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Guide for Facial Comparison Training of Examiners to Competency

26 1. Scope

27 1.1 This guide is intended to provide a minimum set of criteria for training of
28 personnel who will conduct facial comparisons at the examiner level.

29 2. Referenced Documents

30 2.1 *ASTM Standards:*¹

31 ASTM E2916-13 Standard Terminology for Digital and Multimedia Evidence
32 Examination

33 ASTM E3149-18 Standard Guide for Facial Image Comparison Feature List for
34 Morphological Analysis

35 2.2 *FISWG Standards:*²

36 FISWG Facial Image Comparison Feature List for Morphological Analysis

37 FISWG Glossary

38 FISWG Document Guide for Mentorship of Facial Comparison Trainees in Role-
39 Based Facial Comparison

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.

² Available from Facial Identification Scientific Working Group (FISWG), <http://www.fiswg.org/documents>.

40 FISWG Guide for Role-Based Training in Facial Comparison

41 FISWG Physical Stability of Facial Features of Adults

42 **3. Terminology**

43 3.1 *Definitions:*

44 3.1.1 *unfamiliar faces*—Faces of unknown or recently learned people. Unfamiliar
45 faces characterize almost all of face identification decisions made in forensic
46 contexts, as the observer has no previous history with the person they are required
47 to identify.

48 3.1.2 *familiar faces*—Faces of people known to an observer. This includes the
49 faces of family, friends and colleagues, but also the faces of celebrities and people
50 we encounter regularly (e.g., barista at a café). Familiarity is largely developed over
51 multiple, separate encounters.

52 3.1.3 *face matching*—A type of face identification task requiring a mere perceptual
53 decision whether two simultaneously presented faces (photo, video, live) depict the
54 same person or different people.

55 3.1.4 *holistic process*—The innate human ability of comparing faces by looking at
56 the face as a whole without specifically considering the component parts in isolation.

57 **4. Significance and Use**

58 4.1 Facial Examination is a human undertaking a formal systematic examination
59 (e.g., ACE-V) of facial images.

60 4.2 The Facial Examiner performs a comparison of image(s)-to-image(s) using a
61 rigorous morphological analysis to compare and evaluate controlled/uncontrolled
62 images for the purpose of effecting a conclusion, often used in a forensic application.

63 4.3 Facial Examiners must draw on a larger foundation of knowledge, skills, and
64 abilities than Facial Reviewers requiring a more advanced level of training, in-depth
65 knowledge of the application of available tools, and the ability to articulate the
66 scientific basis for the examination.

67 4.4 The intended audience of this document includes organizations and
68 individuals involved in facial comparison at the examiner level.

69 **5. Summary of Practice**

70 5.1 This guide provides the minimum criteria for training of facial examiners and
71 should be read in conjunction with FISWG document Guide for Role Based Training
72 in Facial Comparison.

73 5.2 Organizations should include competency testing or a mentoring program as a
74 component of training. Competency testing may help identify opportunities for
75 continuing education and training. Quality assurance programs should also be a
76 component of training as they are a reliable means of measuring the quality of each
77 trainee's ability to perform work.

78 5.3 Minimum training requirements for facial examiners includes demonstrating
79 competency of the following:

80 5.3.1 Knowledge of and ability to summarize the history of facial comparisons in

81 forensic science to include past methods and their shortcomings, such as the
82 Bertillon method.

83 5.3.2 A thorough understanding of and the ability to apply common terminology
84 used in the facial identification discipline to include, but not limited to:

85 5.3.2.1 Human face recognition (familiar/eyewitness)

86 5.3.2.2 Automated facial recognition

87 5.3.2.3 Holistic face processing

88 5.3.2.4 Unfamiliar face matching

89 5.3.3 Demonstrate a thorough understanding of the components of image
90 science including, but not limited to:

91 5.3.3.1 Human Vision (e.g., color, perception)

92 5.3.3.2 Photography (e.g., distortions, pose, illumination)

93 5.3.3.3 Components of digital images and compression (e.g., sensors, pixels,
94 resolution)

95 5.3.3.4 Detection of alterations within images (e.g., excessive compression,
96 manipulation)

97 5.3.3.5 Properties of video (e.g., limitations, formats, extraction of still images)

98 5.3.3.6 Impact of digital imaging, scanning, and printing on facial features

99 5.3.3.7 Demonstrate proper handling of digital media, write protection of that
100 media, and generating working copies.

