When to Punt on Speaker Comparison?

Reva Schwartz¹, Joseph P. Campbell²*, Wade Shen²*

Reva.Schwartz@iss.s.dhs.gov

In forensic speaker comparison, it is crucial to decide when completion of the examination may not possible (punt). We explore the factors that make speaker comparison decisions difficult or impossible. These factors may include: duration, noise, speaking style, language/dialect, mental state, number of speakers, type and quality of recording, and deception. The analyst needs criteria to decide to reject case work. We present analysis of some of these factors and their impact on automatic speaker recognition systems. We propose a methodology for setting objective thresholds by which comparison examples can be rejected. This methodology could be used by forensic analysts to decide whether or not to proceed with speaker comparisons involving these factors.

¹ United States Secret Service
² MIT Lincoln Laboratory

* This work is sponsored by the Department of Defense under Air Force contract FA8721-05-C0002. Opinions, interpretations, conclusions, and recommendations are those of the authors and are not necessarily endorsed by the United States Government.