Pattern SAC Leadership

• Officers
  • Chair: R. Austin Hicklin, Noblis
  • Vice Chair: Lesley Hammer, Hammer Forensics
  • Executive Secretary: Thomas Busey, Indiana University, Bloomington

• Subcommittee Chairs:
  • Bloodstain Pattern Analysis: Toby Wolson, Retired (Miami-Dade Police Department)
  • Firearms and Toolmarks: Andy Smith, San Francisco Police Department Crime Lab
  • Footwear and Tire: G. Matt Johnson, Orange County Crime Laboratory
  • Forensic Document Examination: Rigo Vargas, Mississippi Crime Laboratory
  • Friction Ridge: Melissa Gische, Federal Bureau of Investigation
Pattern SAC Members and Liaisons

• Members
  • David Baldwin, Special Technologies Laboratory, USDOE
  • Ted Burkes, Federal Bureau of Investigation
  • Paul Kish, Paul Erwin Kish Forensic Consultant & Associates
  • Nicholas Petraco, John Jay College of Criminal Justice
  • Hal Stern, University of California, Irvine
  • David Stoney, Stoney Forensic, Inc.
  • John Vanderkolk, Indiana State Police Laboratory Division

• Ex-Officio Members
  • Liaison to Human Factors Committee: Rick Lempert, University of Michigan
  • Liaison to Legal Resource Committee: David Kaye, Pennsylvania State School of Law
  • Liaison to Quality Infrastructure Committee: Erin Henry, Oklahoma State Bureau of Investigation
Pattern SAC: Role

• Provide direction and oversight for 5 subcommittees
  • Firearms & Toolmarks
  • Footwear and Tire
  • Friction Ridge
  • Questioned Documents
  • Bloodstain Pattern Analysis

• Interface with the resource committees
  • Human Factors
  • Legal Resource
  • Quality Infrastructure
  • (OSAC-wide Forensic Statistics Task Group)

• Communicate activities, progress, recommendations
• Review, facilitate public comment, and approve standards and guidelines
• Coordinate research priorities
Pattern SAC: Purpose

• To foster the development of rigorous standards and guidelines within and across the pattern disciplines
• To assist in the adoption of these standards and guidelines
• To encourage enforcement of these standards and guidelines through accreditation, certification, and training
• To encourage evaluations to test and validate procedures
• To encourage research to improve the disciplines
• To enhance the rigor of these disciplines through transparent, accurate, and reliable processes
Pattern SAC: Priorities

• Coordination across disciplines in these areas
  • Current:
    • Conclusions
    • Terminology
  • Future:
    • Reporting
    • Training/competency/certification/proficiency
    • Accreditation
    • Testimony
    • Imaging
    • Documentation
    • Collection/Crime scene investigation
    • Research/General discipline needs
    • Validation
Pattern SAC: Role of affiliates

• Standards and guidelines are developed by task groups (with oversight from the SACs and subcommittees)
• Task group participation is not limited to OSAC members: subcommittee chairs can name OSAC affiliates to task groups
• International participants can participate as affiliates
• Active participation as an affiliate is considered in new member selection

• If interested, contact the appropriate subcommittee chair
Goals for standards and guidelines

• Standards and guidelines need to be practical: to be as rigorous as practical given current capabilities
• BUT
• OSAC also needs to recommend research to continually improve the disciplines in these areas

• Terminology and conclusions: consistent across disciplines
• Procedures: as quantitative and objective as practical
• Documentation: complete and transparent
• Conclusions, Reporting and Testimony
  • include all data on which conclusions are based
  • distinguish data, conclusions, and opinions
  • clearly state the limitations and caveats of conclusions
  • clearly specify the bases of opinions
Building on the work of the SWGs

• We want to make sure that OSAC does not sacrifice any of the benefits and successes of the SWGs

• Areas where OSAC can improve on SWGs:
  • Formal standards
    • SWG standards were often informal (or were actually guidelines), not defined in a way that would meet the requirements of a standard from an SDO (Standards development organization)
  • More powerful voice in making recommendations
  • Better enforceability
    • SWGs had no means of enforcing standards, no real authority
    • OSAC’s unified voice should have more authority in tying OSAC standards to training, accreditation, and certification
  • Coordination among disciplines
  • Broader basis for input and review
    • Membership is broader by design (e.g. including academic researchers)
    • OSAC includes statistical, quality, human factors, legal resources
    • Input (task groups)
    • Review (canvass process, SAC and FSSB approval)
Current Progress

- Pattern SAC documents at AAFS Academy Standards Board:
  - *Scope of Expertise in Forensic Document Examination*
  - *Guideline for the Articulation of the Decision-Making Process Leading to an Expert Opinion of Source Identification in Friction Ridge Examinations*

- Many draft documents in progress in subcommittees
- Firearms/Toolmarks and Friction Ridge subcommittees replied to the Dec 2016 PCAST RFI
- Multi-discipline *Standard for Source Conclusions* under development
- 24 research needs (see next slide)
Pattern SAC Research & Development Needs

Bloodstain Pattern Analysis:
• Behavior of Blood Outside the Body
• Bloodstain Pattern Classification
• Examiner Reliability Study: Black and White Box Studies on Bloodstain Pattern Analysts
• Interaction of Blood and Fabrics

Firearms & Toolmarks:
• Assessment of Examiners' Toolmark Categorization Accuracy
• Blind Verifications Needs Assessment
• Cognitive Bias: To What Extent Does It Affect Firearm and Toolmark Comparison Outcomes
• Effect of New Technology on Quantitative Consecutive Matching Striae ID Criteria
• Study to Assess the Accuracy and Reliability of Firearms and Toolmarks

Forensic Document Examination:
• Comparability and Complexity in Handwriting
• Hand Printing Complexity and Comparability
• National Database of Handwriting
• Validation of Conclusion Scale

Friction Ridge:
• ACE-V Bias
• Assessing the Sufficiency and Strength of Friction Ridge Features
• Close Non-Match Assessment
• Examiner Consistency During Friction Ridge Feature Mark-Up
• Friction Ridge Statistical Modeling
• Latent Fingerprint Image Quality Usage

Footwear and Tire:
• Examiner Reliability Study: Black/White Box Study on Footwear and Tire Examiners
• National Footwear Database/Reference Collection
• Population Frequency of Class Characteristics: Footwear in the United States
• Probability of Randomly Acquired Characteristics
• Testing & Validation of 3D Imaging Technologies for Footwear & Tire Impressions Evidence
Comments or questions?

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