B116 **The International Close Non-Match Library (ICNML): An International Known Source Database for Friction Ridge Training, Testing, and Research**

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Learning Overview: After attending this presentation, attendees will be aware of an ongoing project to develop a fingerprint database, called ICNML, with known ground truth samples and close non-match exemplars that will be made available to trusted law enforcement agency partners for testing, training, and research. Attendees will also understand some of the benefits and pitfalls of using international Law Enforcement Agency sourcing (LEAsourcing) to distribute tasks on a large project.

Impact on the Forensic Science Community: This presentation will impact the forensic science community by providing a valuable tool for testing, training, and research and information about a new way of engaging a wide range of partners to share the load of large projects. Special attention will be paid to the IT infrastructure put in place to give donors the required guaranties in terms of privacy (by design), rights to revocation, data security, and traceability.

The friction ridge community has a need for known-source comparison materials that can be used in creating competency tests and training samples, as well as for use in research. Unfortunately, the creation of these materials is extremely time- and labor-intensive and most laboratories that have such samples retain them for internal use. For a time, the National Institute of Standards and Technology's Special Database 27 (NIST's SD27) was a popular source of samples, particularly for use in research. However, privacy concerns have resulted in that database being removed from public domain. Additionally, the paired impressions in SD27 were determined to be mated by a consensus of experts but were not "ground truth" samples that had been collected under controlled conditions.

This presentation reports on an ongoing project funded by the National Institute of Justice to create a known source friction ridge database for the use of the law enforcement community using an LEAsourcing strategy. In addition to the provision of known-source comparison samples, a great need of the friction ridge community is challenging samples from "close non-matches" that allow for high difficulty testing and training and also allow trainees to specifically be trained in how to recognize close non-match situations and avoid false identifications. This project is focused on the generation of known close non-match exemplars to include in the ICNML repository. Individuals with access to the database can specify criteria to build testing and training packets, including number of same- and different-source trials and number of easy and close non-match different-source exemplars. Both finger and palm impressions are included in the database.

This presentation will include a live demonstration of ICNML, including showing its main contents, how testing and training packets can be built and downloaded, and reviewing the security measures in place to protect the identities of the individuals whose impressions are stored in the database. This presentation will also discuss who will be granted access to the completed database and what the allowable uses will be. Access to the database will be free to all authorized parties.

Creating a large database that is populated with known source impressions from many individuals and including close non-matches is not a small undertaking. The creation of marks and exemplars, selection of search areas, and searching of large databases to locate close non-matches is work that requires many hours of labor as well as touching on regulations and policies that can vary widely from jurisdiction to jurisdiction. For that reason, this study hit upon an international LEAsourcing model whereby the tasks have been parsed out in small chunks to many project partners located in laboratories around the world. In this way, the workload is divided as well as allowing for sensitive work to be performed in jurisdictions where regulations allow it. Part of this presentation will address the structure put in place to accomplish this, the benefits of such an approach, and challenges faced in utilizing international LEAsourcing. The hope is that this description will help other researchers who may be considering utilizing similar approaches to large-scale projects.

Fingerprints, Known Source Collection, Close Non-Match