Project in computer security

Meeting 3

Suggested missions from previous meeting

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.

Investigating the features in Skype&type project

S&T design has a modular approach and is divided to 4 main parts:

- Listener - Gets the wav files and passes it to the Dispatcher.
- Dispatcher - Extracts keystrokes and features.
- Model - The trained classifier.
- Output - Handles the output.

Algorithms in S&T

Default learning algorithm: **Logistic Regression**. Which as we saw from the papers should give the best results for the problem.

Potentially you can use any algorithm in the **sklearn** library (it's a modular implementation). But it will require some development to make it work because every algorithm requires different parameters.

Collecting good data is HARD

- To collect large amounts of good training data we should **work manually.**
- We can go up to **5000 samples** if we really want to, **is it enough?**
- Our demos and estimations have trained on **approximately 2000 data samples.**
- We have 3 target recordings:
  - “hello world hello world”
  - “308561562”
  - “one ring to rule them all one ring to find them one ring to bring them all and in the darkness bind them”

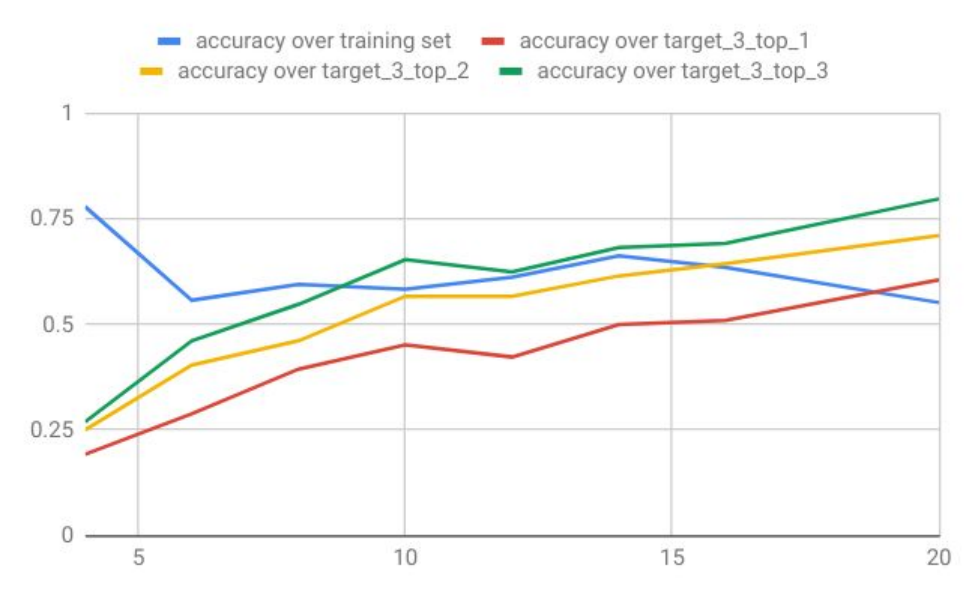
More data ?= Accuracy

DEMO

More data ?= Accuracy

More data ?= Accuracy

More data ?= Accuracy



Future plans proposal

Our conclusions: **Collecting good data is HARD!, and More data == Accuracy!**

We want to make the data collection process more robust and easy!

We will achieve this goal with:

- GUI that manages all the process in one program.
- Hint the program for errors
- Interactive data collection

