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ASCLD FORENSIC RESEARCH COMMITTEE **BULLETIN**

FRC HOT TOPICS

With the launch of the new ASCLD website, we are excited to showcase the updated FRC section which makes your research collaborations and partnerships even easier to find. FRC can be found under the About Us tab.

The Forensic Technology Center of Excellence featured members of the FRC during their ASCLD Emerging Issues Webinar Series. The Advancing Research and Collaborative Research Partnerships in Forensic Science webinar highlighted information for forensic laboratories and universities that are interested in establishing research partnerships. Michael Marciano provided a review of data-sharing agreements and their importance in collaboration. Henry Maynard highlighted research partnerships, outlining ways individuals and organizations can collaborate on research projects. Ray Wickenheiser and Ashley Hall shared a successful research partnership between a forensic laboratory and a university, providing valuable insights on the best practices for research collaborations. View the archived webinar here.

The Forensic Laboratory Needs Technology Working Group (FLN-TWG) supports NIJ's mission to improve knowledge and understanding of the forensic technology needs of federal, state, local, and tribal forensic practitioners, and crime laboratories. They published <u>A</u> **Roadmap to Improve Research and Technology Transition in Forensic Science**. The Forensic Technology Center of Excellence Just Science Podcast featured a three part Roadmap to Improving Technology Transition series: JUST IMPROVING FORENSIC TECHNOLOGY TRANSITION, JUST BUILDING PARTNERSHIPS TO ADVANCE FORENSIC TECHNOLOGY, JUST ENHANCING RESEARCH TO IMPROVE TECH TRANSITION

If you are a researcher looking for practitioners to participate in your study, complete the project <u>form</u> to advertise your project to practitioners looking for research opportunities. If you are a practitioner looking to become involved in research opportunities, the following researchers are looking for participants:

Advancing the Understanding of 3D Imaging for Firearm Analysis

Research Organization: Center for Statistics and Applications in Forensic Evidence (CSAFE) Principal Investigator: Dr. Heike Hofmann (Iowa State University), Dr. Preshious Rearden (Houston Forensic Science Center) Email Address: hofmann@iastate.edu Phone Number: 515-294-7278 Website/URL: <u>Advancing the Understanding of 3D Imaging for</u> <u>Firearm Analysis (Page 1 of 11) (office.com)</u> Discipline: Firearms/Toolmarks Study Dates: January 1, 2024 - July 1, 2024

CSI and Forensic Laboratory Hiring Expectations

Principal Investigator: Joe Trevino

Email Address: joe.cruz.trevino@gmail.com

Website/URL: https://www.linkedin.com/in/joe-trevino/

Discipline: Laboratory and Field Investigation Disciplines (except Digital Evidence)

Abstract:

I am interested in establishing current minimum expectations and hiring requirements for entry-level Crime Scene Investigators (CSIs) and forensic laboratory personnel. While there are forensic science education accreditation standards via the Forensic Science Education Programs Accreditation Commission (FEPAC), the needs of our field can change quickly and I believe it is important to report a periodic baseline to keep all systems healthy.

There is some research into how FEPAC-accredited programs deliver their promise through curriculum and instruction, but the two surveys I am conducting ideally measure what Forensic Science Service Providers (FSSPs) expect from any institution, regardless of accreditation status or program type. The target here is coursework and sequence of courses. The data collected in the surveys will identify better goals and targets for students, parents, educators, universities, FSSPs, etc.

Those who are involved in the hiring process for CSIs and forensic science laboratory personnel are encouraged to participate. This can be the public or private sector, manager or investigator/analyst, any

COLLABORATION HUB

The FRC Collaboration Hub connects researchers and practitioners to promote active engagement and participation to support forensic science research projects. The FRC Collaboration Hub provides a "one-stop-shop" for researchers to solicit participation in specific projects and for practitioners to contribute their knowledge and experience to support research projects.

Forensic science practitioners can quickly and easily identify research projects related to their field of expertise and connect with the researchers to contribute to the success of the research while also advancing their field. Practitioners gain additional professional development opportunities while supporting and engaging in research projects. level or agency type. This research is currently being done independently from my employer and any of my affiliations at this time.

