





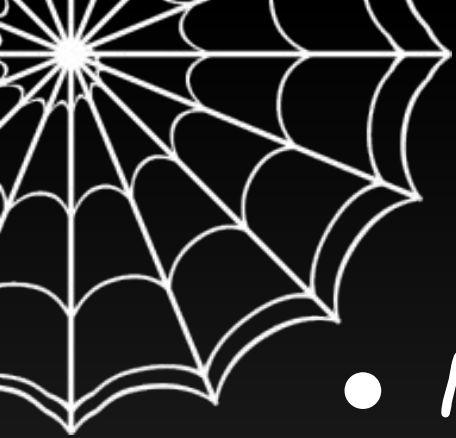
# TRICK OR TREAT!

- Spooky session
- **FANCY DRESS IS MANDATORY**  
(get out if you're not dressed up)
- Prepare to be scared!



!!!! RIGHT NOW !!!!





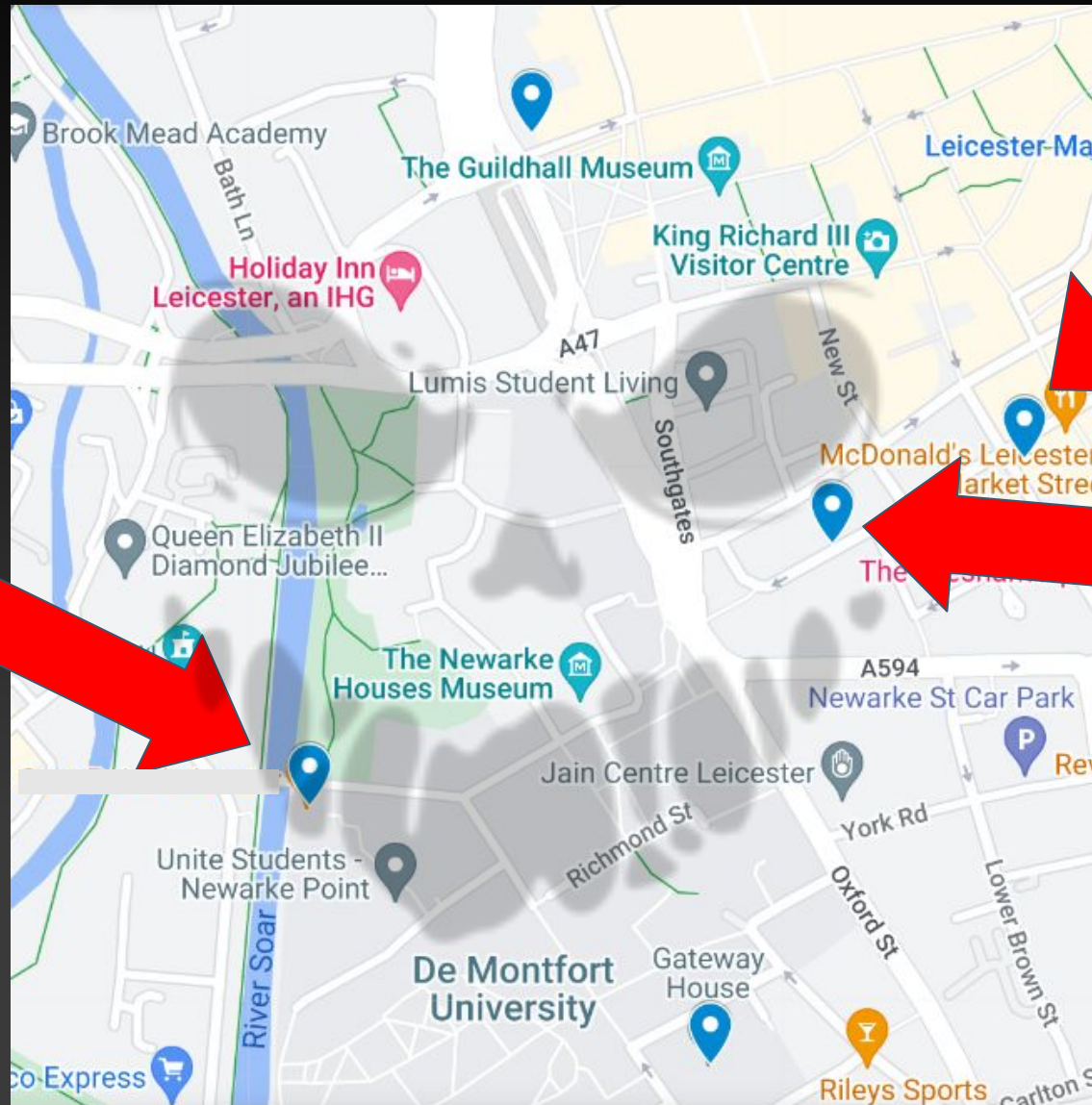
# Announcements

- Make sure you bring your cards from now on!
- CTF club
- HackTheBox CTF



# Social

THE  
SQAR  
POINT



**FIREBUG**  
BAR . VENUE . FOOD

**oddbar**





 hackers.dmu

 @dmuhackers



Spooky Steganography  
Orlin



Don't do spooky shit



# What is steganography

- Steganography is the process of hiding text/data within other *non secret* text/data
