
GETTING OUT OF AUTO MODE

DAVID HENRY CUHLS



DAVID CUHLS VISUALS

First edition

MODES



Whether you own a DSLR (digital single lens reflect), mirrorless camera, compact camera and what have you, good images can be captured at any place and time. However, one of the hardest aspects of photography is to take full control of the technical side of photography.

In the following chapters, I am going to explain about the ISO, shutter speed and aperture, also known as the ‘exposure triangle.’ I will also be covering exposing for editing or what many photographers might call “cheating the system.” Then I am going to explain the white balance.

Are you Ready?

MODES

There are mainly 5 different modes to shoot in, aside the automatic modes:

1. 'P' stands for Programmed Mode
2. 'TV' ('S' on some brands) is Shutter Priority Mode
3. 'AV' ('A' on some brands) is Aperture Priority Mode
4. 'M' stands for Manual Mode
5. 'B' is Bulb Mode

Depending what type of photographer you are and/or what you mainly, you will end up using one mode more than other modes as all of them have their purpose. I personally like to use 'M' (manual) mode and 'AV' (Aperture Priority) mode



FILE FORMAT

Most cameras nowadays (even many of the smartphone cameras) will allow you to shoot RAW. What is the difference between shooting JPEG and shooting RAW? Well, shooting in the highest RAW format that the camera allows is the best way in my opinion. This is because RAW files take the full raw data that your camera captured and attached all of the raw information with the image file.

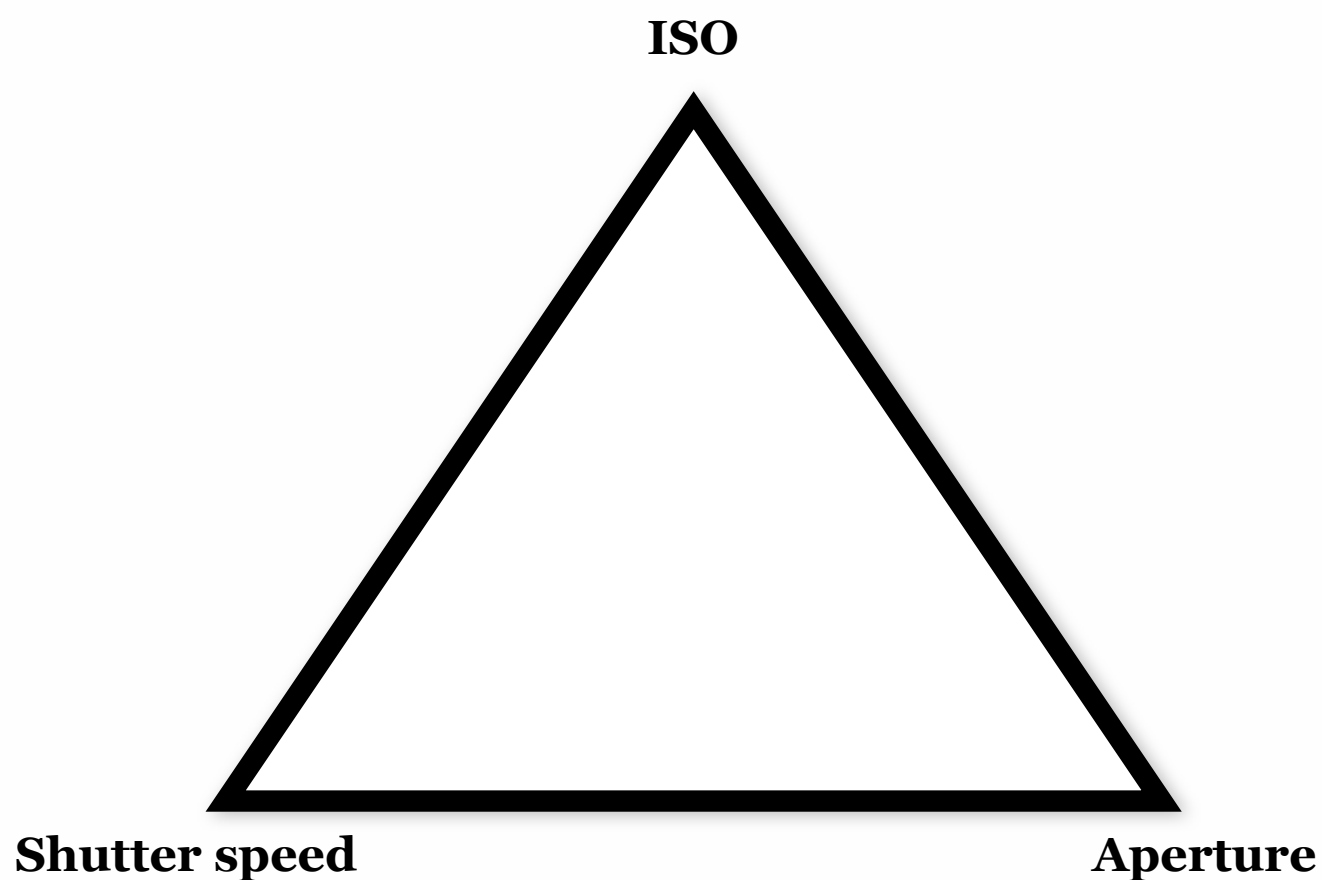
For example: if you are doing a photo shooting session at the beach on a bright sunny day, it is better to underexpose the image to reserve as much details as possible and then recover the shadow areas later in post. This technique is called “cheating the system” because you deliberately underexpose the image and bring back the shadows later in post. Although you can do the same with JPEG files, you will not get the same results and the RAW files will often give the more usable results at the end than JPEG files as JPEG files already have some compression applied to the image file. Therefore, there are not as much