Survey links: <u>https://www.aafs.org/article/csi-and-forensic-lab-hiring-expectations-survey</u> Study Dates: November 13, 2023 – January 31, 2024

Support Requested: Survey participants

Estimated Participant Time Involved: 10-15 minutes

Deliverable Anticipated: Peer-reviewed article, Oral Presentation, Poster Presentation

Crime Laboratory Personnel Hiring Requirements and Expectations

Research Organization: New York Police Department

Principal Investigator: Joe Trevino

Email Address: joe.cruz.trevino+research@gmail.com

Website/URL:

https://qfreeaccountssjc1.az1.qualtrics.com/jfe/form/SV_6YD4Ng3WudU5C1U

Discipline: Laboratory Disciplines (except Digital Evidence)

Abstract:

This survey is designed to assess current understanding and attitudes about education requirements for forensic science professionals, the role the Forensic Science Education Programs Accreditation Council (FEPAC) plays in applicant preparation, and how well applicants from all forensic science educational backgrounds navigate the employment process. Those employed in crime laboratories who play an active role in reviewing and evaluating applicants for their agencies are encouraged to participate. This can be public sector forensic science or private sector forensic science. Your involvement in the hiring process does not have to be immediately in the past.

The data collected will be used to help inform forensic science educators, forensic science professionals, forensic science students, forensic science school applicants, and other stakeholders interested in forensic science education about employment hiring requirements and what the current landscape of forensic science education is.

Study Dates: June 12, 2023 – July 7, 2023

Support Requested: Survey participants

Estimated Participant Time Involved: 10-15 minutes

Deliverable Anticipated: Peer-reviewed article, Oral Presentation

GOT COLLABORATION?

"Collaboration divides the tasks and multiplies the success." ~Unknown

LIGHTNING TALKS

Lightning Talks typically air the third Thursday of each month.

Each episode features short (~7 min) talks on a themed topic given by practitioners, researchers, and/or students.



TUNE IN...

Thursday, February 15th at 1:00pm EST

New Advances in GSR Analysis

Speakers: Kourtney Dalzell from West Virginia University will be presenting, "Evaluating an Alternative Workflow for GSR Analysis", Thomas Ledergerber from West Virginia University will be presenting, "Understanding the Dynamics and Deposition of pGSR and OGSR", and Christopher George from NJSP Office of Forensic Sciences will be presenting, "Incorporating GSR research into a Forensic Laboratory".

Registration Link: Register Here

Recent Lightning Talks...

Analysis of alternative Seized Drug Matrixes

Touch DNA in Activity-Level Propositions

Data-driven appproaches to the forensic analysis of auto theft

Missed a Talk? All episodes can be viewed on <u>YouTube</u>.

Have an idea for a Lightning Talk, please email <u>ASCLDFRC@gmail.com</u>.

The goal of LEAP is to facilitate collaborative research between academia and forensic science laboratories. This joint effort between the American Society of Crime Lab Directors (ASCLD) and the Council of Forensic Science Educators (COFSE) identifies forensic science needs and provides a platform for laboratories, researchers, and students to seek projects aligning with their mutual research capabilities.

Take the LEAP to:

Exchange Subject Matter Expert Information Support for Testing, Evaluation & Validations Statistical Support/Consulting Internship Opportuunities Curriculum Assistance/Seminar Series Speaking Opportunities Curriculum Assistance/Seminar Series Speaking Opportunities

Sign up for the <u>FRC LEAP</u> program today or share your collaborations so others can learn how to implement these partnerships.

"Sometimes your only transporatation is a LEAP of faith." ~Margaret Shephard

OSAC RESEARCH and DEVELOPMENT NEEDS

OSAC documents and publicly shares with the forensic science community any research and development (R&D) needs that are identified during the standards development process. These needs may benefit a wide variety of stakeholders including LEAP partners.

The OSAC's subcommittees have identified needs in Biology, Chemistry: Seized Drugs & Toxicology, Chemistry: Trace Evidence, Digital Evidence, Medicine, Pattern Identification, & Scene Examination. OSAC encourages agencies to consider these needs when developing new solicitations and research projects so that efforts can be strategically advanced in areas where they are needed most. The OSAC Research and Development Needs can be found <u>here</u>.

