

Illinois Forensic Science Commission
Technology Subcommittee
Open Meeting-Via Web Ex
Wednesday, January 22, 2025, 10:00 a.m.
Meeting Minutes

- I. Call to Order
 - a. 10:00 a.m. by Ms. Watroba at Mr. Buford's request.

- II. Roll-call
 - a. Jeffrey Buford, Commission Member, Subcommittee Chairperson
 - b. Jillian Baker, Commission Member
 - c. Caryn Tucker, Commission Member
 - d. Amy Watroba, Executive Director Illinois Forensic Science Commission
 - e. Adrienne Bickel, ISP, Micro-Trace Section (Chicago)
 - f. Casey Craven, ISP, Toxicology (Chicago)
 - g. Jamie Edwards, ISP, Latent Prints Section (Springfield)
 - h. Jason George, ISP, Drug Chemistry Chief (Chicago)
 - i. Kevin Gillespie, ISP, Micro-Trace Section (Chicago)
 - j. Gina Havlick, NIRCL (Drug Chemistry/Toxicology)
 - k. Kelly McNallan, ISP, Biology/DNA Section
 - l. Megan Neff, ISP, Acting TL DNA Section
 - m. Daniel Pruitt, ISP, Toxicology (Springfield)
 - n. Cassandra Richards, ISP, Section Chief-Criminalistics (Chicago)
 - o. Larry Shelton, ISP, Toxicology Training Coordinator
 - p. Bryan Tomac, ISP, Firearms Section (Metro East)
 - q. Edmund Laube, DuPage County Public Defender's Office
 - r. Timothy Ruppel, Kane County
 - s. Sarah Ware, Kane County

- III. Review of Minutes/Adoption
 - a. A motion to approve the minutes from the December 11, 2024 subcommittee meeting was passed after the discussion portion of the meeting.

- IV. Chairperson Report
 - a. Chairperson Buford reported that the Forensic Science Commission held a quarterly meeting in December. At that meeting, Mr. Buford provided an update of the Summary Report regarding Phase 2 accomplishments and progress. Mr. Buford finalized the written report. The report provided updates for the disciplines that are actively progressing with the implementation of new technologies or are reviewing new technologies for possible implementation (Latent Prints, Firearms, Trace, and Toxicology). The Phase 2 Summary Report was provided to the Forensic Science Commission. Mr. Buford also provided the

Commission with an update regarding the discussions regarding the inter-laboratory LIMS working group and the preliminary discussions of AI from the last subcommittee meeting. Mr. Buford indicated that Ms. Watroba provided information on the TEAMS channel related to AI for the subcommittee prior to today's meeting in the AI Reference Library. Ms. Watroba will continue to add resources to the AI Reference Library as they become available.

V. Discussion

a. AI Applications to Forensic Science-

- i. Subcommittee members discussed key takeaways from the materials in the AI Reference Library with subject matter experts in each of the core disciplines providing thoughts and observations about AI in relation to their disciplines.
- ii. Drug Chemistry: Ms. Baker commented on the foundational topic of how to define AI in the context of forensic science. She discussed library searches that are based on algorithms, which may or may not be categorized as AI even though it is a machine performing a function beyond what humans can perform. Mr. George also discussed library searches and commented that one possible application of AI to library searches could involve analysts inputting identified spectra which could lead to better search results. Mr. Buford drew comparisons to previous software related to method applications and development which were paired with macros. He noted that technology improves through the years to provide a more streamlined approach to performing data analysis.
- iii. Latent Prints: Ms. Richards commented on the foundational topic of how to define AI and its possible use in forensic science. She noted that some of the work latent print examiners have done routinely for years, like using databases for searches, is being likened by some to AI. She explained how the current ABIS system conducts searches and how an examiner ultimately performs the 1:1 comparison. A potential use of AI in the future could be the use of lights-out searches by CSIs for investigative leads. Ms. Edwards discussed the article addressing what FSSPs need to know about AI and information she shared during Phase 2 regarding a program that could generate a similarity ratio. She noted that the concerns raised in the paper are concerns the group has discussed, such as bias and the fact that analysts might see features differently, which could have downstream effects. She reiterated the theme across disciplines that she cannot foresee a situation where AI would make the final decision in place of a latent print examiner.
- iv. Toxicology: Ms. Havlik agreed with the observation that she cannot foresee a situation where an AI derived program or search would make a conclusive decision in place of a human. She also raised points related to downstream effects of AI use in court, which are not specific to toxicology. Ms. Craven observed that AI could be useful for research or data mining. Mr. Shelton discussed the difference between algorithms in use and machine learning. He also discussed deconvolution software. He noted that commercial libraries can be purchased which contain 1000s of

components but that labs only targeted the drugs they wanted to look for and possible benefits and pitfalls to targeting. He stressed the importance of knowing the limits of any methods and validations. He discussed how developing methods will take time but might make analysis faster in the long run.