- Common examples include hiding text within *images, audio waveforms* and sometimes even simply within the metadata of any file





# What is steganography

- For example hiding the string "password" within an image  
Where secret.txt contains the text "password"

```
$ steghide embed -cf Tour_Eiffel_Wikimedia_Commons.jpg -ef secret.txt
Enter passphrase:
Re-Enter passphrase:
embedding "secret.txt" in "Tour_Eiffel_Wikimedia_Commons.jpg"... done
```

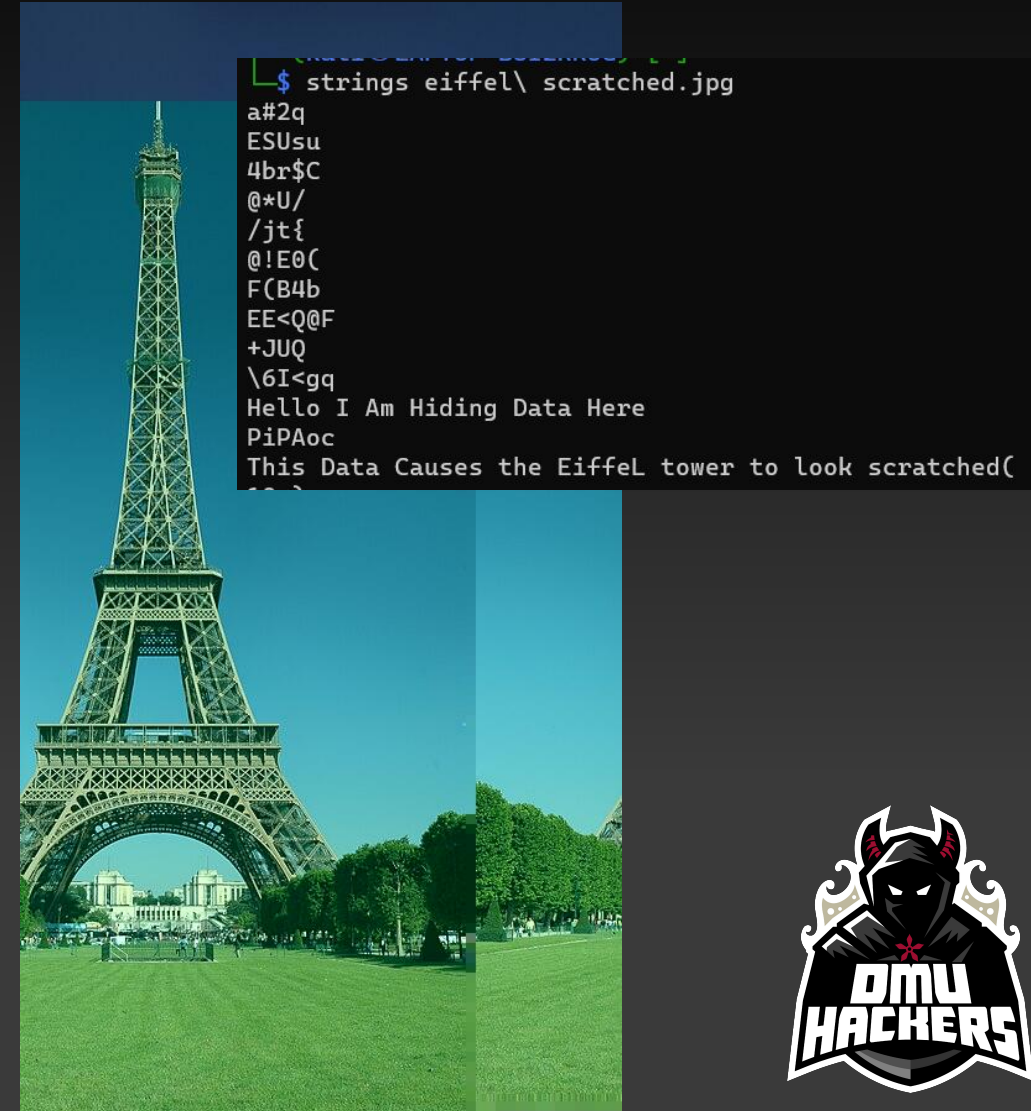
```
$ steghide extract -sf Tour_Eiffel_Wikimedia_Commons.jpg
Enter passphrase:
wrote extracted data to "secret.txt".
```





