

## **HOW THE AUTOMATION OF DNA DATA INTERPRETATION USING ARMEDXPRT SOFTWARE HAS BENEFITED THE UNITED STATES ARMY CRIMINAL INVESTIGATION LABORATORY (USACIL)**

Tim Kalafut<sup>1</sup>, Joel Sutton<sup>1</sup>, Luigi Armogida<sup>2</sup>

<sup>1</sup>United States Army Criminal Investigation Laboratory

<sup>2</sup>NicheVision Forensics, LLC

The USACIL conducts forensic DNA examinations for Department of Defense investigations worldwide. As such, over 70 DNA examiners and contractors are normally staffed at one time both stateside and in theatre. These individuals all have different backgrounds and experience levels yet work under similar protocols. Software developed in house has been invaluable in streamlining the analysis and interpretation process. It has also provided a relatively high level of consistency in final results as determined by the statistical analysis of mixed DNA profiles used during internal competency testing. As this software was developed over time in our laboratory based on the input of many examiners, we feel it is a complete tool for all aspects needed to go from allele calls to final report. In addition to tremendous time savings, it has eliminated things such as transcription errors, arithmetic errors, highlighters, and pages of manual calculations that traditionally hamper the interpretation process. Features include control checks, contamination checks (over time and across co-extracted cases), and comparison of non-matching profiles to staff data bases or anomalous results profiles. It can also provide documentation of all matches/inclusions, find additional foreign alleles, and provide peak height ratio and mixture proportion information for the deconvolution of two and three person mixtures. Statistical options include CPI, RMP (including samples with stochastic issues), LR and LR incorporating Pr(D). In a real-time demonstration, presenters intend to complete the analysis of a recent proficiency test from .fsa files to the submission of final results in a matter of minutes.

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