The user interface

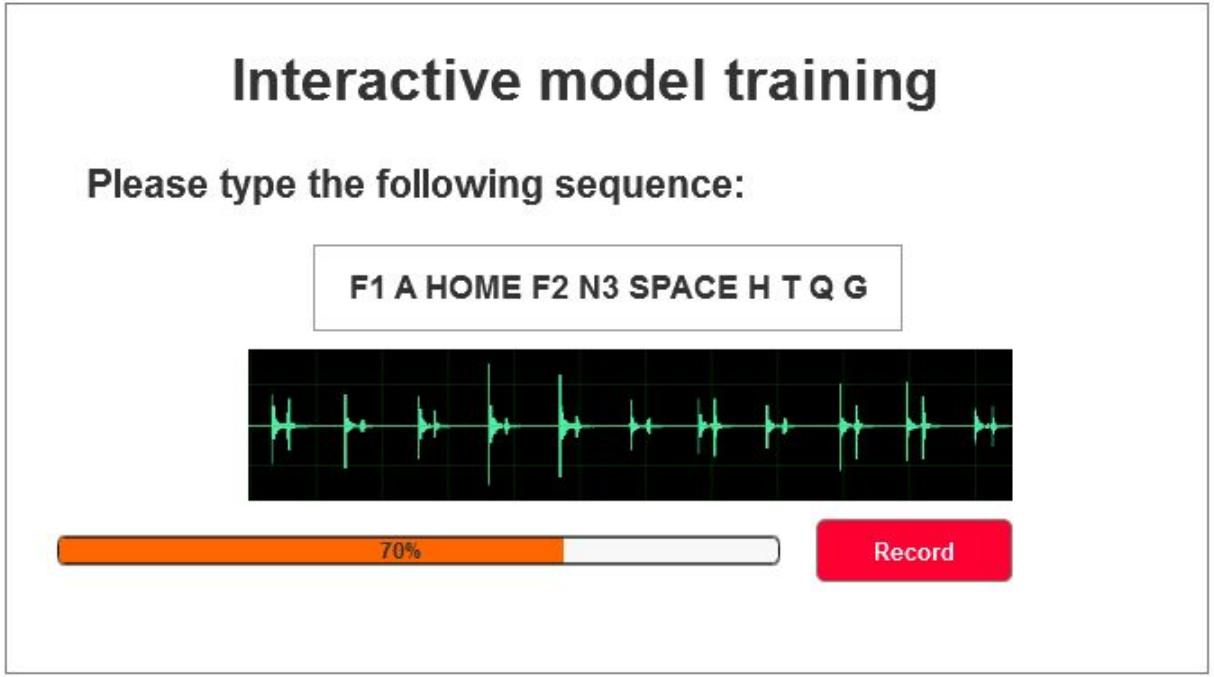
Acoustic Keylogger

Name	Accuracy	Options
K260	★★★★★	Classify Update Delete
Dell Inspiron 5373	★★★★☆	Classify Update Delete
MacBook Pro 2017	★★★☆☆	Classify Update Delete
Dell XPS 15 2018	★★☆☆☆	Classify Update Delete

Train new model interactively

Train new model from files

The user interface



The user interface

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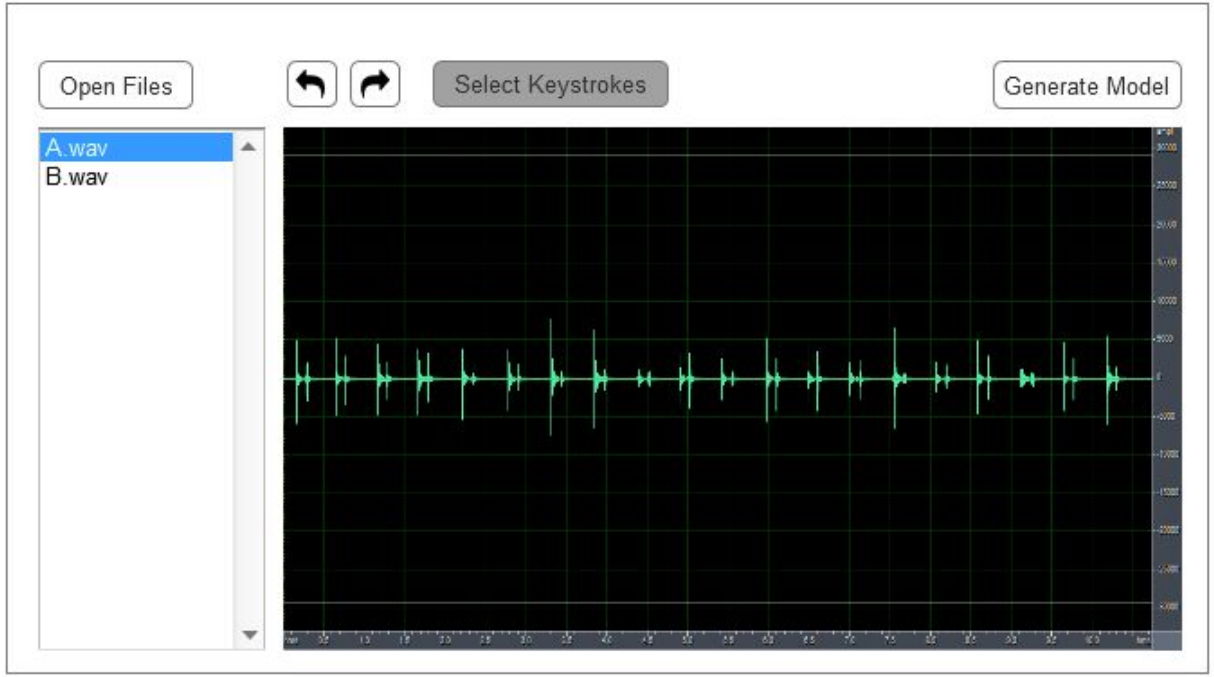

