



LR applied to fingerprint comparison and accreditation ISO/IEC 17025: a possible path forward

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Target audience : Experts, quality managers, interested laymen

Maximal number of participants: 30

Minimum number of participants:10

Duration of workshop: 3hrs

The individualization based on fingerprints comparison is a process highly related to the practitioner's skills, training and experience. In the last decade, a scientific approach to evaluate the strength of the comparative phase of forensic sciences was introduced with the Bayesian statistics.

Currently, the analysis of the fingermarks is not a proper measurement process (with an associated error). The analysis of the mark is conducted by the practitioner, locating the characterizing features with a subjective evaluation. By introducing the Likelihood Ratio concept in the comparison of a fingermark with a known fingerprint, it could be possible to provide a quantitative estimation of the certainty of the assessments formulated during the comparative process. In order to apply Bayesian statistics we need to have two mutually excluding hypotheses. In fingerprint domain each comparison between a mark and a print brings two alternative hypotheses: the mark has the same source of the known fingerprint or the mark has been produced from a random source in the reference population. With the introduction of the LR value, which can be subjectively estimated or calculated, it should be possible to quantify which is the more probable between the two considered hypotheses. In our view, this approach represents a valuable improvement to strengthen the scientific basis of the fingerprint identification.

The introduction of the Bayesian approach in agencies' procedures is supported by dozens of scientific publications: it can be certainly considered as a fruitful resource with respect of ISO/IEC 17025 accreditation for fingerprint laboratories, foreseen in EU by the Prum Treaty. Particularly, it could be useful in order to validate the evaluation stage of the so called ACE-V process.

After the introduction and a brief summary of the Bayesian approach applied to fingerprints, an overview of the state of the art related to the implementation of this statistical tool for the forensic purposes will be discussed. The second part of the workshop tackles how to exploit the LR evaluation for the accreditation of the fingerprints laboratories. Ideas, experiences and good practices already implemented can be exchanged among the participants and a fruitful discussion is encouraged.