details saved on JPEG files as there are on RAW files.

Whether or not you like to edit your images, shooting RAW is always the best option to shoot in because this means that the pictures are always captured with the most information possible. This can be very useful if in ten years time you would like to do some retouches on the photos, you will still have the information in the photos available to tweak. This is also the reason why RAW files generally tend to be bigger than your JPEG files.

If you are still not sure whether or not you should shoot RAW because you think the situation does not require it, you can always shoot RAW + JPEG as many cameras nowadays allows you to shoot RAW + JPEG at the same time allowing you to decide later whether or not you would like to tweak the image as well as have the highest possible file backed up for possible future use.

THE EXPOSURE TRIANGLE



The “cause and effect.” - Any adjustments done to any of the settings within the exposure triangle will have a direct effect on the final image.

Before we further discuss about the exposure triangle, it is important to understand “*stop of light*.” In photography, a stop refers to the doubling or halving of the amount of light that makes up an exposure. For instance, if you add a stop of light by doubling the exposure, this will brighten up the final image.

In order to add or take away a stop of light, we need to change the ISO, shutter speed, and/or aperture. Now let’s look at each of these individually.

Aperture: is like an iris in human eyes as it determines how much light reaches the sensor. Aperture refers to the circular hole in the lens that lets in the light. In photography the term “f-stop” refers to the size of that opening. This also determines the depth of field.



ISO: is light the sensitivity of the digital sensor, albeit a lot more complicated than that. If you set a low ISO value, this means the camera will have to gather more light to make the exposure, where as a high ISO value means that the camera will gather less light to make the exposure. So for a stop increase of ISO, you could decrease a stop of exposure to ensure a sharper image in lowlight situations.

Keep in mind that the higher ISO you choose, the more noise you are adding to your final image. You usually see image noise when you shoot in low light with a high ISO and the image starts to look a little bit grainy. Depending on the camera model, some models may show more noise than other models.

Shutter Speed: is the amount of time that the light is hitting the sensor, as measured in seconds. This is probably the easiest to understand of the exposure triangle when it comes to doubling the amount of light. For instance, moving from shutter speed of $1/60$ of a second to $1/30$ of a second will add a stop of light already as the shutter will remain open twice as long. Then, changing the shutter speed of 1 second to $1/8$ of a second will decrease the exposure by three stops. From 1 seconds to $1/2$ of a second is one stop, from $1/2$ of a second to $1/4$ of a second is another stop. Finally, from $1/4$ of a second to $1/8$ of a second is a further halving of the time that the shutter will remain open.

