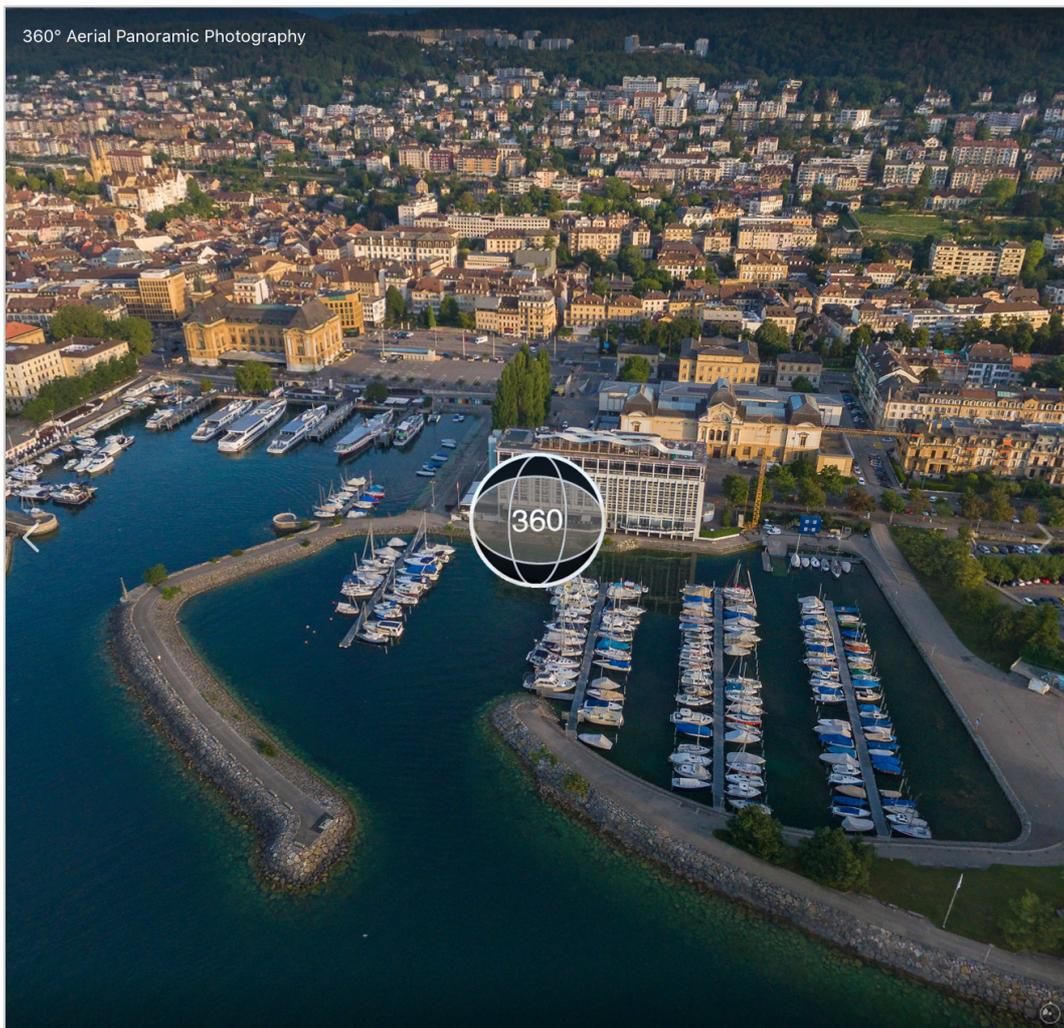


# 360° AERIAL PANORAMIC PHOTOGRAPHY

## BACKGROUND & APPLICATIONS



**Ted Byrne**  
**Photography & Aerial Services**

[www.tedbyrne.com](http://www.tedbyrne.com)



# 360° Aerial Panoramic Photography

## **Background**

An interactive panoramic photograph is the result of stitching several individual images together and projecting them on a seamless, virtual surface (usually a sphere). Being at the center of the scene, the viewer has the ability to pan and zoom within an image, resulting in an interactive and immersive experience. When using high-definition images, a elevated level of detail can be viewed when zooming.

