Master's Thesis Assignment

140642

Institut:	Department of Intelligent Systems (UITS)
Student:	**Bernard Jan, Bc.**
Programme:	Information Technology and Artificial Intelligence
Specialization:	Cybersecurity
Title:	**Deepfake Detection Framework**
Category:	Security
Academic year:	2022/23

Assignment:

1. Learn about deepfakes (voice and video). Explore the current state of deepfakes detection methods (voice and video).
2. Learn about the technologies needed to create web extensions and technologies for creating scalable server applications.
3. Learn about existing deepfake detection solutions (e.g. other commercial web browser plug-ins)
4. Design an extensible framework (server-client or client-only) for deepfakes detection (support for at least 3 detection methods (voice and video)). Design a web extension for deepfakes detection that will use this framework. The solution should support multiple browsers and allow the detection of displayed content and uploaded files.
5. Implement the tool according to the design.
6. Test the functionality and reliability of the resulting implementation. Perform testing on at least two independent publicly available deepfakes datasets.
7. Discuss usability, detection efficiency and possible extensions.

Literature:

Puspita Majumdar, Akshay Agarwal, Mayank Vatsa, and Richa
Singh, "Facial retouching and alteration detection," in Handbook of Digital Face Manipulation and Detection, pp. 367–
387. Springer, 2022
FIRC Anton a MALINKA Kamil. The dawn of a text-dependent society: deepfakes as a threat to speech verification systems. In: Brno: Association for Computing Machinery, 2022

Requirements for the semestral defence:
Items 1 to 4.

Detailed formal requirements can be found at https://www.fit.vut.cz/study/theses/

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Beginning of work:	1.11.2022
Submission deadline:	17.5.2023
Approval date:	3.11.2022