Getting The Shot



I decided to use the shutter speed of 3.2 seconds for this image because I wanted to show the light trails from the cars on this busy crossing yet fast enough to show the amount of people waiting to cross the street without being too blurry due to longer shutter speed. I didn't want to use a faster speed because the light trails would not be long enough. Since there were a lot of light sources, it was easy to keep the ISO at 100 for a clearer image. Since I know exactly the result that I wanted, I already knew roughly the settings to use and had a lot of time, and so I decided to use manual mode.

Above:
Shibuya crossing at night (Tokyo - Japan).
Shot on: manual mode. Shutter speed: 3.2 seconds
ISO: 100 Aperture: f/14 Focal length: 70mm
Date: 28. December. 2017
(My third favourite location in Tokyo)

Different modes will be used differently by different photographers and there are not definite rules to when you should use which settings and modes. Now I will show you the mode and settings that I use for different situations.



LONG EXPOSURE PHOTOGRAPHY

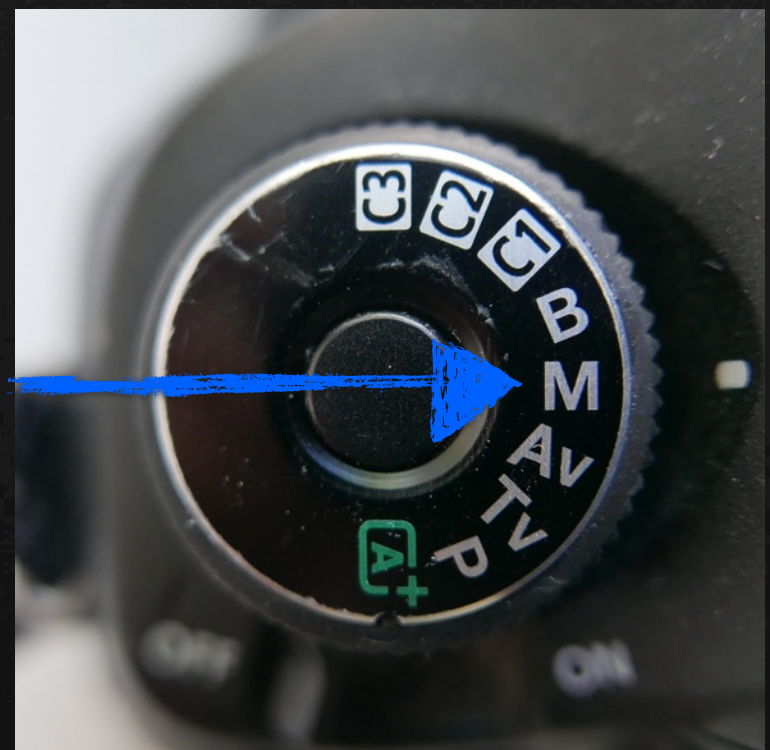
I decided to take a long exposure for this shot because I wanted to capture the movement of the clouds and smoothen the movement of the water.

For long exposure shots, whether it is for landscape, cityscape, architecture, indoor, etc., manual mode is usually the best mode to shoot in my opinion. When doing a long exposure, manual mode is the easiest mode that allows you to control your settings as precise as possible. However, you should be careful on the settings that you choose, because if you change one of these settings, it will have a direct effect on the final result. For example, if I were to change the aperture from f/14 to f/5.6, the image would have been a lot brighter and less sharp as the lens would allow more light hitting the sensor and there would be less depth of field in the scene.

For this shot, I wanted to show the clouds moving as well as the light trails from the ships passing by and also smoothen out the water in the river. For this, I needed to have a long shutter speed. Since I did not have my remote trigger with me, I was limited to the

Above:
Erasmus Bridge at night (Rotterdam - Netherlands)
Shot on: manual mode. Shutter speed: 30 seconds
ISO: 400 Aperture: f/14 Focal length: 35mm
Shot with: Canon eos 5d Mark III
Date: 31. January. 2018

30 seconds long shutter speed that the manual mode could offer. Otherwise I would have done a 1 minute long exposure (which you can in bulb mode) for even smoother water effects as well as more dramatic light trails and cloud movements.