While panoramic imagery has been on the web for almost 20 years, plug-ins were required on the viewer's computer which added a level of complexity and uncertainty, since a seamless viewing experience was never guaranteed.



Icon showing 360° image, as displayed on Facebook (2017)

However, 360° panoramic photography has seen a rise in popularity in recent years, since popular platforms such as Facebook has made the viewing experience quite easy and enjoyable (plugin-free). The average smartphone user can now shoot and upload basic panoramic images directly from their phone.

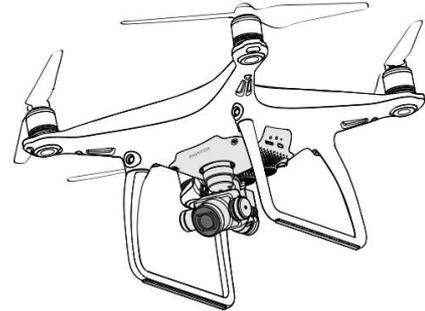


Apple iPhone in Pano Photo Mode

# 360° Aerial Panoramic Photography

## Why use a drone?

Quite simply, taking the viewer off the ground and placing him/her in the sky completely changes viewing experience when compared to a ground-based image. This "birds-eye", interactive view provides a unique and complete view of a point of interest (POI) and its surrounding area. The "wow" effect is quite apparent when viewers see an image take life. The ability to interact with the scene from above gives a viewer an "active" observation point – a step closer to actually feeling as if they were physically at the scene.

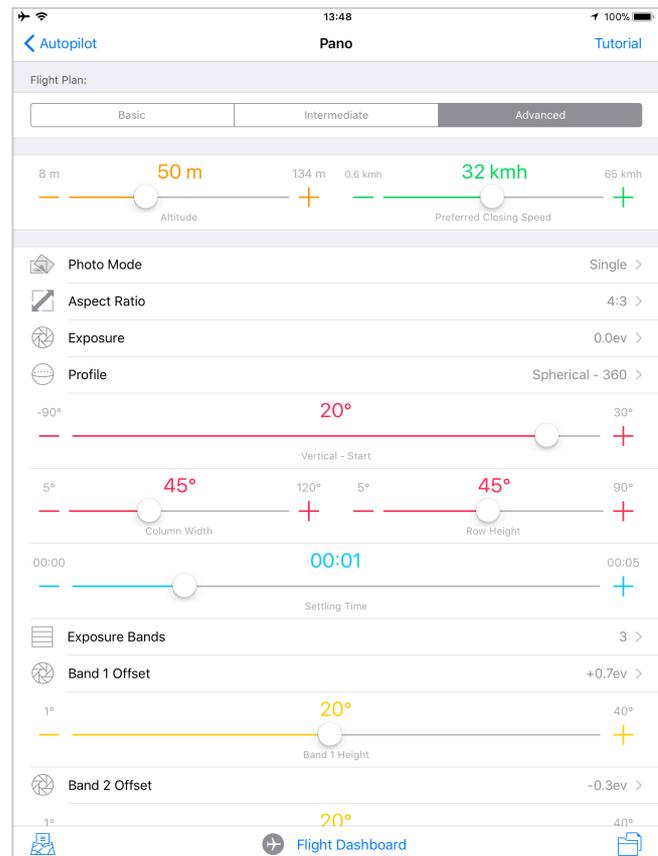


## How are images acquired ?

The drone is programmed to fly to a pre-defined position in the sky and proceeds to take a series of 23 overlapping images. The only area that is not photographed in a scene is the overhead zenith area of the sky (due to drone's propellers). This "missing" area represents only a small part of the final image and can even be filled in later during the processing stage, if necessary.

