Rethinking the Unsolved Latent File

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The advent of Automated Fingerprint Identification Systems (AFIS) has provided unique opportunities for the latent print examiner to make more identifications. No longer limited to drawers of tenprint cards from known offenders, the examiner now has the ability to search a large database relatively effortlessly. Instead of hundreds of cards, the examiner can search millions of digital records.

In addition to the traditional latent to tenprint (LT/TP) search, the examiner has additional options such as a latent to latent (LT/LT) also referred to as a latent to unsolved (LT/UL) and the tenprint to unsolved latent (TP/UL).

The LT/TP search is the search process most often used by examiners. For a LT/TP search the case information is created. The latent print is digitally captured and the minutiae identified by a coder, the examiner, or both. The minutiae is compared by an AFIS matcher and a candidate list is displayed to the examiner for comparison. If no identification is made, the latent can be stored in the unsolved latent file.

Some systems allow the examiner to enter the latent case into the UL file at the acquisition or beginning phase of the LT/TP search process. Other systems provide this feature at the conclusion of a LT/TP search. Each approach has its supporters and detractors.

A LT/LT search allows the examiner to search a latent against the records in the UL file. While not producing a personal identification it may match a record in the UL file. This may be indicative of a serial offender and give investigators linkages to other crimes. The LT/LT search is one of the least used features of AFIS latent print searches.

THE UL FILE...WHAT IT IS

The UL file is a database of latent prints that have not been identified, i.e. unidentified latent prints. Inserting a latent print into the UL file is based on several premises. One premise is that the identification was not made because the perpetrator did not have a record on the AFIS database at the time of the search. Another possibility is that the person is in the database, but the images, coder, matcher, etc. were not sufficiently "robust" enough to list the record as a candidate. Yet another possibility, somewhat less likely, is that the examiner missed the identification.

For all these reasons, the UL file provides another opportunity to automatically initiate a latent print search. Case information and the marked image characteristics remain with the latent print when it is entered in the UL file. A new TP/UL search begins whenever a new Tenprint (TP) record enters the AFIS system and is automatically searched against the UL file.[1]

By remaining in the UL file there is a chance that the latent print will be matched to a new record. Data published by the New York State Division of Criminal justice Services show that as much as 16% of latent print identifications are made as a result of TP/UL searches.

