# DEEP LEARNING ORIENTED AUGMENTED REALITY

IMLEX

## GOAL

Build an Augmented Reality (AR) system based on a smartphone or a headset which allows the insertion of objects and/or animations in an indoor scene.

## HOW?

Deep learning is used to initially make a 3D model of the scene or 3D models of individual objects by taking several views or a short video of the scene or the objects. Then the AR system enables a real-time navigation in the scene adding virtual animations or virtual objects. See for example an animation or virtual objects inserted in a real scene.

## RESEARCH TOPICS ASSOCIATED

### DEEP LEARNING

- Reconstruction of 3D objects or scene using one or two images (for example SAM 3D or MASt3R).

### COMPUTER VISION

- Perspective-n-Point (PnP) to recover the 6DoF pose of the scene or objects in real time either by direct detection (OpenCV example) or by deep learning (for example MASt3R or PVNet).

### COMPUTER GRAPHICS

- Real time 3D rendering

## AVAILABLE EQUIPMENT'S

- Quest3
- Workstations

## GO FURTHER

User interface to provide interaction with the virtual elements or virtual object edition (adding, moving...).