Communicating Forensic Findings (CFF) Workshop

Rockville, MD

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NIST Scientific Foundation Reviews

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NIST Special Programs Office

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY
U.S. DEPARTMENT OF COMMERCE

NIST Forensic Science Program

https://www.nist.gov/spo/forensic-science-program

Special Programs Office — **Shyam Sunder**

Research at NIST in 8 focus areas:

- Biometrics
- Digital Evidence
- Drugs and Toxicology
- Evidential Statistics
- Firearms and Toolmarks
- Forensic Genetics
- Forensic Science Quality Assurance
- Trace Evidence

Robert Ramotowski

Standards efforts involve administering **OSAC**

22 forensic disciplines with **>800 participants** from across the community

OSAC REGISTRY

190 forensic science standards
(as of 4 June 2024)

OSAC LEXICON

>4,000 terms
organized by forensic discipline

OSAC IMPLEMENTER

>150 implementers
forensic science service providers

John Paul Jones

Foundation Studies


NISTIR 8225

NIST Scientific Foundation Reviews

- DNA Mixture Interpretation
- **Digital Investigation Techniques**
- **Bitemark Analysis**
- Firearm Examination
- Footwear & Tire
- Communicating Findings (LR)

John Butler

Scientific Foundation Studies

https://www.nist.gov/forensic-science/interdisciplinary-topics/scientific-foundation-reviews

Goal: Identify the scientific foundations that support and underpin forensic methods and document and assess empirical evidence for the reliability of these methods using publicly available data and peer-reviewed literature.

a topic is selected

Initial Input
(Resource Group, **Workshop**, Interlab Study, etc.)

NIST Process

A Study Team Works

DRAFT Report

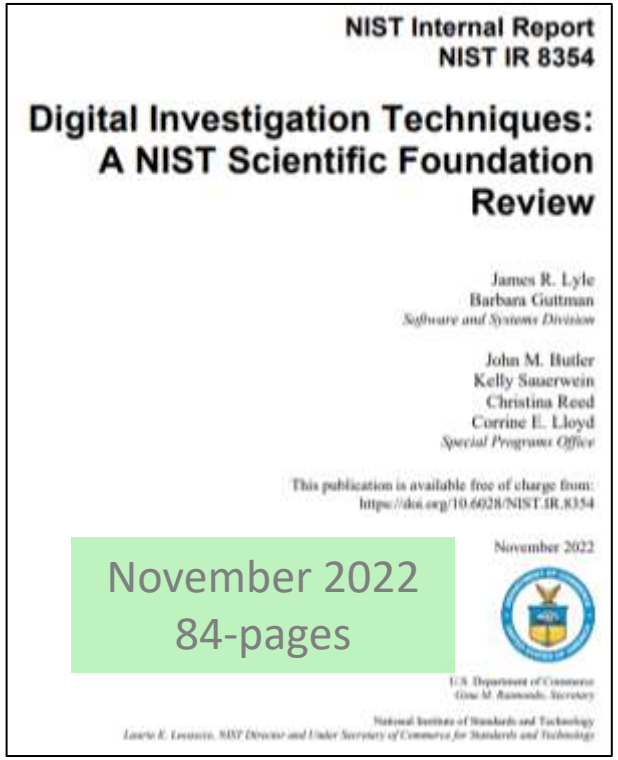
Public Comments on Draft Report

Consider Public Comments Received

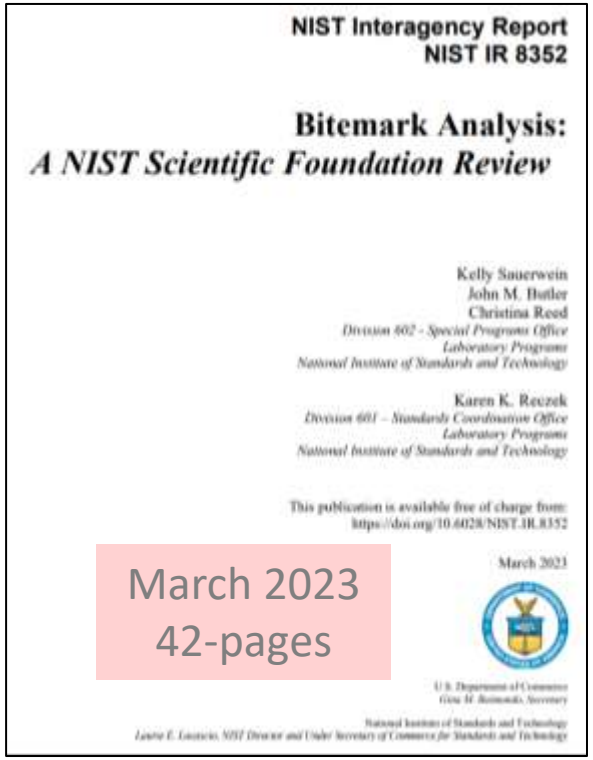
FINAL Report

Our approach to conducting these studies, also known as technical merit evaluations, is described in NIST Interagency Report NISTIR 8225: ***NIST Scientific Foundation Reviews***

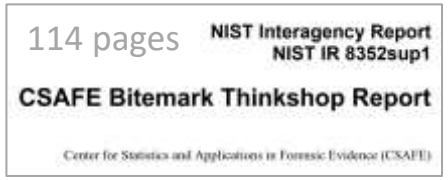
NIST Foundation Study Reports

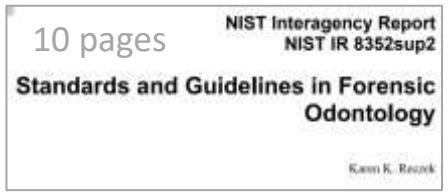


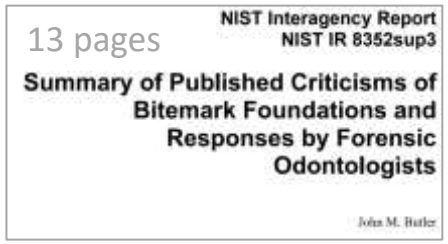
Digital evidence examination **rests on a firm foundation based in computer science.** Extensive testing of over 250 widely used digital forensic tools showed that **most tools perform their intended functions with only minor anomalies**.

