# Illinois Forensic Science Commission

## Technology Subcommittee

## Open Meeting-Via Web Ex

## Wednesday, March 5, 2025, 11:00 a.m.

## Meeting Minutes

I. Call to Order
   a. 10:00 a.m. by Subcommittee Chairperson Mr. Buford.

II. Roll-call
   a. Jeffrey Buford, Commission Member, Subcommittee Chairperson
   b. Jillian Baker, Commission Member
   c. Caryn Tucker, Commission Member
   d. Jeanne Richeal, Commission Member
   e. Amy Watroba, Executive Director Illinois Forensic Science Commission
   f. Adrienne Bickel, ISP, Micro-Trace Section (Chicago)
   g. Casey Craven, ISP, Toxicology (Chicago)
   h. Jamie Edwards, ISP, Latent Prints Section (Springfield)
   i. Jason George, ISP, Drug Chemistry Section Chief (Chicago)
   j. Kevin Gillespie, ISP, Micro-Trace Section (Chicago)
   k. Gina Havlick, NIRCL (Drug Chemistry/Toxicology)
   l. Kelly McNallan, ISP, Biology/DNA Section
   m. Megan Neff, ISP, Acting TL DNA Section
   n. Daniel Pruitt, ISP, Toxicology (Springfield)
   o. Cassandra Richards, ISP, Section Chief-Criminalistics (Chicago)
   p. Larry Shelton, ISP, Toxicology Training Coordinator

III. Review of Minutes/Adoption
   a. A motion to approve the minutes as amended from the January 22, 2025 subcommittee meeting passed.

IV. Chairperson Report
   a. Mr. Buford reported that the Forensic Science Commission will hold its quarterly meeting on March 12th at which he will provide a status report regarding the work of the subcommittee. Mr. Buford will summarize the subcommittee's ongoing discussions of AI applications in forensic operations. He also will provide an update on disciplines with ongoing studies, research, or applications related to emerging technologies. Mr. Buford requested summary reports from any disciplines implementing or considering implementation of emerging technologies addressed during previous Phase 2 presentations and discussions.

V. Discussion

   a. AI Applications to Forensic Science-

i. Chairperson Buford noted that the resource library of materials related to AI is available on the subcommittee TEAMs channel. Folders are organized by discipline and there is a folder for AI administrative applications. Mr. Buford thanked individuals for populating the resource library with materials.

ii. The subcommittee continued discussion about the new reference materials and current AI applications in forensic operations as well as future AI applications in particular disciplines and administrative operations. Subcommittee members and subject matter experts in each of the core disciplines provided thoughts and observations about AI in relation to their disciplines.

iii. Drug Chemistry: The possibility of AI-driven library searches that would assist trained analysts with identifying possible isomers was discussed. The usefulness of reaching a consensus on a definition for "AI" to assist with future discussions across disciplines also was mentioned especially given the different levels of AI discussed in resource materials.

iv. Latent Prints: The topic of possible AI applications to filter out distortion, similar to software programs manually used by latent print examiners currently, was discussed. Software programs used for decades in in chemistry-based disciplines to subtract background were discussed as an example of how enhanced processes are vetted and streamlined into forensic work gradually, ultimately improving forensic operations. It was noted that the integration of AI or AI-adjacent processes into forensic casework will not differ from the integration of other past advancements, with the trained subject matter expert ultimately making decisions with the current generation of tools available.

v. Toxicology: The use of software currently to conduct library searches and to conduct background subtraction with the analyst still maintaining control was discussed. Subject matter experts expressed hesitation about ever moving toward a model where a computer would effectively be in the driver's seat of such processes. The role of method development, validation, and setting of parameters was discussed. Possible questions related to the impact of using AI or AI-adjacent technology on discovery in criminal cases were raised. It was noted that the impact of enhanced processes on discovery practices will likely remain an open and evolving issue.

