Instant AR – How to get going in just few Hours **(1 Hr 30 Min)**

The main objective of this workshop is to make participants acquainted with the conceptual as well as practical knowledge of the Image processing used in Augmented Reality (AR) Technology.

The workshop will inculcate the basic fundamentals of Image processing to the participants and to provide them with a approach to develop AR applications.

## Dev Environment Setup - 10 min

Teams will come with pre-installed software and libraries as per the instruction given to participants.

Instructions will be made available on **Git Repo**, the link of which will be shared with them in advance.

## Basics of Image processing - 10 min

**Objective – Understanding the basics of image structure**

* Basic image structure
* Different formats (RGB/RGBA/HSV etc. formats)
* Colours and colour conversions
* Histogram

## Overview of open source tool OpenCV - 5 min

**Objective – Understanding different tools available in market – commercial and open source**

* OpenCV library
* Popular algorithms
* Applications

## Core Image operations - 20 min

**Objective – Preforming core image operations**

* Binary operations on images
* Image blending
* Image thresholding (Binary / Adaptive)
* Image filtering
* Morphological Transformation (Erosion, Dilation etc.)
* Noise removal
* Contour and bounding boxes
* Edge Detection

## Popular Algorithms - 15 min

**Objective – Understanding different Image algorithms and its usage**

* Hough Transform (Line and Circle detection)
* Feature detection and Matching
  + FAST
  + BRIEF
  + ORB
* Homography

## AR Application - 20 min

**Objective – Basic AR app using object detection and augmenting textual information**

* Use case definition
* Data preparation
* Implementation

## Questions and Answers - 10 min