LABORATORIES & EDUCATORS ALLIANCE PROGRAM





144 LEAP Partners:99 Universities45 Forensic Labs

Current World LEAP Partners (7): USA, Canada, Australia, Brazil, Mexico, Italy & Saudi Arabia



EVALUATION & VALIDATION REPOSITORY

The Evaluation & Validation Repository enables information sharing. The repository a list of unique validations and evaluations conducted by forensic labs and universities. The listing helps foster communication and reduce unnecessary repetition of validations and evaluations to benefit the forensic community.

Recent evaluations and validations submitted to the repository:

Foster+Freeman RECOVER LFT Validation

Keywords: RECOVER LFT, cartridge cases, metal Laboratory: Idaho State Police Discipline: Latent Prints Contact Name: Tina Walthall Email: tina.walthall@isp.idaho.gov Web link: https://isp.idaho.gov/forensics/validation/

Validation Report for Fire Debris Analysis by GC-MS

Keywords: Fire Debris, GCMS Laboratory: Palm Beach County Sheriff's Office Crime Laboratory Discipline: Trace Chemistry Contact Name: Tate Yeatman Email: yeatmand@pbso.org File link: <u>https://www.ascld.org/wp-content/uploads/formidable/13/Validation-</u> <u>Report-for-Fire-Debris-Analysis-by-GC-MS.pdf</u>

Method Validation Report for the Identification and Quantitative Threshold Testing of Tetrahydrocannabinol (THC) in Cannabis

Keywords: THC, Cannabis, Hemp, Quantitative Laboratory: Palm Beach County Sheriff's Office Crime Laboratory Discipline: Seized Drugs Contact Name: Tate Yeatman Email: yeatmand@pbso.org File link: <u>https://www.ascld.org/wp-content/uploads/formidable/13/Method-Validation-Report-for-the-Identification-and-Quantitative-Threshold-Testingof-Tetrahydro.pdf</u>

Screening of Suspected Overdose Samples with Randox MultiSTAT Analyzer

Keywords: Toxicology, Immunoanalyser, Drugs of Abuse, Post-mortem Blood Laboratory: Idaho State Police Forensic Services Discipline: Toxicology Contact Name: Tina Mattox Email: tina.mattox@isp.idaho.gov File link: <u>https://www.ascld.org/wp-content/uploads/formidable/13/Randox-MultiSTAT-Validation-Plan-and-Summary-with-Attachments.pdf</u> Web link: <u>http://www.isp.idaho.gov/</u>



Keywords: benzodiazepines, solid-phase extraction, LC/MS/MS Laboratory: Wisconsin Division of Forensic Science Discipline: Toxicology Contact Name: Jonathan Tomko (tomkojt@doj.state.wi.us), Leah Macans (MacansLJDOJ.STATE.WI.US), or Toxicology Technical Lead Email: tomkojt@doj.state.wi.us File link: <u>https://www.ascld.org/wp-content/uploads/formidable/13/Validation-Summary_20230310_final.pdf</u>, <u>https://www.ascld.org/wpcontent/uploads/formidable/13/Supplementary-Document-One_20230302_final.pdf</u>, <u>https://www.ascld.org/wpcontent/uploads/formidable/13/Validation-Preface_20230310_final.pdf</u>, <u>https://www.ascld.org/wpcontent/uploads/formidable/13/Validation-Pre-</u> face_20230310_final.pdf, <u>https://www.ascld.org/wp-</u> content/uploads/formidable/13/TXPM-6.5-Benzodiazepines_Z-drugs-1097-9.pdf

STRmix V2.6.2

Keywords: STRmix, Powerplex Fusion 6C, 3500 Laboratory: Palm Beach County Sheriff's Office Crime Laboratory Discipline: Biology/Serology Contact Name: Amy McGuckian Email: mcguckiana@pbso.org File link: https://www.ascld.org/wp-content/uploads/formidable/13/Estimation-of-STRmix-V2.6-Parameters-for-Palm-Beach-County-Sheriffs-Office-PowerPlex-Fusion-6C-3.pdf, https://www.ascld.org/wp-content/uploads/formidable/13/PBSO-STRmixv2.6.2-Internal-Validation-Powerplex-Fusion-6C-3500x1-CE.pdf, https://www.ascld.org/wp-content/uploads/formidable/13/STRmix-2.6.2-internalfunctional-testing-evaluation-summary.pdf

