Overview:

This tutorial will cover how to take 360 degree panoramic HDR photographs using the Insta 360 Pro camera. This will be covered in three sections:

1. Connecting the provided iPad to the Ad-Hoc wireless network used by the camera and using the Insta 360 Pro control app to take HDR images.

2. Using the Insta360 Stitcher program to output 3 stitched image files that represent the Low, Normal, and High exposure ranges of the HDR photograph.

3. Using Photoshop to merge the 3 different image files with different exposures into one HDR image.
Section 1:

Step A:

To connect to the camera using the Insta360 Pro control app through the Ad-Hoc WiFi network provided by the camera, select the WiFi icon (first icon second row) on the camera. Upon doing so you’ll see the camera is assigned a private ip-address:
Section 1:

Step B:

Once the Ad-Hoc WiFi network has been activated on the camera, you need to connect the provided iPad to that network. Within **Settings**, select **Wi-Fi** and within there select the camera’s Ad-Hoc WiFi network, the password for the WiFi network is “88888888”. Once you have joined the network it should look like the following:
Section 1:

Step C:

You’ll now be able to use the Insta360Pro control app that is on the provided iPad. Upon starting the app you’ll be presented with an input to enter the ip-address of the camera to connect to it on its WiFi network. Use the ip-address displayed on the LCD screen of the camera (possibly 192.168.43.1), once connected you’ll be presented with the selection screen for the app.
Section 1:

Step D:

After selecting the Photo app from the main splash screen, make sure you set the Mode to HDR and set the HDR EV Step to your desired value. A greater value of the HDR EV Step results in a larger range of exposures between the High, Low and Normal images produced.
Section 2:

Once you have taken your HDR photos, you will have a directory on your SD card named something like the following:

**PIC_2018_07_31_09_10_09/**

Copy this folder to your local harddrive, in the directory you will find three sets of six pictures. Each set of six pictures contains photographs at a given exposure level. The files are named **origin_M_N.jpg** where M = 1 to 3 and N = 0 to 5, so for instance the file **origin_1_3.jpg** would be the photograph from the 4th lens (lens are numbered 0 through 5) and be a part of the set with the **lowest** exposure. While the file **origin_3_0.jpg** would be the photograph from the first lens and a part of the set with the **highest** exposure.

Next we will use the **Insta 360 Stitcher** application to combine each set of exposures into four separate panoramic images, one for each exposure level, and one merged image (jpeg format). These files will be named after the directory and have an extension indicating the exposure bracket (**_high, _low, _normal and _merged**)

Once you have opened the **Insta 360 Stitcher** application, the first step is to drag your folder with the image files into the left pane of the application:
Once you have imported the image directory, you need to make sure a few options are set on the right pane of the application as shown below. If the pictures were non-3d panoramic pictures, make sure that the **Content-Type** is set to **Monoscopic**. Second make sure the resolution is set to **8K** and that the checkbox **Export 3 kinds of HDR pics** is checked:
Section 3:

Now we will use Photoshop to merge the high, low and normal jpeg files created by the Insta360 Stitcher program to create a single HDR image in the OpenEXR format.

First we need to load the three bracketed exposure images into Photoshop using File+A automate+Merge to HDR Pro:
Once you have selected **Merge to HDR Pro** under **File**, you’ll be presented with a dialog to select your files. Click on **Browse** and navigate to where your files were saved (the default is under **Documents**). Use **Command+Mouse Click** to select the **high**, **low**, and **normal** images and press on **OK**.
It will take a moment to load and process the three images, when finished the Merge to HDR Pro dialog will come up. Make sure the Mode is set to 32-bit. If there was any movement in your scene when the HDR image was taken, your merged image may contain ghosting, which will show up as an offset in the moving object between the merged images. Click on Remove ghosts if you see such a distortion and wish to get rid of it. If you’d like to use the minimal tone adjustment available in the Merge to HDR Pro dialog, uncheck the option “Complete Toning in Adobe Camera Raw” make your adjustments with the slider and press OK. Otherwise, press Tone in ACR with the option checked. The merged image will then load up into Adobe’s ACR, which has more options to affect the tone of the image:
If you selected the option to **Tone in ACR** you will get a dialog that has more options to change the tone of the merged image, after you’ve made the adjustments you want press **OK** and the merged HDR image will finally appear in the main **Photoshop** application window:
To save the merged HDR image to the **OpenEXR** format you need to make sure that the image mode is set to **32 Bits/Channel**, select **Image+Mode+32 Bits/Channel**:

Now the option to save to **OpenEXR** format will be available under **Save As**, choose the compression type, generally you will want to select **None**.

You now have a merged HDR image in the **OpenEXR** format and have completed this tutorial!