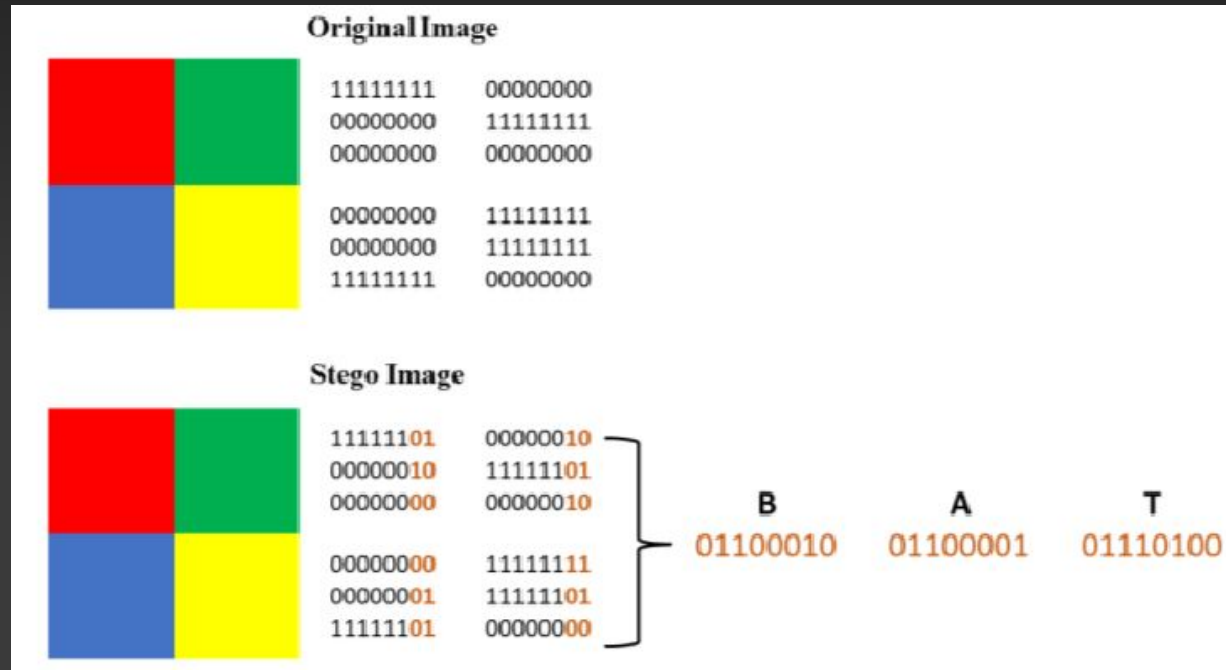
# What data can be hidden

- In theory, any type of data can be hidden using steg techniques
- Limited size to the data, to keep it hidden you don't want to edit significant data, otherwise visual / audible artefacts may appear