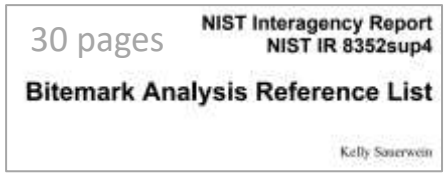


Supplemental Documents

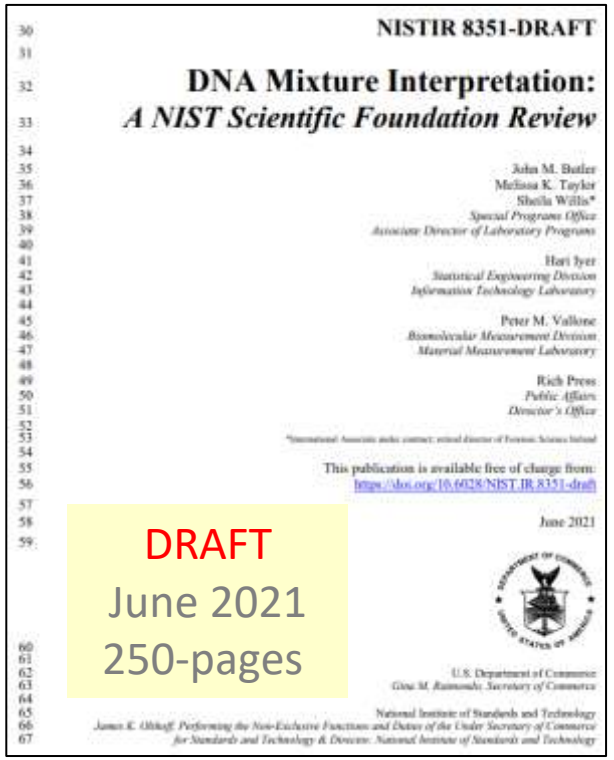








Forensic bitemark analysis **lacks a sufficient scientific foundation** because the three key premises of the field are not supported by the data.



Received [extensive public comments (~500 pages)] that are being considered along with additional information since June 2021. **We will release a final report when completed**.

https://www.nist.gov/forensic-science/interdisciplinary-topics/scientific-foundation-reviews

Why Study Communicating Forensic Findings?

- Identified as a need in the DNA Mixture Interpretation Draft Report
  - **Key Takeaway #4.8**: We encourage a separate scientific foundation review on the topic of likelihood ratios in forensic science and how LRs are calculated, understood, and communicated.

- The planning committee felt it would be useful to expand this workshop to cover communicating forensic findings rather than simply discussing likelihood ratios

- NIST previously held **two workshops (in May 2016 and June 2017) on quantifying the weight of forensic evidence** with some helpful content and discussions to build upon…

Previous NIST Workshops
on Quantifying the Weight of Forensic Evidence

- **May 5-6, 2016**:
  - (Presentation slides available) https://www.nist.gov/itl/iad/image-group/tc-quantifying-weight-forensic-evidenceonline-proceedings
  - (Presentation videos available) https://www.nist.gov/news-events/events/ibpc-technical-colloquium-quantifying-weight-forensic-evidence
  - (Bibliography of 21 key articles) https://www.nist.gov/itl/iad/image-group/quantifying-weight-evidence-reading-material

- **June 27-29, 2017**:
  - https://www.nist.gov/itl/iad/image-group/technical-colloquium-quantifying-weight-forensic-evidence

Approach to Conducting These Foundation Studies

Our approach to conducting these studies, also known as technical merit evaluations, is described in NIST Interagency Report NISTIR 8225: ***NIST Scientific Foundation Reviews*** and generally follows these steps:

1. A forensic discipline, method, and/or practice is selected for study
2. Publicly available scientific literature and information are gathered
3. **A workshop may be held seeking input from members of the community**
4. Team of NIST scientists and outside experts meet, discuss, and draft report and supplemental documents
5. Information is shared and received at forensic conferences during the deliberation phase
6. Draft reports are made available for public comment along with supplemental documents and all public comments received are shared
7. After considering public comments, reports are finalized and made available on NIST website

https://www.nist.gov/forensic-science/interdisciplinary-topics/scientific-foundation-reviews

Thank you for your attention!

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- Logistics: Corrine Lloyd, Donna Ramkissoon, Dalia Travis, Pauline Truong
- Thank you for attending and participating over these two days

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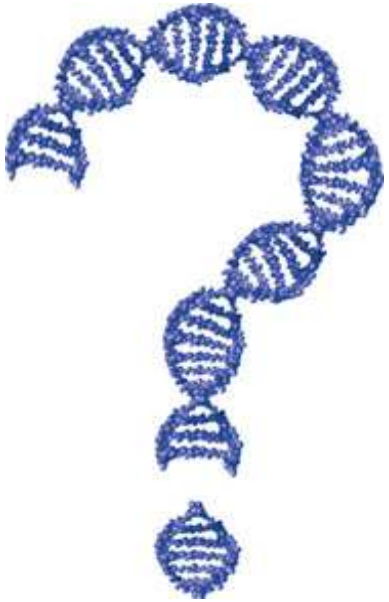

Questions?

Feel free to contact us for further information