# UNCOVER

## AGENDA

## Summer School and Capture the Flag

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in UNCOVER Project

🐦 @UNCOVER_EU

## Venue

**Prague – Karlovo nam. 13 Praha**

*Click here to see the location on Google Maps*

## Target Group

       **a) LEAs from the consortium**

       **b) External LEAs**

       **c) Students (IT background)**

*Due to the diversified target group, NO coding background should be necessary.*

## Scope of the activity

The scope of the summer school is (1) to provide participants with theorethical and practical understanding of steganalysis methods and approach; (2) to create a co-creative enviroment between LEAs and students with informatic background, where they can exchange approaches and methodologies on stenography and where they can learn from each other; (3) be part of a dedicated Capture The Flag event, in which the whole participants can put into practise their skills and knowledge, applying the different approaches learned.

## Ratio behind the structure of the Agenda

The agenda has been structured in order to allow the co-creative process between LEAs and students. Therefore, the several sessions on the agenda allows both sides (academics and LEAs) to present their view and their methodologies. This allows a more comprehensive learning process from the two groups, and consequently, more dynamic takeaways at the end of the sessions.

Almost each theorethical session is complemented with a hands-on experience/practical testing.

**To Be Considered:** the groups (academics & LEAs) have different technical capabilities, the agenda therefore adapts this consideration.

## Requirement

**Each participant should bring their own computer** in order to address the hands-on or practical lab sessions.

**Special remark:** A computer with Python installed along with "classical" libraries for data sciences : Numpy, Scipy, Matplotlib, etc (can be anaconda distribution).

Presenters will use Jupyter-notebook for demonstration.

Basic steganography, steganalysis and JPEG image manipulation toolboxes will be provided along with the lecture.

# UNCOVER Summer School and Capture the flag (CTF) | 04.09.2023

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| 🕐 Time | # Subject | 👤 Lecturer |
|---------|-----------|-------------|
| 08:30 - 09:00 | **Registration** | |
| 09:00 - 09:30 | **Welcome and Introduction** | |
| 09:30 - 11:00 | **Introduction to steganography (uncompressed media)** | **Rémi Cogranne (UTT)** |
| 11:00 - 11:30 | **Coffee Break** | |
| 11:30 - 13:00 | **Introduction to JPEG compression (how it is done and practical tools to work with JPEG compressed images)** | **Patrick Bas (CNRS) Martin Benes (UIBK)** |
| 13:00 - 14:00 | **Lunch** | |
| 14:00 - 15:30 | **Introduction to steganalysis (visual inspection / chi2 test)** | **Rémi Cogranne (UTT)** |
| 15:30 - 16:00 | **Coffee Break** | |
| 16:00 - 17:30 | **Follow-up on steganalysis (WS / WS JPEG/ SPA)** | **Rémi Cogranne (UTT) Patrick Bas (CNRS)** |

🟥 Basic lecture sessions   🟦 Advanced Topic   ⬜ Hackathon / CTF   🟧 Co-creation session

# UNCOVER Summer School and Capture the flag (CTF) | 05.09.2023

**UNCOVER**

| 🕐 Time | #️⃣ Subject | 👤 Lecturer |
|---------|------------|-------------|
| 09:00 - 10:30 | **Digital Forensics: How to extract something from digital media** | **Ranieri Argentini (NFI)** |
| 10:30 - 11:00 | **Coffee Break** | |
| 11:00 - 12:30 | **File Formats: Audio, Text, and Videos formats** | **Erik Krupicka (BKA) Verena Lachner (ZITIS)** |
| 12:30 - 13:30 | **Lunch** | |
| 13:30 - 15:00 | **Code-based steganography ("Matrix embedding": example of F5)** | **Tomas Pevny (CTU)** |
| 15:00 - 15:30 | **Coffee Break** | |
| 15:30 - 17:00 | **Co-Creation Session: Presentation of current challenges, Operations difficulties, Solutions under developments** | **by: LEAs + Students** |

🟥 Basic lecture sessions    🟦 Advanced Topic    ⬜ Hackathon / CTF    🟧 Co-creation session

# UNCOVER Summer School and Capture the flag (CTF) | 06.09.2023

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| 🕐 Time | # Subject | 👤 Lecturer |
|---|---|---|
| 09:00 - 10:30 | **Public-key steganography, coding & detectability**<br>**Robust steganography & steganalysis** | **Rainer Böhme (UIBK)**<br>**Patrick Bas (CNRS)** |
| 10:30 - 11:00 | **Coffee Break** | |
| 11:00 - 12:30 | **Audio & Text steganography & steganalysis** | **Christian Kraetzer (OVGU)**<br>**Katharina Schaar (ZITIS)** |
| 12:30 - 13:30 | **Lunch** | |
| 13:30 - 15:00 | **Password recovery & other topics** | **Michael Eichberg (BKA)** |
| 15:00 - 15:15 | **Evaluation of Summer School** | |
| 15:15 - 15:30 | **Coffee Break** | |
| 15:30 - 22:00 | **Group Guided Visit / Dinner** | **(CTU)** |

🟥 Basic lecture sessions  🟦 Advanced Topic  ⬜ Hackathon / CTF  🟧 Co-creation session

# UNCOVER Summer School and Capture the flag (CTF) | 07.09.2023

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| 🕐 Time | # Subject | 👤 Supervisors: |
|---------|-----------|-----------------|
| 09:00 - 10:30 | **Presentation of the CTF, explanations of the goals, details on the organisation** | **Rémi Cogranne (UTT)** <br> **Patrick Bas (CNRS)** |
| 10:30 - 11:00 | **Coffee Break** | |
| 11:00 - 12:30 | **Capture the flag (CTF)** <br> **UNCOVER Steganalysis challenge** | **Rémi Cogranne (UTT)** <br> **Patrick Bas (CNRS)** |
| 12:30 - 13:30 | **Lunch** | |
| 13:30 - 17:00 | **Capture the flag (CTF)** <br> **UNCOVER Steganalysis challenge** | **Rémi Cogranne (UTT)** <br> **Patrick Bas (CNRS)** |

🟥 Basic lecture sessions    🟦 Advanced Topic    ⬜ Hackathon / CTF    🟧 Co-creation session

# UNCOVER Summer School and Capture the flag (CTF) | 08.09.2023

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| 🕐 Time | # Subject | 🎤 Supervisors: |
|---------|-----------|-----------------|
| 09:00 - 12:30 | **Capture the flag (CTF)**<br>**UNCOVER Steganalysis challenge** | **Patrick Bas (CNRS)**<br>**Rainer Böhme (UIBK)** |
| 12:30 - 13:30 | **Lunch** | |
| 13:30 - 15:00 | **Results, lessons learned & final discussion**<br>**FAREWELL** | **Patrick Bas (CNRS)** |

🟥 Basic lecture sessions  🟦 Advanced Topic  ⬜ Hackathon / CTF  🟧 Co-creation session