# Hiding data well

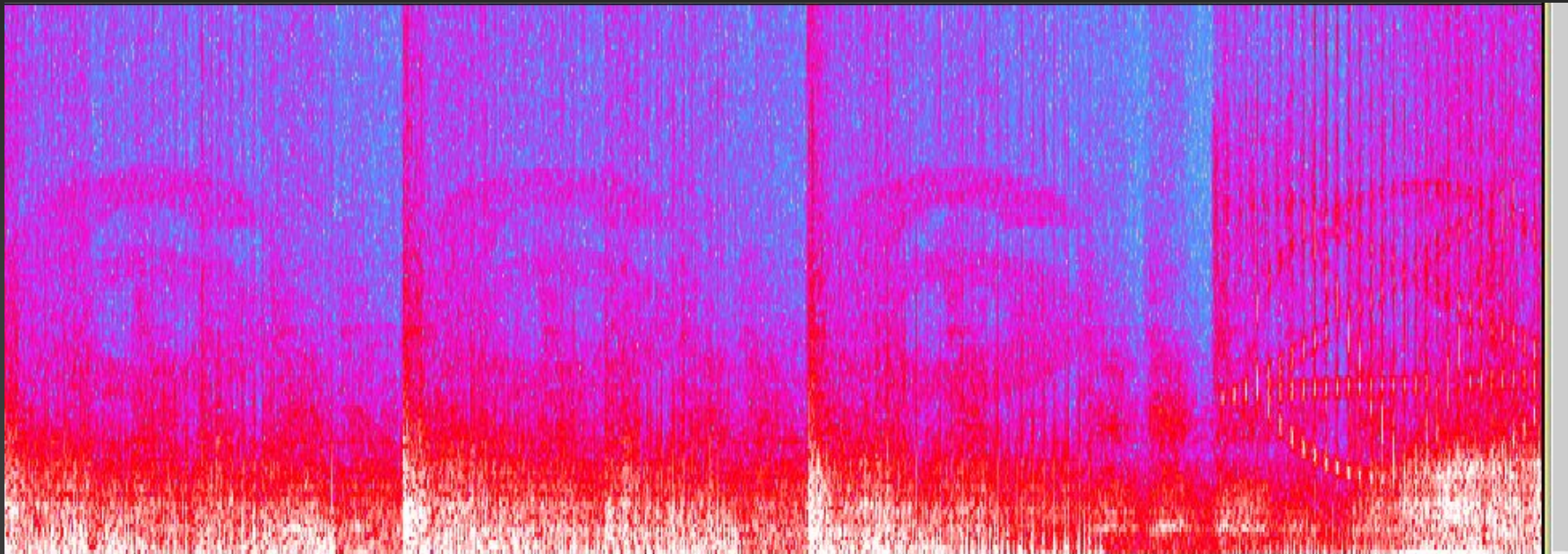
- To avoid this artifacting we hide data in Least Significant Bit (LSB) of the non secret data, the changes made to the data are usually invisible to the human eye or ear.
- This does limit us on the size of the data we can hide though.





# Other Examples

- So far we've mainly shown images as examples but data can be hidden in other mediums.
- For example, in audio, the DOOM soundtrack contains 'satanic' imagery once the waveform is viewed



# Today's Task...

*sudo apt update  
sudo apt install steghide*



*graphic design is joey's  
passion*

DMU Hackers - Steganography  
<https://tryhackme.com/jr/dmuhackerssteg>

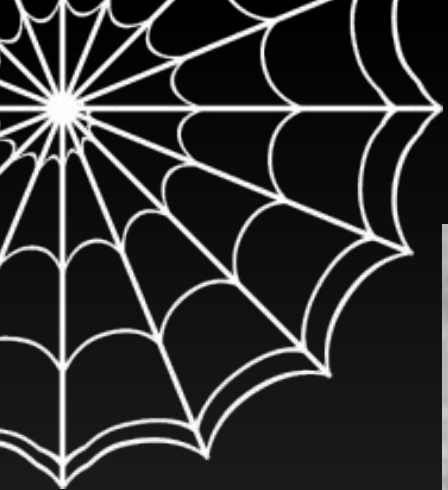




# Resources

- [Game easter eggs, including cuphead audio files which have spooky steg inside](#)
- [blog post on hiding images in music](#)





# PUB TIME

