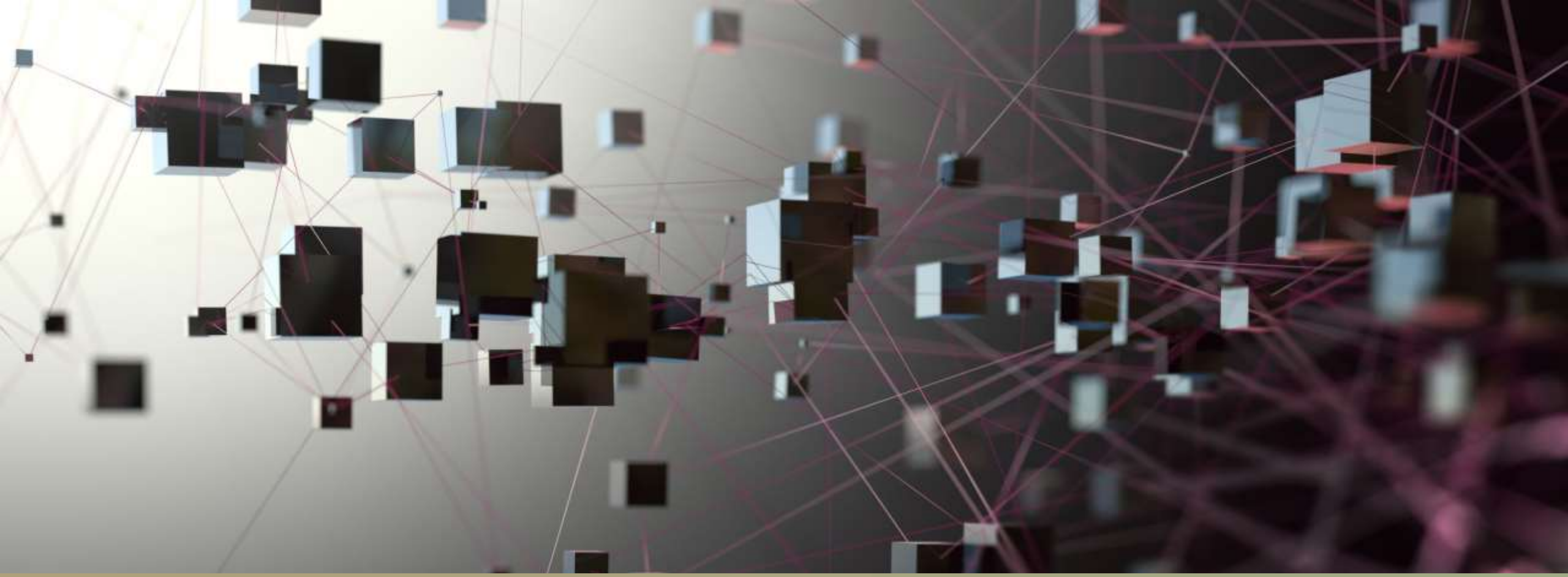

PROJECT 4

DESCRIPTION: *COMMENTS ON AUDIO FILE*

Presenters:

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Allahverdi Hajiyev

• OUTLINE

Register your voice reading and creating the audio file

Plot the data of this audio file and analyze it based on your hearing and visualization

Create a new version of your audio file that allows the one who's listening to comment at the audio file

• CREATING AUDIO FILE

Anomaly Detection for CyberSecurity Using Inductive Node Embedding with Convolutional Graph Neural Networks

```
import soundfile as sf
data, samplerate = sf.read('audio.wav')
```

```
samplerate
```

```
48000
```

```
data
```

```
array([ 0.00000000e+00, -3.05175781e-05, -3.05175781e-05, ...,
        1.37329102e-03,  1.46484375e-03,  1.58691406e-03])
```

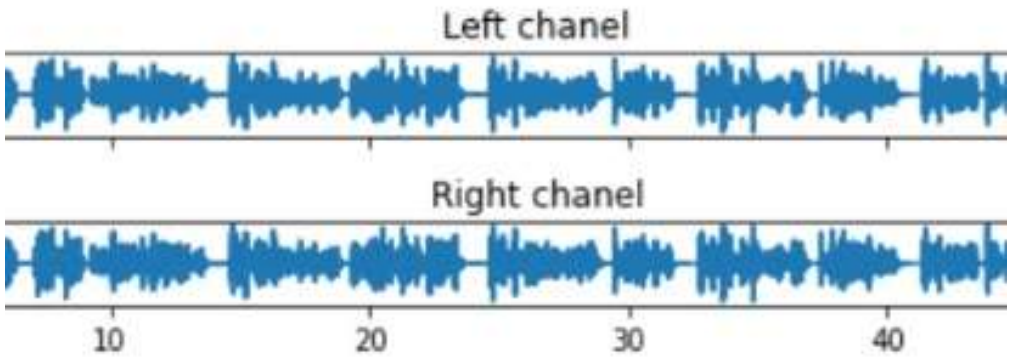
```
data.shape
```

```
(2538136,)
```

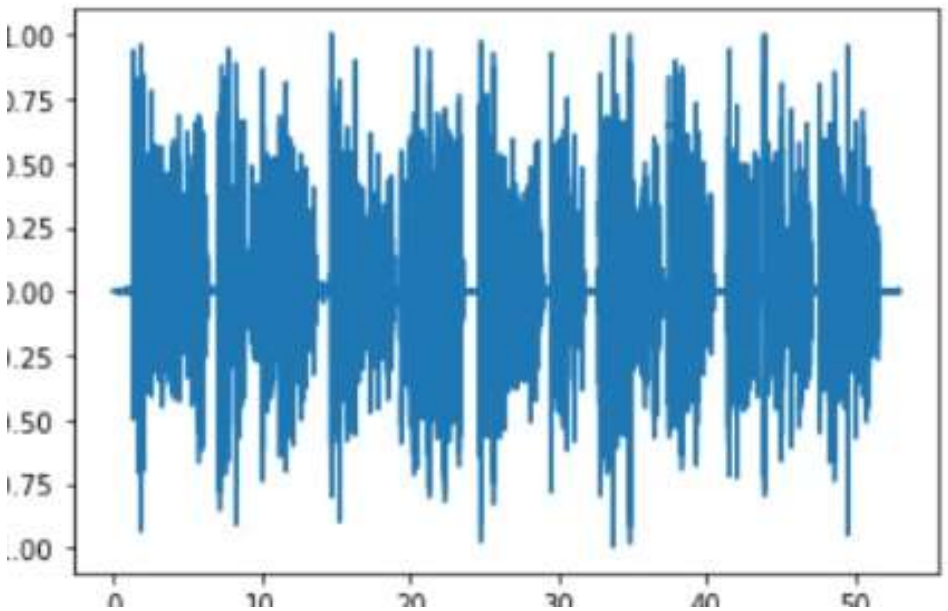
```
Audio(data,rate=samplerate)
```

• PLOTTING THE AUDIO

```
plt.subplots(2,1,figsize=(8,2),sharex=True)
e(0, data.shape[0]/samplerate, data.shape[0])
a)
a)
"Left chanel")
"Right chanel")
ut()
```




```
: np.linspace(0, data.shape[0]/samplerate, data.sh
:.plot(t, data)
:.show()
```



• FUNCTIONALITIES

Load the audio

Play the audio

Add comments on the audio

Restart the audio

Stop the audio

• IMPLEMENTATION

- Python libraries
- Data Stores
- Save data in JSON
- Read the stored data
- Buttons and their functions

- **PROJECT DEMONSTRATION**

THANK YOU FOR THE ATTENTION