Drone Guides

Contents

```r
foo <- function(x){
  for( i in x ){
    #  require returns TRUE invisibly if it was able to load package
    if( ! require( i , character.only = TRUE ) ){
      #  If package was not able to be loaded then re-install
      install.packages( i , dependencies = TRUE )
      #  Load package after installing
      require( i , character.only = TRUE )
    }
  }
}

#  Then try/install packages...
foo( c("bookdown" , "DiagrammeR" ) )
```

Chapter 1

Drone Guide Portal

In this portal, you'll find links to various tutorials and guides for drone users of all levels.

This page will be a work in progress and new resources will be added periodically. Feel free to reach out to us at UASSafety@ucmerced.edu if you have any questions or would like to see additional resources added.

If you're interested in contributing a tutorial or guide, please feel free to fork this repository and add your content. This guide is developed in RStudio using bookdown. All content is generated from the markdown files in the main directory.

Chapter 2

How to Set Your Settings For Good Media Cinematography

2.1 UC Center of Excellence on Unmanned Aircraft System Safety

2.1.0.0.1 Rule one: Understand The Settings within a Drone **
Below is a break down of the settings base on this image **

2.1.1 Camera Settings

- ISO
- Shutter Speed
- Aperature ### Photo Settings
- Single Shot
- HDR Shot
- Multiple
- AEB
- Timed Shot
- Pano
- ShallowFocus ### Other Settings
- Image Size
- Image Format
- White Balance
- Style

- Color

Chapter 3

Camera Settings

3.0.1 Iso

ISO measures the sensitivity of the image sensor. The lower the number the less sensitive your camera is to light and the finer the grain. By choosing a higher ISO you can use a faster shutter speed to freeze the movement. Higher numbers mean your sensor becomes more sensitive to light which allows you to use your camera in darker situations, but the cost of doing so is more grain.

3.0.2 Shutter Speed

The Shutter controls for how long light is let into the lenses. To simplify the shutter, a low shutter speed lets more light in and is good for taking pictures in dim lighting while a high shutter speed lets in more light and is good for taking crisp shots of moving objects or people. In S mode, you can set the shutter speed, but other settings will be set automatically to match exposure.

3.0.3 Aperature

This controls how much light gets through when you take a picture. This is measured in 'f-stops.' A smaller f-stop number means a bigger aperture and so more light comes through, and a bigger f-stop number means a smaller aperture, so less light comes through. In A mode, you can set the Aperture, but other settings will still be set automatically to match exposure.

NULL

Chapter 4

Photo Settings

4.0.1 Single Shot

The standard mode, it takes a 1 picture every time you tap the shoot button. ### HDR Shot The camera will take three images of the same scene. One will be underexposed, another overexposed and the last will be properly exposed then it will combine the three images to create a more dynamic JPEG.

4.0.2 Multiple

With this mode, the camera will take multiple pictures when you press the shoot button. You might want to use this mode if you are trying to get a shot of a moving subject.

4.0.3 AEB (Automatic Exposure Bracketing)

A set of 3 or 5 shots that work similarly to HDR Shots taking overexposed, underexposed and properly exposed photos. However, in AEB the images are in RAW and they are not combine.

4.0.4 Timed Shot

This allows you to set a countdown timer before the shot is taken, it's useful for taking selfies.

4.0.5   Pano

180° Panorama mode can stitch 21 photos together to create a 180° panoramic photo.

NULL

4.0.6   ShallowFocus

This mode allows you to create a depth of field effect in your photo.

Chapter 5

Other Settings

5.0.1 Image Size

You can choose the size of your picture 4:3,16:9 3:2. 4:3 was the old standard 33mm size. 16:9 is the common size for HD capable devices and 3:2 is the traditional size for printed photos. ### Image Format In this area, you can choose between taking photos in RAW, JPEG and RAW + JPEG. Raw is a file format that captures all image data recorded by the sensor when you take a photo. JPEG a format for compressing image files. ### White Balance This is the process of removing unrealistic color casts so that objects which appear white in person are rendered white in your photo. It is measured in Kelvins. If you have Auto selected, then the camera will decide what the best setting is. You can also choose from a selection of profiles or set it yourself. Kelvin Temperature is simply a unit of measurement for temperature and in photography we most often use it to measure the color temperature of light sources. The temperature scale most often used in photography ranges from about 2000K (K=Kelvin) to 9000K.

NULL

5.0.2 Style

This is where you can configure the sharpness, contrast, and saturation of the images or videos that your drone's camera takes. (Triangle) Digital Sharpness this makes the picture sharper. (Circle) Contrast controls the strength of the lights and the darks in the picture. (Rectangle) Saturation of colors low saturation makes the photos look dull, and high saturation make the colors pop. These can be set in a range of -3 to +3. ### Color Here you can set the camera color profile. These settings affect the colors in your photo. D – Cinelike and D

–Log are both designed for taking photos that will be post-processed later on. The rest of the color profiles are ready to go with no post-processing required.

5.1 Rule two: Make sure your settings are a lined with the Weather

5.1.1 Cloudy and Overcast Days

A cloudy and Overcast day gives an amazing amount of diffused light. You can also shoot in the middle of the day with little worry about harsh lighting or unwanted shadows. Theres a catch though when shooting scenary feel in overcast conditions can also be challenging. Overcast skies are gray and don't usually add a lot of interest to that mountainscape, or field of cows you want to photograph. Look for stormy weather clouds, that add a sense of place and dimension. You can also crop your shot so that you don't get those unwanted gray skies, but still get great lighting. This means you will be shooting with the lower side of the settings like lower aperature, ISO, and Shutter Speed.

5.1.2 Sunny Days

Landscapes in bright sun are absolutely beautiful. Try shooting the beach in the full sun of the day usually around 1 or 2pm. Practice exposing for the beautiful blue skies as well as the sand. Make sure you have high aperature, ISO, and Shutterspeed to keep your shots from being over exposed. Of course this is always mannual correction when editing, but you want to take photos that need little to none editing when shooting.

5.1.3 Rule 3: Make Sure you always double check your shots after shooting

Make sure you are always going back to shots and making sure they what you had in mind with the settings and the feel you are going for. You do not want to take a shot and then just think it was good enough, I always like to have about 4-6 shots with different settings and different feels. The reason being is that its always better to have opitions, because sometimes what you get out and about does not look the same when your uploading.