ACTION PHOTOGRAPHY

Here I wanted to freeze the action as the seagulls were flying and searching for food in the air. In order to do this, I needed a fast shutter speed.

For action shot, the one shown above, I have chosen to use aperture priority mode. This is because I wanted to have control of the aperture and let the camera calculate the shutter speed for me. For the reason that this was photographed in the winter morning, the light was bright enough to allow the camera to pick a very fast shutter speed to freeze the birds. However, the light was also constantly changing and this made it difficult to use manual mode and set everything. The ISO is set to 250 because there is no reason to use high ISO on the bright day light. However, the reason I chose to keep it at 250 rather than 100 was because sometimes the birds would fly through the trees and having ISO 250 would keep the shutter speed fast enough when photographing the birds.

Another useful tip is always to shoot a faster shutter speed than the number of the focal length to ensure a sharper result. For example, if your focal length is

Above:
Seagulls flying (Vondelpark Amsterdam - Netherlands)
Shot on: AV mode. Shutter speed: 1/6400
ISO: 250 Aperture: f/4.0 Focal length: 200mm
Date: 30. January. 2015

at 200mm, your shutter speed is recommended to be at least 1/250 of a second.



Now I will show you an example when to use slower shutter speed for action photography.



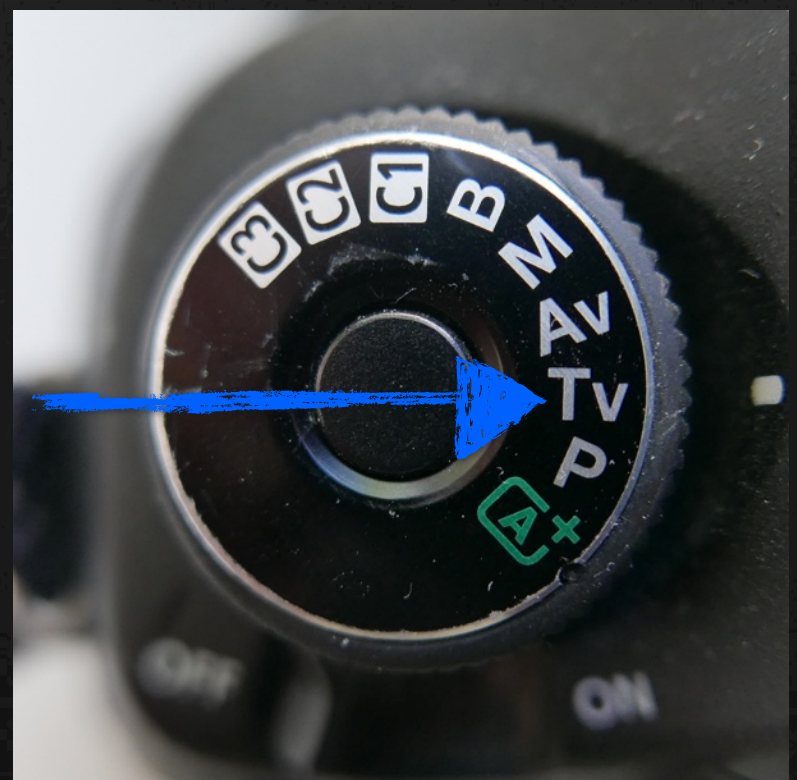
ACTION PHOTOGRAPHY

Here is another sample of action photography but with a slow shutter speed. For this, I wanted to show movement to the taxi that was making a turn at the intersection.

Above:
Tokyo Taxi (Meiji Shrine Tokyo - Japan)
Shot on: TV mode. Shutter speed: 1/13
ISO: 640 Aperture: f/9.0 Focal length: 50mm
(cropped)
Date: 28. December. 2017

This action shot is a little bit different. Here, I wanted to show movement rather than freeze everything in the frame like in the previous example. For this I needed to have a slower shutter speed in order to create movement within the frame. To make sure that the subject (in this case is the car) is sharp and in focus, I needed to pan the camera following the car as the car passes by.

