J7 Traced Signatures: A Quantitative Analysis

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After attending this presentation, attendees will be able to compare a traced signature with its master in an objective manner instead of using sub- jective terms. Specific steps will be demonstrated so that uniform comparisons can be made.

By using digital imaging software, which easily shows a statistical readout of the components of an image, this presentation will demonstrate how an objective comparison is possible. For the first time forensic doc- ument examiners are now able to use objective terms when comparing traced signatures with the master signature that was traced. This presen- tation will impact the field of forensic document examination by providing yet another tool in the hand bag of digital image techniques.

Since the very beginning of forensic document examination much has been written about traced signatures. This is one of the most basic exami- nations in the field and most of the classic literature in forensic document examination discusses this phenomenon. When determining if a signature is in fact a tracing, the best proof is that a tracing will "match precisely" when superimposed over the signature that was copied. In these cases it is assumed that the genuine signature that was traced is available for exami- nation and comparison. Many cases have been demonstrated in court with a dramatic plastic overlay showing the similarity. While the similarities are obvious to any layman the experts have described this matching only in the most general terms. Every tracing will of course produce variations from the original, so the question becomes "How Similar?" Since the very first examination of this type this question has been answered in rather general and subjective terms. Using the computer, it is now possible for the first time to answer this question objectively and statistically.

Analysis with digital imaging software has been in common use by document examiners for approximately 10 years. This analysis is another specific tool to be added to the base of established techniques. The first steps for superimposing one image over another are used rather commonly in the field of forensic document examination and will be repeated here briefly. In this technique some preparation of the signatures is necessary so that unnecessary data is removed. To make comparisons of like things in digital imaging software, the two items are superimposed one over the other when both have been made semi-opaque. This technique constitutes an addition to the forensic document examiners toolbox because, after spe- cific preparation superimposing one signature over another and by making reference to the "histogram" feature, the similarity or dissimilarity can be made objectively. The histogram gives a quantitative readout of all the pixels in an image based on shades.

While no real case images are used in this demonstration numerous variables and controls are shown which typify the range of possibilities when comparing signatures. The author suggests that by fine-tuning the process a quantitative analysis came be made. The process generally follows two major steps, which can be subdivided, into several interme- diate steps. Comparisons of normal genuine signatures with like kind signatures show little superimposition and that tracings have a much higher index of coincidence when compared to their master. These matters are now quantifiable.

Traced, Signature, Forgery

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