

Security & Evidence

11:00-11:30 Police Interrogation

The Smart Solution project is about the police interrogation, one of the most widely used techniques in crime investigation. During an interrogation, police officers will look for crucial information from the witnesses. On the basis of this information, police investigators can reconstruct the criminal event. However, many interrogation techniques pay less attention to the physical circumstances/environment. This research focuses on the research question 'whether the physical environment of an interrogation room could influence the willingness to explain'. Is it possible to influence the behavior of witnesses by using different colors, sounds or lights?

For the experiments a bare interrogation room and a furnished interrogation room were used. In both rooms the same test was done by test subjects in order to measure a difference. After the test the opinion of the test subject was asked by means of open questions. The presentation is given on the basis of powtoon with a processed Info Graphic.

11:30-12:00 CSI Drone

Part 1:

The Netherlands is one of the largest players in the drugs market, and in order to meet this demand a great deal of drugs has to be imported from and exported to other countries. In order to check all packages for the presence of drugs, the exterior has to be scanned with the Delta-R system. This can be used to show by means of reflection whether there are drugs on the exterior of the package. Our project has focused on cocaine and MDMA in order to set up a method to demonstrate this on mail parcels. Variables such as the speed of the conveyor belt, distance from the light source to the parcel, amount of drugs on the parcel and the material of the parcel were used to write this method.

Part 2:

The Netherlands is one of the biggest producers of synthetic drugs in the world. Substances like MDMA and amphetamine are synthesized in illegal laboratories for usage in the Netherlands and other countries. Drug production on this scale causes several problems. Examples are nuisance, violence and illegal dumping of drug waste. At the moment it is difficult to track down these illegal laboratories. In this project we looked at the possibility to detect synthetic drug laboratories from the sky with a drone equipped with sensors and bags for air sampling.

To analyse air samples we used a GC-MS/MS. This is a device that uses gas chromatography and mass spectrometry to detect substances in air samples. We took reference samples at different locations to get insight in what substances can normally be found in the air. In this we could rule out substances if they were also found in air samples around the illegal laboratories. The next step was to analyse the air samples taken near synthetic drug laboratories. Sadly we couldn't get access to these samples. Therefore we looked more into the analysis of component with GC-MS/MS and the stability of component in air sample bags.



The future is here



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12:00-12:30 Cold Case

Form symposium: a recording with information about our project and a view of how we work in the laboratory.

Content of the video:

- General introduction of the project
- Instructions about the protocols we use and why we use these
 - o Sample preparation
 - o Vacuum filter method
 - o Single cell isolation
 - o Whole gene amplification
 - o DNA Purification
 - o STR amplification
 - o DNA fragment analysis
- Hollow Fibers
 - o Materials hollow fibers
 - o Capillary function fibers
 - o Sample preparation
 - o Removing cells from the fibers
- Ceramic membrane
 - o DNA Isolation
 - o Sample preparation
 - o Ceramic membrane on a textile
- Our results so far
- A view of how we work in the laboratory.

12:30-13:00 Combat Information Center of the Future

De Thales Group is een wereldwijde electronica onderneming die actief is op het gebied van luchtvaart, defensie en informatietechnologie. Een van de producten van Thales is de Combat Information Center, deze verzameld en verwerkt alle inkomende data op een marine schip. In de toekomst zullen er meer dreigingen komen, zoals Cyber- en Space-warfare, en dus meer te verwerken data. Deze verhoogde datastroom moet in de toekomst met minder mensen verwerkt worden, dus moet de CIC efficiënter worden. Wij zijn door Thales gevraagd om een design te maken voor de CIC in 2050. Wil jij onze hightech visie zien voor de CIC of the future? Kom dan naar onze presentatie op het symposium.



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13:00-13:30 DaVinci QD

Het tijdstip waarop het fysieke contact heeft plaatsgevonden, dat cruciaal kan zijn om de dader aan het misdrijf te koppelen, is tot op heden nog niet uit vingersporen te achterhalen. Om deze reden is het bepalen van de leeftijd van vingersporen tijdens het DaVinciQD-project onderwerp van interesse geweest. Gedurende het DaVinciQD-project is er een standaardisatiemethode ontwikkeld voor het afnemen van vingerafdrukken en is er een poging gedaan om deze vingerafdrukken zichtbaar te maken, door ze te laten fluoresceren, met een specifiek antilichaam of Quantum Dot. Aan de hand van de fluorescentie wordt getracht de datering van de vingersporen mogelijk te maken. De projectgroep heeft een aantal belangrijke eerste stappen kunnen maken, waarbij bijvoorbeeld aandacht is besteed aan het bepalen van de zuiverheid en het identificeren van de structuur van Quantum Dots, is er een visualisatie experiment uitgevoerd en is er geëxperimenteerd met de kleurcondities van een specifiek antilichaam.



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