Since this was more of a travel picture for me as I don't live in Tokyo, let alone, Japan, I wanted to document other subjects rather than just the landmarks. The handheld slower shutter speed effect really helps to make the picture of this taxi, in my opinion, stand out more than just a regular shot of the taxi on the street that does not show any movement. By adding the movement into the background, it allows the eyes to focus more on the subject as well.





PORTRAIT PHOTOGRAPHY

When photographing people, whether it is staged or not, focusing on the emotion is key.

For the follow set of images were shot using AV mode (aperture priority mode). Aperture priority mode is the most convenient and efficient mode to shoot these scenarios in my opinion (other photographers will obviously have different opinions because of their shooting styles), because I usually know what type of images I am after as well as what depth of field (area in focus) I would like to have and just the overall look of the image. Thus dialing down my desired aperture and ISO and letting the camera calculate the shutter speed for me is more convenient and efficient fore me.

The image above is a good example of why I had to use aperture priority mode. The two people playing music on the bridge in Amsterdam were not staged, the light was also changing very quickly as it was in the a winter afternoon and there were people walking by, passing the frame as I was trying to capture the shot. Manually setting everything will just take more time and standing there with a

Above:
Amsterdam - Netherlands
Shot on: AV mode. Shutter speed: 1/2000
ISO: 160 Aperture: f/1.8 Focal length: 50mm
Date: 16. February. 2018

camera in front of the subject may also make them feel uncomfortable.

When photographing people, you should always try to make sure that the eyes are in focus as the eyes help to tell the emotion of the person and contribute to the overall image.

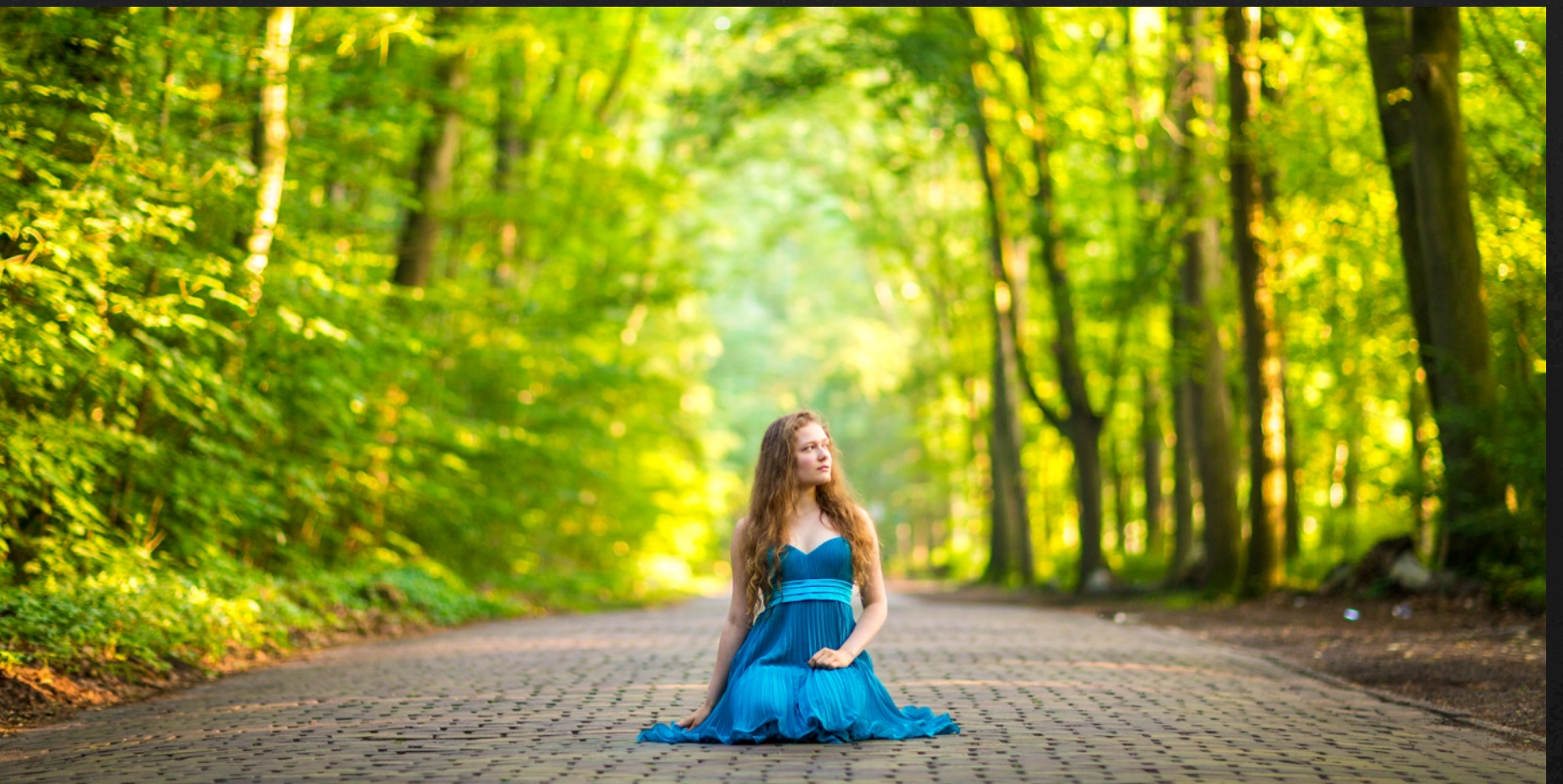
The following images will show both the story telling portrait images as well as more of the aesthetic kind of portrait images.





