

OSAC RESEARCH NEEDS ASSESSMENT FORM



Title of research need:

Describe the need:

(1) Develop additional or refine existing models that provide an assessment of the discriminating strength of features (friction ridge skin structures) used during examination. (2) Assess the weight given to friction ridge skin damage such as cuts, abrasions, scars, creases, warts and blisters in friction ridge examination. (3) Research quantification of sufficiency that must be measured in order to support examination decisions, including simultaneity. (4) Develop tools to assist the examiner measuring localized quality of friction ridge features during the analysis stage. (5) Develop mechanisms to interpret and assign weights to discrepancies observed during the comparison process. Research in this area should study the distortion of the friction ridge skin when applied with various forces and movements on substrates both qualitatively and quantitatively.

Keyword(s):

Submitting subcommittee(s): **Date Approved:**

(If SAC review identifies additional subcommittees, add them to the box above.)

Background Information:

1. Does this research need address a gap(s) in a current or planned standard? (ex.: Field identification system for on scene opioid detection and confirmation)

2. Are you aware of any ongoing research that may address this research need that has not yet been published (e.g., research presented in conference proceedings, studies that you or a colleague have participated in but have yet to be published)?

3. Key bibliographic references relating to this research need: (ex.: Toll, L., Standifer, K. M., Massotte, D., eds. (2019). Current Topics in Opioid Research. Lausanne: Frontiers Media SA. doi: 10.3389/978-2-88963-180-3)

4. Review the annual operational/research needs published by the National Institute of Justice (NIJ) at <https://nij.ojp.gov/topics/articles/forensic-science-research-and-development-technology-working-group-operational#latest>? Is your research need identified by NIJ?

Indirectly -- this research impacts "Determination of accuracy and reliability of forensic analyses and conclusions, including potential sources of error", "Scientific foundations for expert conclusions of forensic evidence", and "Practical statistical approaches for the interpretation of forensic evidence".

5. In what ways would the research results improve current laboratory capabilities?

Better understanding of the weight of different features during the examination process will improve the confidence, error rates, and overall effectiveness of examiners.

6. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

Currently there is not a reliable assessment of the discriminating strength of specific friction ridge feature types. Standardization of the mark-up of friction ridge evidence is currently being studied. However, even if the mark-up of features in the "Analysis" phase of ACE-V were completely standardized, not knowing the weight of each feature type prohibits comprehensive standards for friction ridge evaluation decisions.

7. In what ways would the research results improve services to the criminal justice system?

Services will be improved to the criminal justice system by increased reliability of examination decisions.

8. Status assessment (I, II, III, or IV):

I

	Major gap in current knowledge	Minor gap in current knowledge
No or limited current research is being conducted	I	III
Existing current research is being conducted	II	IV

This research need has been identified by one or more subcommittees of OSAC and is being provided as an informational resource to the community.