- v. Trace: Ms. Bickel read the articles looking for possible applications to Trace but also systems in a more general sense with an eye towards how AI might be used as a tool to improve analysis. An example would be a system which could assist with weeding out the substrates so they can focus on the ignitable liquid. She also discussed a possible application for forensics in general; specifically, procedures applications such as ISO accreditation to compare procedures and standards and identify possible gaps. Other applications could assist with writing a new procedure or evidence submission. She gave the example of evidence submissions where the submitting agency inputs the wrong task. Flagging these situations could be useful. Mr. Buford agreed that AI could have useful applications to administrative tasks. Mr. Gillespie identified a possible application for GSR testing where primers are catalogued for specific ammunition and then they could possibly provide leads to law enforcement about what type of ammunition was used. He noted that another administrative application of AI could be in peer review to assist with identifying clerical errors or typos. This could result in more accurate output.

- vi. DNA: Ms. Neff noted that DNA has been doing CODIS searches for decades, which now could be characterized as involving "AI." She reiterated that human analysts are always providing information to systems and evaluating data in the end. An example in DNA is probabilistic genotyping (PG) software like STRmix, where the analyst inputs the data and number of contributors which involves human assessment of the data. The software then deconvolutes the mixture. Ms. Neff noted that some have called for PG systems to follow AI standards, but the DNA community has addressed those concerns by explaining that PG software is not stand-alone AI because of the involvement of human assessment and human input. Ms. Neff also discussed a computer program she included in the emerging technology presentation for DNA. In the end, validation is required for anything that is done in DNA, so even if software with a machine learning component is obtained, it can only go on-line after it is validated. Ms. Baker shared an open letter from the creator of STRmix explaining how the software is not "AI" in the TEAMS AI Reference Library.

- vii. Firearms/Toolmarks: Ms. Tucker explained that Firearms/Toolmarks is in a similar position as Latent Prints, in that they have used a database as a search tool for 20-30 years. The primary instrument used in FA/TM is a comparison microscope. A virtual microscope is being introduced into the discipline, but it is not changing anything in their process. It is simply a new type of instrumentation. The virtual microscope can do 3D scans with evidence and a ground truth database is being built that in the future will help analysts provide a quantification of the similarity between the objects. Even when quantification of the similarity between objects is possible, an analyst would

still offer an opinion statement along with a likelihood ratio. Many labs have purchased virtual microscopes. Most are currently using them for research, and some have validated for casework, but they are not using them to provide quantifying scores. Mr. Tomac observed that according to NIST, AI will not replace forensic scientists. Rather, algorithms will only assist forensic scientists and will not make decisions. Mr. Tomac agrees that there may be useful AI applications to administrative tasks or systems. AI is good at mining major amounts of structured and unstructured data and, therefore, may have applications to quality systems. He noted that the LIMS systems contain large amounts of data that could be used to identify trends across disciplines that might otherwise go unnoticed, such as where the most “inconclusive” results occur. Mr. Tomac shared that he is developing parameters for LIMS that can assist with the previously identified issue related to mislabeled tasks and encouraged others to reach out to him on that topic.

- viii. Mr. Buford summarized key points from the discussion and suggested that continued discussion of AI should take place at the next subcommittee meeting considering new resources populated into the TEAMS AI Reference Library. Ms. Watroba noted that anyone can add materials to the AI Reference Library and encouraged them to do so.
- ix. Ms. Watroba provided an update on the subcommittee’s recommendation that the three lab systems create an inter-laboratory working group for LIMS. Representatives from each lab system have been identified and Ms. Watroba sent an email to put everyone in contact. The points of contact at each lab can work together as needed to identify and work through LIMS issues.

VI. Public Comments

- a. No comments.

VII. Next Meeting/ Adjournment

- a. The next meeting was scheduled for Wednesday, February 26, 2025, at 11:00 a.m.*(this meeting was subsequently re-scheduled for March 5, 2025 at 11:00 a.m.).
- b. Meeting adjourned at approximately 11:00 a.m.