Highlights of the presentations

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Forensics

Forensic sciences

Forensic science

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From casework to research: A contribution to condom evidence analysis

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- Other types of evidence than DNA can be investigated in sexual assaults/rape cases
- Condoms are typically one of the alternative evidence to look for and are often neglected
- There is an existing analytical and interpretative framework assisting the analysis of condom evidence

Interpreting automated face recognition scores for court purposes

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- Computing likelihood-ratios from automatic systems comparison scores allows interpreting face recognition evidence
- Some systems might detect and include glasses when comparing faces
- Open-source algorithm FaceNet is not reliable enough to be used in court but would be a valuable tool for investigation
- Idemia MorphoFace latest system seems fit for court purposes
- Likelihood-ratio calibration is essential to improve the robustness of probabilistic models.

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Uncertainty in Digital Forensic Science

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- Although primordial for an appropriate use of digital evidence, communicating uncertainty in digital forensic science is difficult. Standards to do so are lacking
- The information carried by digital evidence is influenced by factors when created and it is possible to quantify this influence. A model was proposed
- The geolocation metadata accuracy of a picture taken with a mobile phone is dependent on the type of location where the picture was taken
- Those locations can be separated into 4 categories, tests are required on site to classify a new location

Source inference of gasoline traces: study of the combined contribution of molecular and isotopic compositions

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- MS and IRMS data are complementary for the discrimination of gasoline samples originating from different sources
- The multiblock method – CCSWA – is useful to improve clustering of non-degraded or evaporated samples, and fire debris specimens coming from the same source
- Combining MS and IRMS data using CCSWA improves the clustering process compared to the results of each identification method

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What drugs are injected ? Added value of forensic approach

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- Harm reduction service :
  - Prevent the people who inject drugs when a new substance (potentially more harmful) is detected
- Gain knowledge about pattern consumption of people who inject drugs and help to face the new challenges
  - Data triangulation : No key indicator gave the overall picture, collaboration between several services is needed
- Drug market is regio-specific but some global pattern could be observed

https://www.emcdda.europa.eu/topics/escape

Investigation of fingermark detection by $VMD_{Au/Zn}$ on alkyl-trichlorosilane modified glass

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- Modification of the surface chemistry and surface morphology had a strong impact on the interaction of fingermark residue and deposition of gold and zinc
- OTS-coated glass improved fingermark quality compared to glass
- MTS-coated glass negatively impacted fingermark quality (compared to glass)
- Characterization of the substrate and fingermarks with surface analytical techniques (AFM, SEM) improves our understanding of substrate-residue and substrate-metal interactions