The user interface

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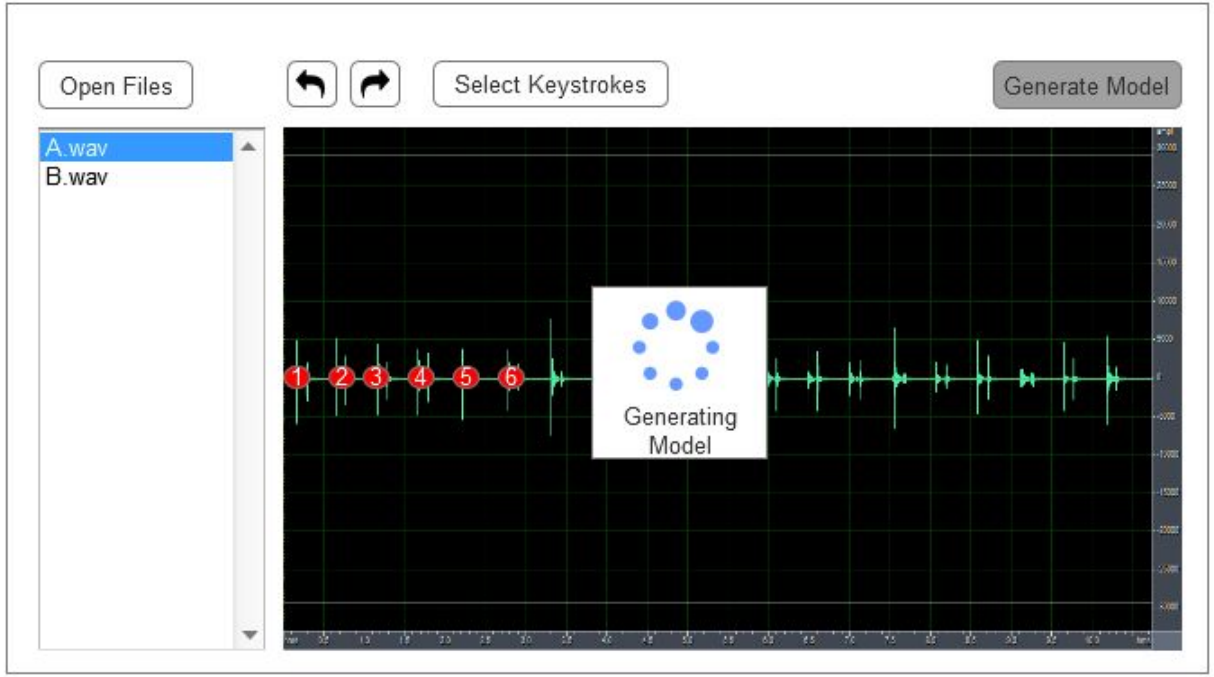

The user interface