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| **Research topics** | **Deepfake detection** |
| **Position (M/F)** | PhD, thesis offer |
| **Reference offer** | SN/JLD/deepfake/PhD/022023 |
| **Research Department** | Digital Security |
| **Publication date** | 15/02/2023 |
| **Start date** | ASAP |
| **Duration** | Duration of the thesis |
| **Description** | |

This thesis is part of a new national collaborative project in France ANR ASTRID *Guerre Cognitive*, proposed by EURECOM specialized in computer vision and IRCAM specialized in audio, entitled: "Fight against deepfakes of French personalities".

Recent challenges have shown that it is extremely difficult to develop universal detectors for deepfake videos - such as the deepfakes used to forge a person's identity. When the detectors are exposed to videos generated by a new algorithm, i.e. unseen during the training phase, the performance remains limited. For the video part, the algorithms check frames one by one, without considering facial dynamics. This is a major weakness of deepfake video generators. The present project aims at implementing and training customized deepfake detection algorithms on individuals for which many real and fake audio-video sequences are available and/or can be created. Based on state-of-the-art audio and video algorithms, the thesis will focus on considering the temporal evolution of audio-visual signals and their synchronization in the generation and detection of deepfakes. The objective is to demonstrate that by using audio and video simultaneously and focusing on a specific person during training and detection, it is possible to design efficient detectors even against unseen generators.

**Requirements**
- Education Level / Degree : Master
- Field / specialty: Image processing / Computer Vision / Artificial Intelligence

**Application**
The application must include:
- Detailed curriculum,
- Name and address of 2 references..

Applications should be submitted by e-mail to secretariat@eurecom.fr with the reference: **SN/JLD/deepfake/PhD/022023**

## About EURECOM

EURECOM is a major Engineering School and a Research Center in digital sciences founded in 1991 as a consortium in the international technology park of Sophia Antipolis. The IMT is a founding member of the GIE. Teaching and research activities are organized around 3 promising fields: digital security, communication systems and Data Science.

EURECOM has a staff of 150 (researchers and support teams) and welcomes 400 international students on the Campus Sophia Tech, the largest information science and technology campus of the region. EURECOM enjoys a privileged geographical environment on the French Riviera (Côte d'Azur), between sea and mountains, at the heart of a dynamic and multidisciplinary ecosystem that promotes high-level scientific and technological innovation.

## Social advantages
- Attractive salary
- Employee profit sharing policy
- Company health cover (mutuellel) with high levels of guarantees for the whole family (employer participation of 60%)
- Restaurant vouchers (60% employer contribution)

EURECOM has a dynamic policy in terms of inclusion and quality of life at work, committed to diversity and gives the same consideration to all applications, without discrimination.

EURECOM has a "Mission Handicap" policy. All our positions are open to people with disabilities. A designated disability referent welcomes and provide support to employees and students suffering from a disability. He puts in place the necessary arrangements and makes positive commitments in favour of a personalized integration.

EURECOM, as part of its Annual Gender Equality Plan, practices inclusive recruitment without any kind of gender discrimination. The conditions of employment are identical for women and men. In order to promote the diversity in its teams, EURECOM encourages male applications for administrative positions, traditionally occupied by women, and female applications for teaching/research positions, traditionally occupied by men.

EURECOM carries out positive actions within the framework of its CSR policy. A CSR referent steers EURECOM's policy in terms of CSR and energy transition (electric charging stations, solar panels, selective sorting, etc.).