Internal Validation with PowerPlex Fusion 6C, Proflex PCR System, and 3500xL Series Genetic Analyzer Validation Report

Keywords: Fusion 6C, PowerPlex, ProFlex Laboratory: Palm Beach County Sheriff's Office Crime Laboratory Discipline: Biology/Serology Contact Name: Amy McGuckian Email: mcguckiana@pbso.org File link: <u>https://www.ascld.org/wp-content/uploads/formidable/13/Internal-Validationwith-PowerPlex-Fusion-6C-Proflex-PCR-System-and-3500xL-Series-Genetic-Analyz.pdf</u> Validation for the Qualitative Analysis of Seized Drugs by GC-IRD

Keywords: GC-IRD, Seized Drug, Cathinones Laboratory: Palm Beach County Sheriff's Office Crime Laboratory Discipline: Seized Drugs Contact Name: Ilene Alford Email: alforda@pbso.org File link: <u>https://www.ascld.org/wp-</u> <u>content/uploads/formidable/13/Validation-for-the-Qualitative-</u> <u>Analysis-of-Seized-Drugs-by-GC-IRD.pdf</u>

Validation Report for Quantitation and/or Qualitative Identification of Benzodiazepines, Opioids and Select Hypnotics in Whole Blood by LC MSMS

Keywords: Opioids, Benzodiazepines, Hypnotics, LC-MSMS, Whole Blood Laboratory: Palm Beach County Sheriff's Office Crime Laboratory Discipline: Toxicology Contact Name: Nick Tiscione Email: tiscionen@pbso.org File link: <u>https://www.ascld.org/wp-</u> <u>content/uploads/formidable/13/Validation-Report-for-Quantitation-</u> <u>and_or-Qualitative-Identification-of-Benzodiazepines-Opioids-.pdf</u>

Validation Report for Quantitation of Select Stimulants in Whole Blood by LC-MSMS

Keywords: Stimulants, LC-MSMS, Whole Blood Laboratory: Palm Beach County Sheriff's Office Crime Laboratory Discipline: Toxicology Contact Name: Nick Tiscione Email: tiscionen@pbso.org File link: <u>https://www.ascld.org/wp-</u> <u>content/uploads/formidable/13/Validation-Report-for-Quantitation-</u> of-Select-Stimulants-in-Whole-Blood-by-LC-MSMS.pdf "The only relevant test of the validity of a hypothesis is comparison of prediction with experience."

-Milton Friedman

FRC AWARDS

FRC Innovation Award

The award recognizes innovative research studies that have been <u>submitted</u> to the FRC Collaboration Hub within the last two years that have or will result in new technologies, protocols, or tools that impact the forensic science laboratory.

LEAP Partnership Award

The goal of the award is to recognize an outstanding <u>partnership</u> between collaborating LEAP partners.

Outstanding Validation/Evaluation Award

The award will recognize an outstanding evaluation/validation study that has been <u>submitted</u> to the FRC Evaluation/Validation Repository within the last two years.

Winners will be recognized at the ASCLD Annual Symposium and will receive an award plaque highlighting their contribution to advancing forensic science.

USEFUL FORENSIC RESEARCH LINKS

- <u>Center for Statistics and Applications in Forensic Evidence (CSAFE)</u>
- **RTI Forensic Technology Center of Excellence**
- <u>National Institute of Justice Office of Forensic Sciences</u>
- International Forensic Strategic Alliance (IFSA)
- IFSA Research and Innovation Position Statement
- OSAC Research and Development Needs
- NIST Forensic Data sets
- **CSAFE Forensic Data sets**
- FIU Research Forensic Library
- CFSRE Publications

THE FRC BULLETIN IS DESIGNED TO HIGHLIGHT DEVELOPMENTS WITHIN OUR CORE PRIORITIES. YOU ARE ENCOURAGED TO SUBMIT COMMENTS AND SUGGESTIONS REGARDING THIS BULLETIN TO ASCLDFRC@GMAIL.COM

THE FORENSIC RESEARCH COMMITTEE BULLETIN / VOLUME 5: ISSUE 1

"Motto for a research laboratory:

What we work on today,

Others will think of tomorrow."

