E56 Data-Driven Decisions in Latent Print Examination to Improve Quality

Anthony Koertner, MS, 4930 N 31st Street, Forest Park, GA 30297*

After attending this presentation, attendees will be familiar with some of the limitations of the subjective methodologies traditionally applied to latent print examinations and with a path forward to a more objective data-driven approach.

This presentation will impact the forensic science community by discussing the steps taken by the United States Army Criminal Investigation Laboratory (USACIL) to move its latent print branch from a primarily subjective-based approach to a more defensible, data-driven process using more objective methods and pre-defined criteria at many stages of the latent print examination process.

This demonstrative presentation is designed so forensic science practitioners and technical leaders can better visualize and therefore understand these practices in the flow of typical latent print casework. Attendees will be provided with the resources to utilize these tools better and more objectively inform decisions in their latent print examinations.

Latent print examination has been subject to much criticism regarding its scientific standards and validity, specifically due to the lack of objective data utilized in decision making to arrive at conclusions. Many highly publicized reports, such as the *Report to the President. Forensic Science in the Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods* by the President's Council of Advisors on Science and Technology (PCAST), continue to critique the field's shortcomings in an attempt to elicit change by moving latent print examination to a place where all decisions and conclusions are fully supported by empirical, robust, and reproducible data.[1] From reporting latent print findings without the term "identification" to a statistical model that represents the strength of an association, this presentation will introduce some of the data-driven practices utilized by latent print examiners at the USACIL to inform their decisions during casework examinations. These practices not only attempt to satisfy the criticisms set forth by these various reports, but more importantly function as additional quality control measures applied to casework. Specifically, this presentation will describe how "suitability for comparison" claims are supported utilizing empirical measurements from software designed to estimate the quality/clarity of a friction ridge impression area and other software to quantify the similarity between two fingerprints and provide a statistical estimate of the likelihood they were made by the same source rather than by different sources. Together, these methods provide a means of moving away from the previous methodology's reliance on the examiner's subjective opinion for determining the significance of latent print evidence.

The opinions or assertions contained herein are the private views of the authors and are not to be construed as official or as reflecting the views of the United States Department of the Army or United States Department of Defense.

Reference(s):

1. PCAST Report "Forensic Science in Criminal Courts: Ensuring Scientific Validity of Feature-Comparison Methods." September, 2016.

Data, Subjective, Latent Print