Project in computer security

Meeting 2

Github Project

Our Github Project

https://github.com/yossigor/AcousticKeylogger

All the project files will be managed in this project.

It's a private project. We need to add you as collaborators.

Data collection

Data collection

As we discussed in the previous meeting. We need to collect training data.

We recorded two different people on the same keyboard.

Each file contains 20 keystrokes sounds of a different key.

We used the keyboard: Logitech K260.

Data collection

For each key file we added a text file that contains the label of the key.

For example we recorded Meshi typing the key ‘A’ so we will have two files:

A.wav - containing the sounds of 20 keystrokes of the ‘A’ key.

A.txt - containing 20 lines, each of them contains the letter ‘A’.

First Implementation of the ‘Keystrokes extractor’

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We tried to write a simple script that will detect the keystrokes in a wav file.

This task isn’t so easy as it may seem. For good accuracy we tried to use the algorithms described in articles that we read. But our implementation didn’t produced good results.

Our problem is mainly the usage of the FFT which seems to be incorrect.

We also tried to use only the volume of the recording to extract the key strokes. But we think that that method isn’t robust and cannot deal with office noise.

‘Skype and Type’ Project

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Later that week we found another Github project that implements Acoustic KeyLogger (in Python).

https://www.youtube.com/watch?v=iD9Obu7NWso&t

https://github.com/SPRITZ-Research-Group/Skype-Type

This project is under GPL-v3 license.

This project seems more complete than the others projects that we saw earlier.

‘Skype and Type’ Project

We managed to run the project.

We wanted to train a model to classify only two keys: ‘A’ and ‘B’.

We took 10 keystrokes from Meshi’s recordings and 10 keystrokes from Mikie’s recordings for each key. And produced two files: A.wav and B.wav.

From Meshi’s unused keystrokes we produced a test file named: AABAAABBB.wav containing the keystroks of the sequence “AABAAABBB”.

‘Skype and Type’ Project

The model predicts (not every try and not with 100% accurecy) the sequence “AABAAABBB”.

Suggested missions for next two weeks

1. Investigating the features in Skype&type project.
2. Mapping the exact algorithms that Skype&type uses.
3. Collecting data from 3 more people. (We want 5 sets of recordings)
4. Record tests (Regular computer typing, words, passwords etc.)
5. Preparing a full demo:
    a. Train a model for all the collected data.
    b. Guess the Recorded tests.
    c. Estimate the accuracy of the model.
6. Suggest a new Definition Of Done for the project.