# Section 4.
Panel Descriptions

Speech Chain Analysis for Speaker Recognition Systems and Likelihood Ratios to Express Score Probabilities Under Competing Hypotheses

Speech chain analysis could become an important systems engineering tool for assessing and managing the source of errors in the design of speaker recognition systems. Speaker recognition systems are designed to gather information opportunistically from sometimes-uncontrollable environments via available technologies, which place a strong requirement on the analytic tools and personnel since the opportunity to recapture voice samples after the fact is non-existent. By mathematically modeling the speech energy/signal process of the entire speech chain, from the human source to the analysis of the resultant data, various speech capture ….
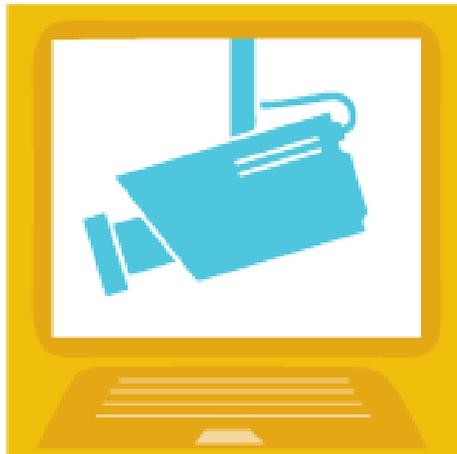
Understanding the Relevance of Error Rates in a Digital World

Like other forensic disciplines, digital evidence is prone to errors from several sources, including analyst errors, technique limitations, and imperfect software tool implementations, sometimes referred to as systematic errors. However, with proper quality assurance procedures in place, errors of this type can be recognized and potentially mitigated. Another type of error can be described as random in which a process produced error can be evaluated by a statistical rate. Unlike many other forensic disciplines, digital evidence is not purely seeking if two artifacts are from the same source, instead, digital evidence seeks to show or imply actions by an individual. As such, random errors are not necessarily appropriate as an evaluation tool in a digital evidence process. This panel brings together seasoned digital evidence professionals from government, academic, and private organizations in a discussion on how error rates should be addressed when evaluating the confidence of a digital evidence exhibit.

Human Factors in Pattern Evidence: How the OSAC Physics/Pattern SAC Subcommittees are Considering Measures to Mitigate the Effects of Bias

Examinations in pattern evidence disciplines, such as Firearms and Toolmarks, Footwear and Tire, and Friction Ridge Analysis, can be influenced by various cognitive, contextual, and human factors. The interpretation of pattern evidence requires human judgment, which involves subjective decision-making. This panel will discuss practical considerations for implementing measures to mitigate the effects of various human factors during pattern evidence examinations.