Notes in Support of the Motion Capture Talk

WHEN SHOULD I USE SHUTTER PRIORITY (S OR Tv)

Whenever you are out taking pictures the first question you should always ask yourself is: "Is anything moving or possibly going to move in the image I am about to take?" If the answer is yes then shutter priority is probably the answer unless the scene is a landscape with perhaps moving trees, grass and / or water. Then manual is good.

But for anything else such as being on safari or watching a bird on a stick that might leave the stick, shutter priority is a good idea and set the shutter speed for the effect you want.

Do you need some motion blur to convey movement or do you want to freeze the action because it doesn't need motion blur to be a good image.

The obvious extremes are a car that if frozen completely along with the background looks parked vs a bird in flight that you will likely want to freeze, although you might want a bit of wing movement at the tips – a matter of choice.

Turboprop aircraft should not be completely frozen or there will be no prop blur and it looks like the engines have stopped. You can see the plane is flying but it looks like it's about to drop out of the sky.

Suggested Shutter Speed Ranges:

- Propeller planes (for prop blur): 1/160 – 1/250 seconds
- Fast jets: 1/600 – 1/2500 seconds
- Birds in flight: 1/800 – 1/2000 seconds
- Motorsport for motion blur: 1/50 – 1/100 seconds
- Motor sport to freeze action: 1/000 – 1/2000 seconds
- Steam Trains for motion blur: 1/20 – 1/60 seconds

Back Button focus.

This technique is a way of avoiding having to change the focus mode from single shot to continuous (or Servo) and thus reducing the chances of you losing shots because you have to make the change.

Basically, you reassign the focus function to a button other than the shutter release button (usually on the back – hence back button focus).

You set your camera to continuous or servo focus all the time.

Then, if you simply touch and release the focus button the focus will have been set at that distance and if you don't touch the focus button again it will not change. So even in continuous focus mode it can be used as single shot focus giving you the chance to set the focus at a point and recompose.

However, if the subject you are focussing on starts to move or is moving you simply keep the focus point or points on the target and keep the focus button depressed whilst you follow your subject.

The important thing is to take the focussing function away from the shutter button or it will cancel out the benefit. If focus is still assigned to the shutter release then as soon as you press it will refocus and take away the focus you established on the back button to a new place if you have recomposed. So you cannot use the set up for single shots where you recompose after focussing.

This is particularly useful with wildlife photography where you might have a critter that is still and you want do take some carefully composed shots with the target away from the focus points but then the critter starts moving.

So, you snap away merrily by touching the back button once each time with the focus point(s) on the target and recomposing but then the moment you see it might be about to move you put the focus point(s) back on the target and hold the back button down to focus continuously while shooting by simultaneously pressing the shutter button.

I hope that's all clear!

Image Stabilisation

If you are going to be moving your camera / panning to follow a moving target then you either need to switch image stabilisation off OR if your lens has more than one stabilisation mode, then the 2nd or even 3rd mode needs to be set because this will allow for panning in one direction. The lens / camera will detect big movements and not try to cancel them out but just cancel out movement in the other plain.

Focussing

The best focus is achieved by using the smallest single point available but this can often be difficult to keep on a small moving target. So, you then start to add as many "helper" points around the central point as you need to be able to keep the cluster on your target. This may be 5 of 9 points typically.

The 500 Rule

If you are doing night photography and your image is going to include stars in the night sky then in order to keep these as sharp pin prick dots as opposed to streaks there is a rule of thumb for the longest shutter speed you can use.

It is simple 500 divided by the focal length of the lens you are using with reference to a full frame camera.

This is easy if you are using full frame. If you are using say a fixed focal length 50 mm lens then 500 / 50 = 10 seconds as the longest recommended shutter speed.

If you have a zoom lens on a full frame camera then the focal length is wherever within the zoom range you have it set.

for non full frame cameras you need to multiply the focal length you are using by the crop factor for the camera and then divide this into 500.

So for example, on an Olympus micro 4/3 which has a crop factor of 2x (the sensor is half the size of a full frame camera) a 125 mm focal length is 250 mm full frame equivalent and 500 / 250 = 2 seconds.

APSC cameras have crop factors of between 1.5 and 1.6x.

In other words, the longer the focal length of lens you use then the shorter the maximum shutter speed to get sharps stars.

Eddie Hyde ARPS