PORTRAIT PHOTOGRAPHY

**[Frühlingsfest Hannover - Germany] Shot on: AV mode. Shutter speed: 1/160 ISO: 500
Aperture: f/1.4 Focal length: 85mm Date: 04. April. 2015**



PORTRAIT PHOTOGRAPHY

**[Rotterdam - Netherlands] Shot on: AV mode. Shutter speed: 1/200 ISO: 400
Aperture: f/1.4 Focal length: 85mm Date: 07. June. 2018**



PORTRAIT PHOTOGRAPHY

**[De Bijenkorf Amsterdam - Netherlands] Shot on AV mode. Shutter speed: 1/160 ISO: 800
Aperture: f/1.4 Focal length: 85mm Date: 04. December. 2016**



PORTRAIT PHOTOGRAPHY

**[Asakusa Tokyo - Japan] Shot on AV mode. Shutter speed: 1/60 ISO: 2000
Aperture: f/4.0 Focal length: 51mm Date: 30. December. 2017**



PORTRAIT PHOTOGRAPHY

**[Centraal Station Amsterdam - Netherlands] Shot on: AV mode. Shutter speed: 1/100 ISO: 500
Aperture: f/1.4 Focal length: 85mm Date: 01. April. 2017**



PORTRAIT PHOTOGRAPHY

**[Asakusa Tokyo - Japan] Shot on: AV mode. Shutter speed: 1/8000 ISO: 100
Aperture: f/1.6 Focal length: 85mm Date: 01. January. 2018**



**[München (Munich) - Germany] Shot on: AV mode. Shutter speed: 1/200 ISO: 320
Aperture: f/14 Focal length: 16mm Date:07. June. 2016**

I also usually use aperture priority mode when I do landscape photography, street photography, cityscape photography and just about many other fields of photography out there.

Unlike taking portrait pictures, where your aperture is on the low value most of the time, taking landscapes, urban, cityscapes, etc. usually requires a higher aperture value. This will allow lower amount of light into the camera but it will also allow larger depth of field. The reason that you would want to have a larger depth of field when taking pictures in these situations is because you would like to have as as many things in focus as possible.

You can also use high aperture value to create the star effect on the light source such as when photographing directly into the sun (as shown in the image above).





**[Amsterdam - Netherlands] Shot on: AV mode. Shutter speed: 1/60 ISO:1000
Aperture: f/6.3 Focal length: 106mm Date: 22. April. 2016**



**[Centraal Station Amsterdam - Netherlands] Shot on: AV mode. Shutter speed: 1/1000 ISO:500
Aperture: f/14 Focal length: 35mm Date: 02. July. 2017**

Recap / In Summary



There are no strict rules to using which mode under the type of photography. However, I use these modes based on the convenience and efficiency of getting the shot. For example, I mainly use AV mode because I know most of the time how much depth of field and ISO value I want/need to get the shot and I would just leave the camera to calculate the correct shutter speed for me to save some time. This also applies with TV mode, if you have the specific shutter speed that you want and would like the camera to calculate the correct aperture for you, TV mode (shutter priority mode) is the most convenient and efficient mode to shoot in. Going full manual means you have the full manual control of all the settings settings and this might be convenient when photographing situations such as a concert where the lights are continuously changing and this could mess up your camera's settings calculations. Another situation where manual mode is important other than long exposure shots is when you use flash photography. The camera does not know the flash power and where it's firing at. Using manual mode will give you the full control and creativity of your final result(s).



