SEEING SOUND

IMLEX

GOAL

Build an augmented reality system based on a smartphone or a headset which can augment a scene by adding a visual representation of sounds via a dynamic spectrogram.

HOW?

Using the microphone of the smartphone or headset to capture ambient sounds, digital sound and image processing to compute the spectrogram and transform it into an optimized version to make it easily interpretable for humans and finally render it as an overlay in the live camera view of the smartphone (Augmented Reality).

RESEARCH TOPICS ASSOCIATED

COMPUTER GRAPHICS

- 2D/3D/XR Data visualization

COMPUTER VISION

- Scene understanding

SIGNAL & IMAGE PROCESSING

- Sound analysis
- Spectrogram computation and enhancement

AVAILABLE EQUIPMENT'S

- Quest3
- Workstations

GO FURTHER

Use deep-learning to interpret the captured sounds and enhance the spectrogram in function of the semantics of the sound.