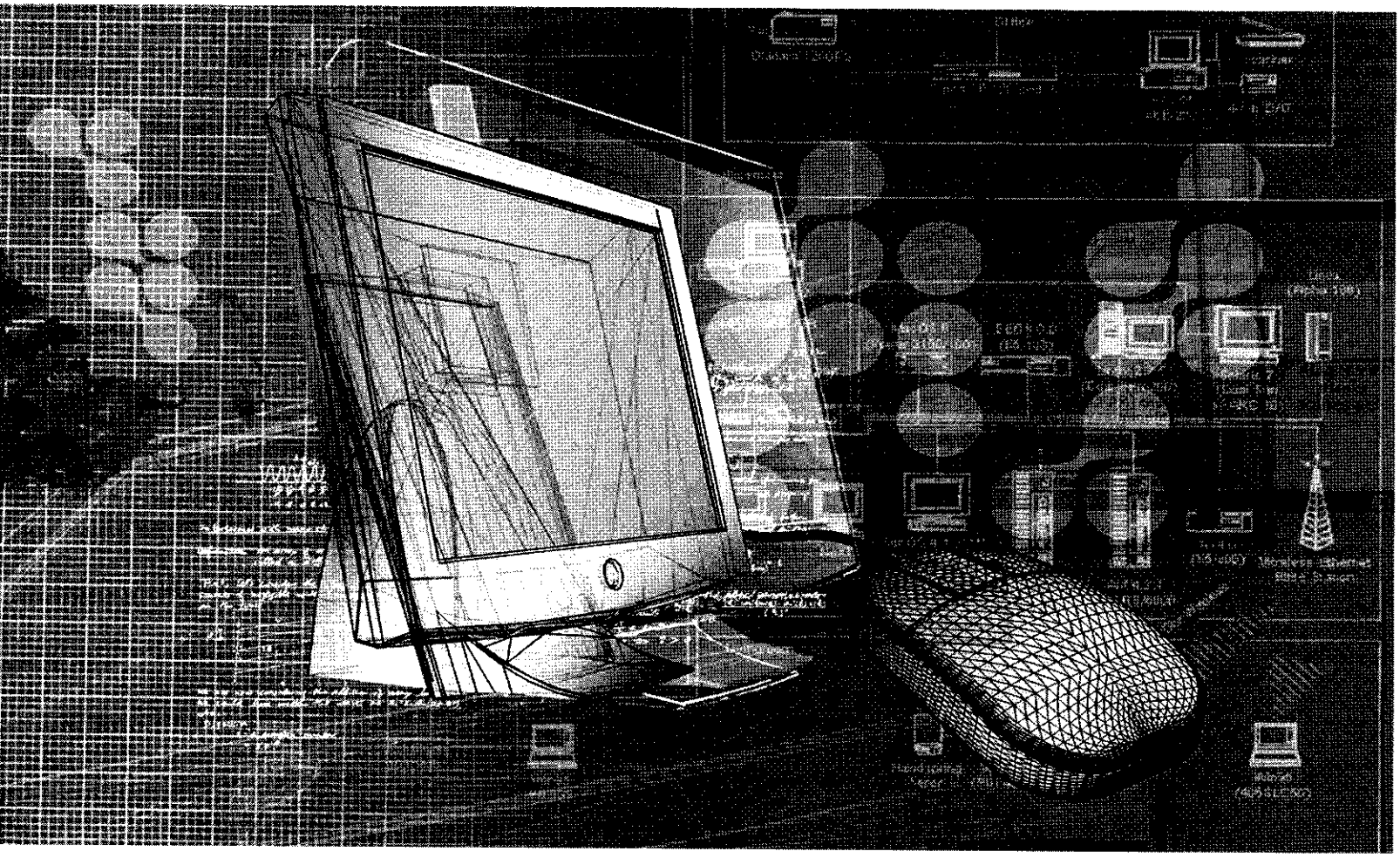
THE UL FILE...WHAT IT IS NOT

In spite of the power of the UL file, it is not a miracle maker. For example, very poor quality images are not likely to result in identification. Like all computer systems it will follow commands completely and produce results accordingly. Sometimes those results are more than expected. Depending on the case and image features that have been saved with the latent print, it may return many or only a few candidates in a given time period.

Many AFIS systems allow the latent print examiner to select search parameters which may include geographic regions, crime types, finger number, minutiae placement, etc. When the examiner conducts a cold search the latent print will be searched against every record enrolled in the database. The problem with such a search is that many candidates may be produced, with the match somewhere down the candidate list. A more limited search may allow the match to appear higher on the candidate list, provided that the examiner has not excluded one of the parameters of the enrolled image, creating a fatal error. The UL file cannot read the mind of the examiner, it only follows the examiner's instructions.

If the examiner thinks that the TP/UL search will only produce a candidate list within a very limited range, but sets the search criteria for a very large range as in a cold or open search many candidates will appear.

It is not uncommon for examiners to think that every case should go into the UL file. The argument is that as long as the case remains in the AFIS system there is a chance for an identification. "I know it is a one in a million chance, but I gotta take it."



THE UL PROBLEM

If the examiner considers the UL file as an opportunity to view every possible candidate, the examiner will soon be overwhelmed. If the AFIS processes 2,000 tenprint inquiries every day, and 1% become candidates for one case in the UL file, the examiner will look at 20 cases every day, 140 per week, 600 per month for that one latent print. If the examiner has 2, 3, 10 or more cases, the numbers grow proportionally. The problem with the "one in a million chance" is that the examiner may look at 999,999 false candidates before the identification is made...on that one case!

Many agencies will have multiple examiners search the same latent print against an AFIS database. This is particularly true in high profile cases and cold cases .The UL file problem is compounded if several examiners search the same latent and each enters the latent into the UL file. If one examiner makes a TP/UL Ident, the other cases associated with the latent must be deleted from the UL file. If not, the time spent on looking at the verification lists for these cases is simply wasted time. Since examiner time is not limitless, whatever time used for TP/UL verifications is time not spent doing something else, such as LT/TP searches.

ALTERNATIVES

If the examiner chooses not to enter the case onto the UL file with the parameters of a cold search, there several alternatives. Among them:

- Restrict the UL file to only high profile cases.
- Limit the search to very narrow parameters.
- Choose not to use the UL file.
- Resubmit the case as a LT/TP search at later times.
- Have a clear understanding of the level of latent print quality needed for a productive search of the UL file.

RECOMMENDATION

To truly exploit the power of AFIS and the UL file requires comprehensive training in order to fully understand the TP/UL process and the adoption of a business model in latent print searches. By understanding the UL process the examiner can choose which cases to enter. By adopting a business model the latent print manager can maximize the number of identifications made regardless of search type.

Whatever approach the examiner uses should be the best approach available at that moment. A better understanding of AFIS and its capabilities and limitations will only enhance the examiner's skill. ★

BIOGRAPHY

Peter D. Komarinski is a biometric Subject Matter Expert with his own firm, Komarinski & Associates, LLC. He was a career civil servant and served the New York State Division of Criminal Justice Services for fifteen years as a manager of the Statewide Automated Fingerprint Identification System (SAFIS).

Mr. Komarinski has written extensively and is the author of Automated Fingerprint Identification Systems (AFIS) published in January 2005 by Elsevier/Academic Press and is a contributor to "Cold Case Homicides" by Richard Walton. He is a regular presenter at the annual Educational Conferences of the International Association for Identification (IAI) and chairs the AFIS Committee of the IAI. More information is available at www.komarinskillc.com.

[1] This varies by system. It could be every record, only those records with better images, only records meeting certain criteria, etc. In most instances the system administrator makes the decision.