirements for facial reviewers that are routinely
116 required to testify in court include competency in the following:

117 5.3.20.1 Court testimony

118 5.3.20.2 Their organization's authorities and policies regarding acceptable use and
119 dissemination

120 5.3.20.3 Relevant judicial decisions including the law governing admissibility of
121 scientific evidence in court

122 5.3.20.4 Standards, guidelines, and best practices including but not limited to:

123 (1) Rules of evidence

124 (2) Chain of custody

125 (3) Documentation of notes

126 (4) Reporting of results

127 (5) Technical review

128 (6) Mitigating or exculpatory disclosures.

129 **6. Keywords**

130 6.1 facial reviewer; training, facial identification, facial comparison

131 FISWG documents can be found at: www.fiswg.org