vi. Trace: Subject matter experts discussed an article posted on TEAMs about AI in analytical chemistry that explains how AI currently is being used with different instruments and in chemistry in general. They noted that it will have limited uses in forensic disciplines, however. One possible use would be in method development for identifying substrates such as wood and building materials in fire debris cases. Getting to the point where it would be useful would require time-intensive uploading of data. If the discipline as a whole moves in that direction then it could provide useful leads by helping to weed out substrates and to point a subject matter expert in the right

direction. It could be used in a similar manner for PDQ and GSR if enough data was entered into databases.

vii. DNA: Highlights from the 2025 AAFS conference, which had the theme "Technology: a tool for transformation or tyranny?", were shared. There was a plenary session entitled "A double edged sword: exploring the benefits and perils of technology and artificial intelligence" which summarized AI in general and the possible future use of AI in forensics. The session included an example of how law firms are using AI to do legal research and how in one situation AI failed by hallucinating case law and inserting non-existent citations into a legal filing, which was discovered in court. This demonstrated the importance of human supervision and follow-up on the use of AI technology. It was noted that just because an algorithm is used does not mean that it involves AI or machine learning. STRmix, for example, uses algorithms but it is not machine learning or AI. Articles from the developers of STRmix are on the TEAMs channel. General consensus was that AI will never replace an expert, which aligns with what the subcommittee has been discussing. Another overall sense from the session was that AI is coming and that forensic experts need to make sure that it is developed to their likings and needs and that it is validated. While forensic experts may not be able to explain the algorithms, they will be able to point to validations to show that the technology was functioning as expected. There was a presentation in the jurisprudence section about a wrongful conviction that resulted from the use of facial recognition software. Other technologies involving AI in the criminal justice system such as acoustic gunshot detection and license plate readers were discussed.

   It was suggested that the article entitled "Machine learning applications in forensic DNA profiling," which is posted on the TEAMs channel, provides an informative introductory explanation of the different types of machine learning and the types of problems that can be solved with machine learning. The article talks about the fact that the application of machine learning in forensic science is very much in its infancy. One standout quote from article was, "while machine learning algorithms can provide valuable insight to support decision making processes they should not be used as a sole basis for legal decisions. Human experts should always be involved in interpreting and validating the results produced by the algorithms."

   One definition of AI was mentioned during the discussion specifically, "AI is computer software that mimics the way humans think so that it can perform complex tasks such as analyzing, reasoning, and learning." A definition of machine learning also was mentioned, "a subset of AI that uses algorithms trained on data to produce models that can perform the complex tasks." It was noted that most AI is performed using machine learning, but there are other methods that can be used to perform AI. Some everyday examples of machine learning include website search results and targeted online advertising.

The additional concept of "deep learning" which "builds more complex models inspired by the structure and functionality of the human brain with the aim of creating intelligent machines capable of making independent decisions" was raised. Deep learning is a subset of machine learning which is a subset of AI. ANNs are a type of deep learning that are used in one software that may have future applications or uses in forensic DNA.

viii. Firearms/Toolmarks: VCM technology, which is new to the discipline, was discussed. Some labs are using VCM for preliminary analysis or triage purposes (such as a preliminary determination of how many guns were used at a crime scene), but it is not being used for conclusions or court purposes. Trained subject matter experts make all conclusions or identifications. In the future, VCM technology will be used to provide a statistical weight for an expert's conclusions.

ix. 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.

x. 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.

b. Future topics and projects: Mr. Buford noted that a possible guest speaker who is well-versed in AI was identified and by consensus it was decided that Ms. Watroba will extend an invitation to him to attend a future meeting.

Ms. Baker provided an update on the LIMS Working Group, which has met to discuss current and historical LIMS systems. Members are reviewing a document related to recommendations for LIMS systems to facilitate discussion and identification of any gaps that may need to be addressed with LIMS provider(s). The LIMS Working Group will update the subcommittee as needed.

VI. Public Comments

a. No comments.

VII. Next Meeting/ Adjournment

a. The next meeting was scheduled for Wednesday, April 23, 2025, at 11:00 a.m.
b. Meeting adjourned at approximately 12:03 p.m.