**Requirements for 360 Flattening Open Source Code**

0.1

**Revision 1**

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Revision History

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# Introduction

This document captures the requirements related to code that supports a blog series around Equirectangular images and how to extra a “flattened” view for showing a given field of view looking in a particular direction.

# Requirements

The requirements are as follows:

* The code shall support the blog series.
* The code shall be released as Open Source with Apache 2.0 license and following all Intel release criteria.
* The code shall run on Windows.
* Stretch goal would be to support Linux as well.
* After release, the code shall be available under <https://github.com/intel-health>.
* Other forked code from github shall be available under <https://github.com/intel-health> as well.
* The framework shall have two modes: 1) interactive and 2) speed testing
* In the interactive mode:
  + The code shall show the “flattened” field of view from a given set of parameters including: field of view degrees, yaw, pitch, and roll.
  + It shall accept a set of keystrokes for adjusting the parameters.
    - Right and left arrows to adjust yaw.
    - Up and down arrows to adjust pitch.
    - Page up, page down, home, and end to adjust roll.
    - \* and / to adjust the field of view degrees.
* In the speed testing mode:
  + The code shall support command line parameters for: number of iterations to run, the initial yaw, pitch, and roll settings, the delta amount of yaw, pitch, and/or roll to add with each iteration, allow changing the equirectangular image with each iteration (this simulates a video stream), and allow controlling which algorithm(s) to use.
  + The code shall output the amount of time it takes to do the first “warm up” iteration and then average all subsequent iterations.
  + The code shall not display each frame of output for the speed test since the intention is to show the algorithm speed, not the display speed.
* The framework shall support multiple algorithms to be able to compare various algorithms for extracting the flattened view.
* The code shall print out an algorithm description for each algorithm that is run.
* The framework shall allow C++ and/or oneAPI DPC++ code.
* The DPC++ code shall allow targeting the CPU and/or the GPU.
* The code shall be instrumented with VTune labels/tasks to make it easy to show which code was executing at any point in time.