For a normal session (1 panorama), the actual acquisition time is about 10-15 minutes. Typically, 1 hour is reserved for setup and pre-flight checks, programming the drone, data collection, and image data verification before leaving the site.

The 3D geographical position of the drone is saved so that the identical mission can be repeated in the future to a high degree of positioning precision and repeatability ( p < 1 meter ).



Pre-configuration of drone flight plan for pano. Missions are saved and repeatable.

# 360° Aerial Panoramic Photography

## Applications

- Tourism,
- Construction monitoring,
- Real estate agents & property presentations,
- Virtual tours of large sites (campuses, nature reserves, etc.),
- Hiking / Biking reconnaissance,
- Highlighting landmarks, important buildings, or other POI's.
- ...

## Linking several images? Network and map ?

Personalized networks of panos can be linked on a private Google Map that you can embed on any web site. If you have several POI's then this would be an elegant way to group them into a single user interface. Large business sites, universities, and tourism agencies may find this option particularly interesting. Contact me for more details and a customized offer.

## Examples

Of course, the best way to discover and evaluate aerial 360° panoramic images is to view them on the web! At this web page you will find links to several examples:

[www.tedbyrne.com/360](http://www.tedbyrne.com/360)

## Contact / References

### **Edward (Ted) Byrne**

**Geomatics engineer • M.Eng, University of New Brunswick, Canada**

- Over 20 years experience in panoramic imagery and professional web development.
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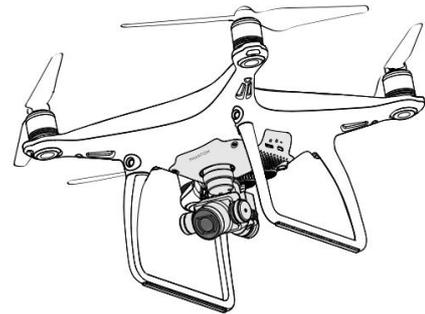


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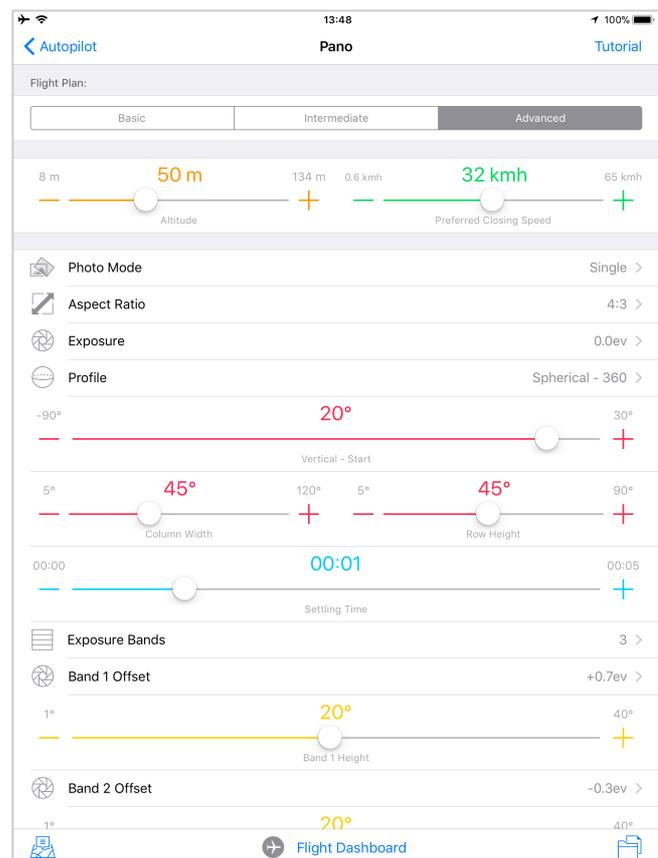


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