Commentary

Short Note on Fingerprint Analysis

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DESCRIPTION

Fingerprint analysis can be described as an investigator who has solved crimes for over a century using the results of forensic fingerprint analysis. Fingerprint analysis typically compares fingerprints found at a crime scene (called latent fingerprints) with the fingerprints of known people and assesses how similar they are. A trained fingerprint inspector makes this assessment by comparing details such as the shape that forms the ridge and the end points or divisions of the line. Potential impressions are often partial, distorted, or blurry, so the first step is to determine if the potential impression contains enough detail to make a comparison. Otherwise, no further analysis will be performed. If the potential print contains sufficient detail, the examiner carefully compares the characteristics of the two prints, and based on training and experience, the print is from the same individual or from a different individual. Determine if it is likely to be a thing.

PRINCIPLE

Fingerprints are a unique pattern created by the frictional ridges (raises) and ridges (descendants) that appear on the fingertips and thumb. The palms, toes and foot traces are also unique. However, these are rarely used for identification. Fingerprint patterns, such as the traces left when an inked finger is pressed against a piece of paper, are the pattern of frictional bumps on that particular finger. Friction ridge patterns are divided into three different types: loops, coils and arcs, each with its own variation depending on the shape and proportion of the ridge.

TYPES

Fingerprint collection is commonly used to identify an individual. This person may be a suspect, victim, or witness. There are three types of fingerprints: latent, Patent, and plastic. Latent heat fingerprints are caused by sweat and oil on the surface of the skin. This type of fingerprint is invisible to the naked eye and requires additional processing. This process may involve the use of basic powder techniques or chemicals. Patent fingerprints can come from blood, grease, ink, or dirt. This type of fingerprint is easily visible to the human eye. Plastic fingerprints give a three-dimensional impression and can be created by pressing your finger into fresh paint, wax, soap, or tar. Like patented fingerprints, plastic fingerprints are easy to see with the human eye and do not require any additional processing to improve visibility.

IMPORTANCE

It took some time for the judiciary and the general public to believe in the importance of fingerprints as a scientific tool, which is now recognized around the world. Fingerprints as evidence play an important role for the following properties: Unique, Permanent, Universal, Inimitable, and Classifiable.

Fingerprints are collected using patented print collection, latent print collection, alternative light source (ALS), cyanoacrylate, chemical developer.

In addition to the above methods the other collection methods are skin, clothing, and other difficult surfaces. Amide Black, a non-specific protein dye that reacts with existing proteins, is commonly used to develop or enhance blood stains on human skin. High-tech techniques such as vacuum metal deposition using gold and zinc are promising for researchers to see traces of clothing. AccuTrans, a liquid casting compound, can be used to lift potential powdery impressions from rough, textured or curved surfaces. Basically, AccuTrans is a very thick liquid that fills the corners and gaps in rough and textured areas where traditional tapes have difficulty raising prints.

Like the fingerprint powder, chemical treatment can limit the ability of researchers to perform other techniques that may reveal valuable information. Therefore, all non-destructive testing is performed before the evidence is processed with chemicals. For example, some formulations of ninhydrin bleed certain inks and destroy writing, so ransom or robbery notes are checked by document experts interviewed before being processed with ninhydrin.

CONCLUSION

Some studies have shown that different examiners may reach different conclusions when assessing the same evidence. This is not unexpected, as every human effort inevitably involves a certain possibility of error. However, these possibilities can be reduced. NIST is working on developing computer algorithms that automate parts of the fingerprint analysis process with the goal of reducing the likelihood of errors and increasing the reliability and efficiency of the process.