

FIGHTING CRIME AND TERRORISM

PITCH SESSION



<http://nicc.fgov.be/> (NL)

<http://incc.fgov.be/> (FR)

- **Location:** *Belgium, Brussels*
- *National forensic institute: main tasks:*
 - Criminal case work: evidence analysis and expert reports
 - R&D to support local and federal LEAs and magistrates
 - Training and education, international collaboration (e.g. via ENFSI)
 - National criminalistics data bases
- **Experience:**
 - ISEC/ENFSI MP: <http://s-five.eu/> : forensic image/video enhancement
 - H2020-2016-FCT: <http://asgard-project.eu/> : digital forensics
 - ISFP-2016-AG-IBA-ENFSI : ValiD/STeFA: digital forensics tool validation
 - Submitted proposals: 1x SU-FCT02: "SFERA", 1x SU-FCT03: "CRISTE"
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[SU-FCT02-2019](#)

Trace qualification

Our 3 major needs

What?

1. *"Correct and complete" processing of huge amounts of data, including trace data*
2. *Optimized trace data analysis workflows with continuously updated results,*
3. *(Beyond) state-of-the-art user-friendly data triage and deduplication tools*

Why?

1. *Today large amounts of raw ("unknown") trace data remain not properly processed,*
2. *Preventing imminent attacks and pre-meditated crimes in general*
3. *Eliminate big/bulk data to enable trace evidence focused investigation*

Digital Trace Evidence Data Forensics:

- *Advanced **partial data triage and deduplication** tools*
- ***Error robust** digital trace evidence analysis tools*
- ***Forensic tool validation and QA performance analysis**
(extending (far) beyond traditional software testing)*
- *State-of-the-art **AI/Machine Learning methods**
(including robustness and forensic QA analysis)*

What NICC can provide:

- *Skills and experience in software based digital forensics for:*
 - File (system) (meta-)data recovery and robustness testing
 - State-of-the-art methods for data recovery and repair
 - Tool testing and validation in digital forensics
- *Example tools:*
 - JPGcarve: carving and reassembly of fragmented JPEG pictures
<https://ieeexplore.ieee.org/document/7230269/>
 - PNGcarve: carving and reassembly of fragmented PNG images (under further dev. within ASGARD project)
 - MFTcarve: reconstructing corrupted MicroSoft NTFS file system meta-data
 - Tool for visualization and (reporting on) examination of device data dumps
 - Early prototype tools for recovery/repair of incomplete data (headerless JPG & PNG, headerless/damaged GIF, headerless/damaged/incomplete H.265 video)