THESIS

To obtain the diploma of **Master**

Field: Computer Science

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' Ingénierie des Systèmes Informatiques (ISI)'

Real time Object detection for visually impaired

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Abstract

Computer Vision, Also called machine vision is a multidisciplinary domain that could be called a sub domain of artificial intelligence (AI) and machine learning (ML), it uses some specialized methods and makes use of algorithms. The main objective of computer vision is to understand and recognize the content of digital images. Usually this involves developing methods and functions that aim to reproduce the capability of humans.

Computer Vision is defined as a domain of study that seeks to develop mechanisms to aid computers "see" and understand the content of digital images and video, it is nothing but a scientific domain that allows computers to capture, interpret, understand, and process the objects that are visually perceivable. With the help of AI and deep learning models, machine vision systems are capable of understanding the captured digital images and react suitably.

Object Detection has been widely used in a lot of fields such as face detection, detecting vehicles and walkers on streets, and autonomous vehicles. It not only covers classifying objects and recognizing them in an image, but also localizes those objects and draws bounding boxes around them. That's why most of the successful object detection networks make use of neural network based image classifiers in conjunction with object detection techniques. Tensorflow Object Detection API is an open source framework based on Google's TensorFlow which lets us create, train and deploy object detection models