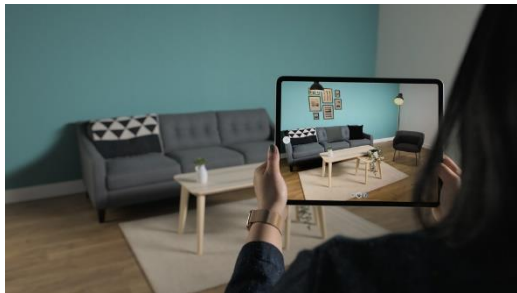# INTERNSHIP OFFER
Ref : 2021-RI-IML-MRWorlds-2

Please apply via email to Tao.Luo@interdigital.com or Vincent.Alleaume@interdigital.com by sending resume and cover letter.

New ipad pro (source: www.apple.com)

iPad Pro 3d scan example (source: reddit.com)

People detection (source : TensorFlow blog)

People detection and removal in LiDAR 3D scans

With Apple integrating a new LiDAR sensor to the rear camera assembly of the iPad Pro first, then of the iPhone 12 Pro line, a new step towards revolutionary Augmented Reality applications is possible. The combination of depth information provided from the LiDAR scanner with RGB camera and motion sensor data, processed with deep learning and computer vision algorithms, helps your apps to scan and analyse your surroundings to better understand your physical environment. However, such scans may not be directly usable in Augmented and Mixed Reality experiences when they contain some undesirable elements, such as people present in the scene during the scanning process.

The objective of this internship is to contribute to the modelling step required for Augmented and Mixed Reality experiences. More particularly, the goal is to generate a 3D model of an indoor scene free of people, using LIDAR and image information captured with a recent tablet or smartphone, such as the iPhone 12 Pro. The main challenges will be to detect any part of human body which would be present in the captured data (3D model or images), to remove them from the data, then finally to fill in the 3D hole region(s) left by the removed part(s). The resulting model should be compatible with Augmented Reality experiences, with convincing geometry and texture.

The intern will be part of the Mixed Reality team, in the Immersive Lab located in Rennes, FRANCE.

Skills:
3D geometry, computer vision, deep learning, Image/Video Processing.
Unity, ARFoundation, ARKit.
Fluent English, good team spirit and communication skills.

Keywords:
LiDAR, 3D modelling, Scene analysis, scene completion, Augmented and Mixed Reality.

About InterDigital
InterDigital develops mobile and video technologies that are at the core of devices, networks, and services worldwide. Founded in 1972, InterDigital is listed on NASDAQ and is included in the S&P MidCap 400® index.

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