OSAC RESEARCH NEEDS ASSESSMENT FORM

Title of research need: Effect of Specific Data Variations on Forensic Speaker Recognition Results

Describe the need: Studies are needed on the effects of key environmental, behavioral, and recording variations on the output and reliability of forensic speaker recognition methods. Variations of interest include sample duration; speech quality; vocal effort; speaker stress/mental state/health; added background speech, singing, or chanting; reverberation and room acoustics; aging.

Keyword(s): Forensic speaker recognition, audio recording, extrinsic variations, intrinsic variations

Submitting subcommittee(s): Speaker Recognition **Date Approved:** February 26, 2021

(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)

Yes - this research will determine the effects of key environmental, behavioral, and recording variations on the output and reliability of forensic speaker recognition (FSR) methods. This could consist of multiple short "triage" studies followed by more in-depth research on the most important factors they identify and are not already being addressed in other forensic-focused research activities.

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)?

There is some ongoing research pertinent to forensic activities by both commercial and academic entities which has not been published. Factors of interest include sample duration; speech quality; vocal effort; speaker stress/mental state/health; added background speech, singing, or chanting; reverberation and room acoustics; longitudinal voice changes (aging).

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)

TBD

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?

No.

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

Almost all FSR analysis requests include the audio and recording variations of interest, so the determination of their effect on FSR methods' results will help (1) determine when analyses should or should not be performed, and (2) allow analysts to better determine and document the reliability of their results.
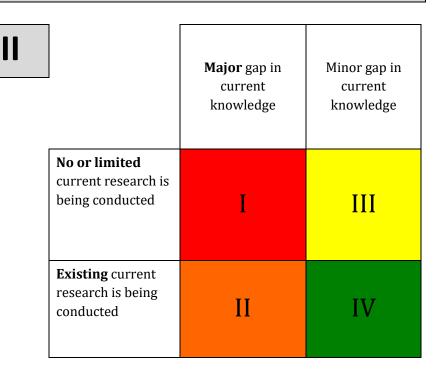
6. In what ways would the research results improve understanding of the scientific basis for the subcommittee(s)?

This research relates to key issues related to the scientific basis of FSR. While research has been performed on these factors in the past, it was rarely focused on forensic scenarios (vice simplified research problems) and used simplified data sets which are often not representative of forensic data.

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

This research would greatly strengthen the scientific basis and court acceptability of FSR techniques, allowing their wider use in the criminal justice system.

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

II

	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.