J14 Are the Principles of Forensic Signature Identification Corroborated by an Analysis of Digitally Captured Biometric Data?

William J. Flynn, BS, Affiliated Forensic Laboratory, 3030 N Central Avenue, Ste 1206, Phoenix, AZ 85012; and Kathleen Annunziata Nicolaides, BA*, Affiliated Forensic Laboratory, 3030 N Central Avenue, Ste 1206, Phoenix, AZ 85012

After attending this presentation, attendees will have learned the results of a study of biometric signature data of both authentic and non-authentic signatures. Analysis of this data is being conducted to determine if the tenets of handwriting identification, derived from more than 100 years of study, observation, and experience, can be supported quantifiably by biometric data collected during signature execution.

This presentation will impact the forensic science community by providing objective evidence regarding signature characteristics such as speed, rhythm, and natural variation, characteristics forensic document examiners consider when determining a signature's authenticity. Although a vast body of literature exists stating speed and rhythm are significant indicators of genuineness or lack thereof, the advent of digital signature pads provides an opportunity to compare the quantifiable data of these characteristics in both genuine and non-genuine signatures. Biometric data also allows for analysis of the signatures from one writer to determine the presence and extent of natural variation.

Data from over 100 digitally captured signatures were studied to prove or disprove the following hypotheses: (1) there will be quantifiable differences between signatures written naturally and unnaturally (simulated or traced); (2) there will be quantifiable differences in signatures executed by different writers; and, (3) there will be quantifiable differences in naturally executed signatures of one writer.

Signatures were collected using a Topaz® signature pad. A piece of paper was placed on the pad and subjects were asked to sign multiple times using a pen stylus. This allowed for the simultaneous collection of both wet-ink and digital signatures. Subjects were asked to provide multiple samples of genuine signatures, simulated signatures, and traced signatures.

Data from naturally and unnaturally executed signatures are compared. Both intra- and inter-writer comparisons are also conducted. This presentation will analyze the results of this study.

Biometric Signature, Natural Variation, Handwriting Principle

* Presenting Author