



What is Steganography?

In recent years, the criminal use of information hiding techniques (i.e., steganography) in digital media such as images, video, audio and text files has been increasing rapidly. An important reason for this is that many steganographic tools have been made available as program source code packages. Consequently, perpetrators can easily selectively pick, adapt and combine information hiding tools for their criminal activities.

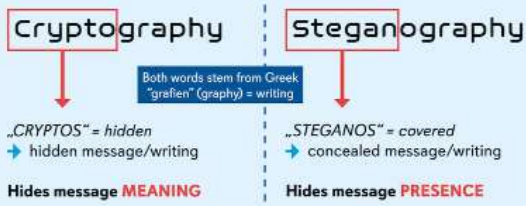
Due to the availability of tools, we are observing a significant increase in the use of steganographic methods in typical areas such as cybercrime and malware attacks and campaigns as well as beyond.

In preparation of UNCOVER, an initial survey of the Criminal Use of Information Hiding (CUIng) initiative on the Europol Platform for Experts (EPE) reveals that evidence of steganography and related principles has been found in a wide variety of types of crime including child pornography, industrial espionage, criminal attacks on enterprises, credit card fraud and skimming, system intrusion, and backdoor injection and delivery methods.

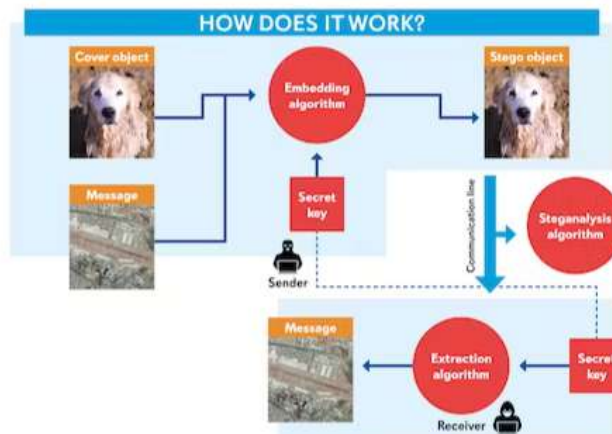
However, steganographic methods and technologies are a major challenge for Law Enforcement Agencies (LEAs) due to a lack of resources and procedures for investigations or structured operations. These problems are amplified by the increasing amount of digital evidence that LEAs and judicial partners have to handle.

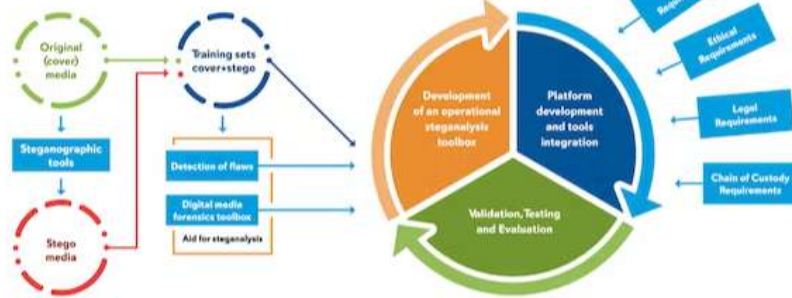
UNCOVER therefore aims to address these issues and to further develop steganographic tools in order to establish a tailored toolkit for LEAs.

WHAT IS STEGANOGRAPHY?



HOW DOES IT WORK?





UNCOVER OBJECTIVES

1. **Conduct** a detailed analysis about the various aspects of the needs and requirements of LEAs for detecting and investigating steganography.
2. **Consolidate** relevant information about existing steganographic tools and centralise this information in an intuitive database for LEAs.
3. **Improve** existing methods for operational steganalysis in digital media workflows.
4. **Implement** a flexible online-platform by combining the micro-service architecture with REST- APIs for supporting interoperability.
5. **Demonstrate** the steganographic detection capabilities with realistic test cases and scenarios delivered by the LEAs.
6. **Analyse** the requirements in order to make the obtained results admissible in European court rules.
7. **Provide** a comprehensive training program for LEAs and forensic institutes by providing in-house training.
8. **Validate** the project results with practitioners, disseminate the outcomes, and prepare an exploitation plan.

OBJECTIVES OF UNCOVER



IMPROVE existing methods



IMPLEMENT Platform



DEMONSTRATE with real life cases



PROVIDE training programme

NEWS



Universidad de Vigo (UVIGO) | 12-09-2022

UVIGO has led together with CNRS, RMA, and UTT a special session proposal that was accepted for the 30th European Signal Processing Conference, [EUSIPCO 2022](#), held in Belgrade (Serbia) last week. EUSIPCO is the premier European conference on signal processing and the main goal of the proposed special session, entitled "Source Heterogeneity Problems in Multimedia Forensics and Steganalysis", was to attract papers investigating different ways to mitigate the significant drop in performance that occur in steganalysis and forensics when dealing with multimedia contents whose provenance is unknown.

This problem, known as CSM (i.e., Cover-Source Mismatch) in steganalysis, often happens in practice and becomes especially relevant when it comes to tools based on machine learning techniques (where the contents composing the training set are not sufficiently diverse to represent the real world), but also when striving towards deploying research tools in an operational context, which is the ultimate goal of the UNCOVER project.

The special session received a total of 6 papers: 5 of them were finally accepted, of which, 4 were written by partners of the UNCOVER project (in particular: one paper from UVIGO, one paper from UIBK, one paper from CTU, and a joint paper by UTT, CNRS, and RMA). All works were presented at the conference by representatives of the partners, where fruitful discussions have taken place and will definitely favor the development of more robust tools within the UNCOVER project, so that in the near future they could be deployed as operational services to be used in practice by LEAs, forensics experts, etc. in their investigations.

The program of the conference: [file](#)



'We need to be alert in terms of detecting suspects' hidden messages'

Netherlands Forensic Institute | 26-07-2022

The Netherlands Forensic Institute (NFI) provided a press release on steganography research, explaining the UNCOVER project and how law enforcement agencies, universities, and businesses are working together to develop tools to detect and read hidden messages in videos and images.

Meike Kombrink (NFI), explains the meaning of steganalysis and how seemingly innocent videos, photos, audio, or text can be used by criminals to hide drug messages or display child sexual abuse material on a public platform.

She shows how difficult it is to detect hidden messages with the naked eye, what attacks were performed using steganography, and how it is possible to verify whether or not an image file has a hidden message.

Take a look at the article produced by the NFI: ['We need to be alert in terms of detecting suspects' hidden messages' - UncoverProject](#)





UNCOVER Events

The UNCOVER project has already been presented at various public events such as SICUR in Madrid or at the 21st Annual Conference of the European Society of Criminology to familiarize stakeholders such as law enforcement agencies about the results and potential of the project.

In mid-2022, UNCOVER was once again providing updates and insights to stakeholders, at the CEPOL European Research & Science Conference in Vilnius, and at the European Academy of Forensic Sciences Conference in Stockholm, to publicize the project.

The UNCOVER Consortium is now planning to participate in the [23rd Triennial Meeting of the International Association of Forensic Sciences](#), in conjunction with the 26th Symposium of the Australian and New Zealand Forensic Science Society, to be held in November 2023, at the International Convention Center Sydney, Australia.

At this event, they will have the opportunity to connect with the world's leading academics and practitioners across all disciplines of forensic science, and strategically address critical issues to identify potential solutions for stronger and more reliable forensic science in the future.

More updates on the UNCOVER website:

<https://www.uncoverproject.eu/>

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This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101021687

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