101 5.3.4 Demonstrate a comprehensive working knowledge of, and be capable of
102 explaining, the principles of comparison including, but not limited to:

103 5.3.4.1 Process of Analysis, Comparison, Evaluation, and Verification (ACE-V)

104 5.3.4.2 Understanding the necessity for verification by a second trained
105 examiner

106 5.3.4.3 Assessment of facial image quality to determine the value for
107 comparison based on the visibility of facial features.

108 5.3.4.4 The differences between class and individual characteristics, as well as
109 those of transient and stable characteristics.

110 5.3.4.5 Methods of comparisons. See FISWG Facial Comparison Overview and
111 Methodology Guidelines

112 5.3.4.6 Models of evaluation and interpretation (including different logical
113 methods to reach a decision based on observations)

114 5.3.4.7 Presenting the appropriate opinion based on the relative support
115 provided by the findings, including an understanding of the recommended methods
116 for drawing such opinions in facial examinations.

117 5.3.4.8 Knowledge of scientific research related to the validity of facial
118 comparison methods, including their strengths and limitations.

119 5.3.4.9 Overview and effects of bias (e.g., cognitive, confirmation, contextual)
120 and techniques for minimizing the potential for bias, such as context management
121 procedures

122 5.3.4.10 Ability to distinguish between relevant and irrelevant task information
123 per each case.

124 5.3.5 An in-depth knowledge of automated facial recognition systems if one is
125 utilized. If the organization does not utilize an automated facial recognition system,
126 the trainee should have a general knowledge of these systems. Knowledge of
127 automated facial recognition systems should include, but not be limited to:

- 128 5.3.5.1 User input and operation
- 129 5.3.5.2 System operation and output
- 130 5.3.5.3 Facial recognition algorithm limitations including, but not limited to:
- 131 5.3.5.4 Demographics performance variations
- 132 5.3.5.5 Imaging conditions (e.g., image quality, pose)
- 133 5.3.5.6 Accessories (e.g., eyeglasses, jewelry)
- 134 5.3.5.7 Obstructions (e.g., masks, scarves, head coverings)
- 135 5.3.6 Knowledge and ability in applying basic image processing operations (e.g.,
- 136 brightness and contrast adjustments, rotations, cropping) and understand the impact
- 137 of these operations on facial appearance.
- 138 5.3.7 A thorough knowledge of the bones that comprise the skull and the
- 139 overlaying musculature.
- 140 5.3.8 A thorough knowledge of the FISWG Facial Image Comparison Feature
- 141 List for Morphological Analysis (see also, ASTM E3149-18 Standard Guide for Facial
- 142 Image Comparison Feature List for Morphological Analysis).
- 143 5.3.9 Knowledge of and ability to explain the physical stability of facial features
- 144 in relation to aging, expression, weight changes, health changes, and intentional
- 145 alterations and how they can affect the facial features. (See FISWG Physical
- 146 Stability of Facial Features of Adults).
- 147 5.3.10 Knowledge of temporary (e.g., cosmetics, wounds, and abrasions) and
- 148 permanent (e.g., scars, surgical alterations, tattoos, piercings) changes of the facial
- 149 features.

150 5.3.11 Thorough knowledge of legal Issues in facial comparison and
151 competency in testifying in court. This knowledge includes, but is not limited to, the
152 following:

153 5.3.11.1 Their organization's authorities and policies regarding acceptable use
154 and dissemination

155 5.3.11.2 The history of facial comparison and recognition in court

156 5.3.11.3 Implications of the relevant judicial decisions

157 5.3.11.4 The law governing admissibility of facial recognition and identification,
158 as well as scientific evidence in court.

159 5.3.11.5 Knowledge and ability in explaining the process of facial comparison to
160 the court, the limits of the relevant science and technology, and the creation of visual
161 aids. This competency should be demonstrated through courtroom training which
162 can include the process of moot courts or mock trials.

163 5.3.11.6 The public perception(s) of the use of facial recognition and
164 identification.

165 5.3.12 Standards, guidelines, and best practices including but not limited to:

166 5.3.12.1 Rules of evidence

167 5.3.12.2 Chain of custody

168 5.3.12.3 Documentation of notes

169 5.3.12.4 Reporting of results

170 5.3.12.5 Technical review

171 5.3.12.6 Mitigating or exculpatory disclosures

172 **6. Keywords**

173 6.1 training, facial identification, facial comparison

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