~Alan Perlis



FRC Committee

Henry Maynard – Chair/LEAP Kathleen Carrado – LEAP Tracey Dawson Green – Lightning Talks Lisa Yoshida – Evaluation/Validation Repository Ashley Hall, Tracey Dawson Green – Awards Mandy Tinkey, Laura Tramontin – Outreach/Bulletin Ed Sisco, Ashraf Mozayani, Henry Swofford, Richard Meyers, David Kanaris, Shanley Garrett



FRC STRATEGIC GOALS:

- ADVANCE FORENSIC SCIENCE RESEARCH
- SUPPORT THE DEVELOPMENT OF FUTURE FORENSIC CAPABILITIES
- FURTHER CULTIVATE FORENSIC SCIENCE RESEARCH PARTNERSHIPS
- PROMOTE INFORMATION SHARING THROUGHOUT THE FORENSIC SCIENCE RESEARCH COMMUNITY
- IDENTIFY AND PRIORITIZE THE RESEARCH, DEVELOPMENT, TECHNOLOGY, AND EVALUATION (RDT&E) NEEDS FOR THE FORENSIC COMMUNITY



American Society of Crime Laboratory Directors Research Priorities 2022-2024



General Forensics	Development and validation of standardized forensic methods and conclusions in impressions, patterns, and trace evidence disciplines
	Development, evaluation, and validation of massively parallel sequencing techniques for whole genome sequences, partial genome sequencing, and other forensic casework applications such as proteomics
	Development, evaluation, and validation of statistical or other computational methods to augment interpretation and quantitatively assess the value and strength of forensic evidence
	Evaluation of accuracy and reliability of forensic examinations as a function of evidence quantity, quality, or complexity
	Exploring the best ways to communicate results generated through statistical or other computational methods to non-technical audiences, such as investigators, litigators, and factfinders
	Research to support the application of evaluative reporting (likelihood ratios/expanded conclusion scales) and testimony for forensic evidence other than DNA (e.g., trace materials)
	Development of local, National, and International ground truth data sets across a range of evidence types for source and activity inferences
	Understanding the impact of various types of biases (beyond confirmation and contextual bias) on practical decision making across all practitioner types from the scene to the courtroom within the criminal justice system by exploring risk in decision-making and harnessing knowledge in other fields such as medicine, engineering and across the social sciences
	Development of a standardized drying procedure for plant material to ensure consistent quantitative analysis of THC
	Error rate studies on qualitative analysis (single tests and schemes) in controlled substances
Controlled Substances	Differentiation between THC-rich and CBD-rich cannabis plants in the field (more sensitive tests) and in the laboratory (more specific tests)
	Alternative methods beyond GC-MS to distinguish fentanyl-related substances (e.g., positional isomers, analogs) including FTIR, derivatization, color test, or other widely used forensic techniques
	Applications for DNA analysis of marijuana to identify cultivar for sourcing and linkage applications



American Society of Crime Laboratory Directors Research Priorities 2022-2024



DNA/Biology	The ability to detect and locate sufficient biological material (e.g., epithelial cells, extracellular DNA) associated with touched or worn objects, that is not visible to the eye or with alternate light sources, for downstream DNA analysis Explore the use of Rapid DNA instruments for crime scene samples (e.g., touch DNA, sexual assault kits) with comparisons to traditional STR-typing methods
Questioned Documents	Validation of conclusion scale in forensic document examination
Pattern and Impression Evidence	Assessment of examiners' toolmark categorization accuracy
	Development, evaluation, and validation of methods to quantitatively assess the aptitude of candidates in pattern evidence disciplines
Trace Evidence	Development of an integrated and multidisciplinary approach for the advancement of data collection, data management and data analysis to aid interpretation of trace evidence
	Comprehensive GSR persistence study
	Specific identification of shooters via GSR
	Modelling the transfer and persistence of different trace evidence materials between a range of substrates