METERING MODE

Metering mode essentially allows the camera to calculate the proper aperture and shutter speed depending on the light and the ISO value.

There are three main types of metering modes:

1. **Matrix metering (for Nikon) and Evaluative metering (for Canon):** This metering mode works by first dividing the multiple zones and then look at the focused zone of the frame. From there, the camera is able to judge the settings for the shutter speed and aperture based on the information that it can gather. (Obviously there are more factors that has to be taken into consideration such as; colour, highlight, distance between the camera and the object, etc.).
2. **Centre-weighted Metering:** This metering system evaluate the light in the centre of the frame and ignores the light in the corners of the frame. This type of metering mode is very useful when taking close-up headshot of someone where you want the exposure on the face to be the priority and not the lighting of the entire frame.
3. **Spot metering:** This metering, as the name suggests, only evaluate the light around the focus point and ignores everything else. This metering system can be very useful when photographing something like the moon.
4. Unlike most other manufacturers, many of Canon cameras will offer the fourth metering mode. This is called Partial metering. This metering mode is very similar to spot metering but with a larger area coverage. Spot metering usually covers approximately 3.5% of the viewfinder whereas partial metering mode will cover approximately 8% of the viewfinder.

The downside of camera metering modes is that they work great when the scene is nicely and evenly lit. However, it can be inaccurate when the scene is not evenly lit thus causing you to change the exposure compensation and other settings.

Cheating The System



There will always be situations where the lighting is not on our side regardless whether the lighting is natural or artificial. In many situations, we may not be able to take pictures and retain all of the details in the final result. This is when the technique of “cheating the system” comes in (other photographers may have different names for this process as well).

Cheating the system allows me to for example underexpose the image when there are too much highlight details and then later on I have room to to still recover even more of the highlights. Sure, recovering shadow areas from an underexposed image may introduce noise into the image. However,

Above:
Centraal Station Amsterdam - Netherlands
Shot on: AV mode. Shutter speed: 1/80 seconds
ISO: 1250 Aperture: f/1.4 Focal length: 85mm
Shot with: Canon eos 5d Mark III
Date: 29. November. 2015

it is better to have information in the image than to lose information. The following example shows how I deliberately underexposed the image to have more details from outside the window and I recovered the shadow areas later in post processing.

There are many softwares that allow you to do this nowadays, Even you most of the smart phones comes with this feature on the stock photo app.



ORIGINAL SHOT

[Amsterdam - Netherlands] Shot on: AV mode. Shutter speed: 1/500 ISO: 100

Aperture: f/2.0 Focal length: 85mm Date: 05. June. 2018



ADJUSTED (AFTER THE HIGHLIGHT AND SHADOW DETAILS HAS BEEN RECOVERED)

If you would like to learn more about photography, I have also created some photography tutorials on my YouTube channel as well as on my website. I hope that you were able to take something out of this guide and other contents that I've created on both my YouTube channel and on my website. Thank you so much for all the support as well as suggestions.

If you have any questions, feel free to ask through my email on my website and/or through my social media accounts.

My YouTube channel:

<https://www.youtube.com/user/Davidcuhls>

My Website:

<https://www.davidcuhlsvisuals.com>



DAVID HENRY CUHLS

Never lose that hunger for perfection. The only way you become good at photography is to always keep shooting, you're not going to learn it from watching videos, you are not going to learn it from being an assistant and you are certainly not going to learn it from a book. You have to understand and know your own aesthetic(s), and to do that, you just have to keep shooting! (Photo by my best friend shot at Ginza Tokyo - Japan Date: 29. December. 2017)