

# Motion Techniques

**Presented by Jeffrey Sward**

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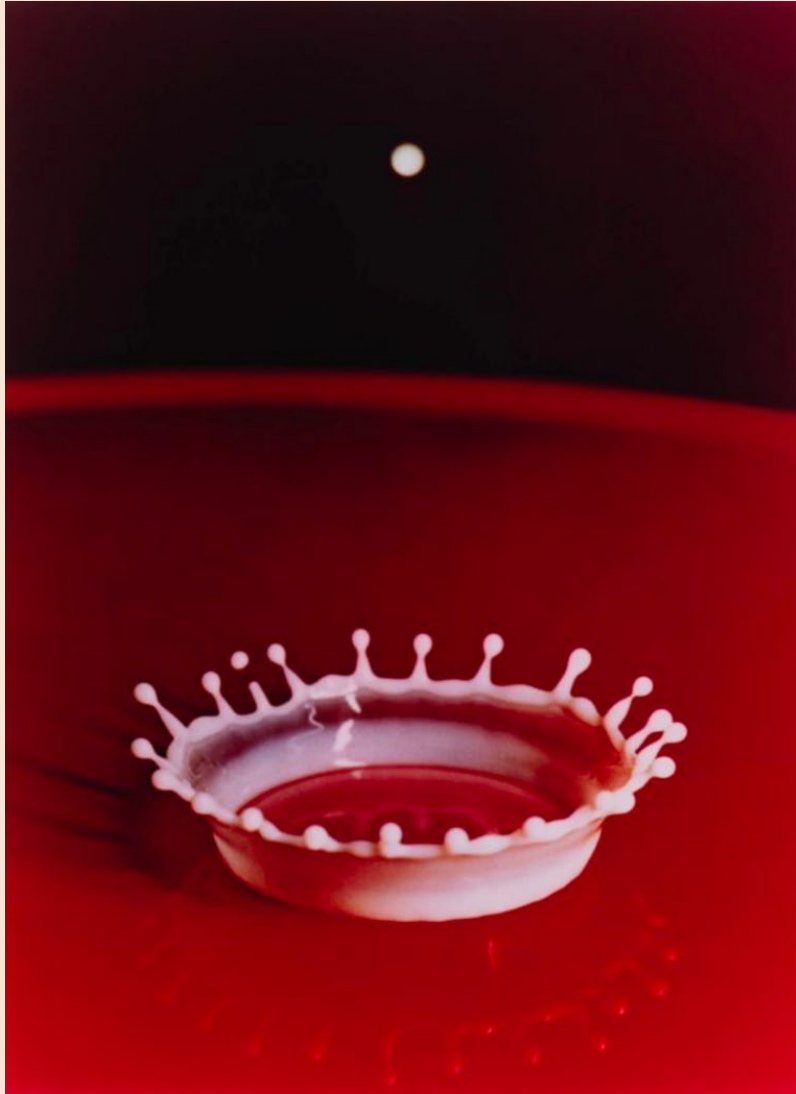
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# Three types of Motion

- Suspended motion
  - Freeze the action to capture a definitive moment
- Motion blur
  - Give a sense of movement and speed.
- Visual flow
  - Compositional technique for implied motion and/or artsy effects

# (1) Suspended Motion (frozen action)

- Freeze a literal split second, to capture details imperceptible to the human eye.
- Mid-action pause: hair flying, arms flailing, dust kicking, waves crashing.
- Implied motion suggests the seconds that will follow the suspended moment, giving a viewer a strong sense of what would happen if the scene is “unpaused.”



**Harold Edgerton**  
***Milk Drop Coronet,***  
**1957**

## (2) Motion blur

- Striking representation of dynamic energy when incorporated deliberately.
- Motion blur is usually produced at very slow shutter speeds
- Can come from any direction
- Capture a subject's movement amidst the stillness of the setting
- A tripod is your friend
- Keep looking for subjects:
  - Clouds move through the sky
  - Shadows and light move across the floor
  - Leaves rustle
  - Curtains billow in the breeze

# Motion Blur



### **(3) Visual Flow (Compositional Technique)**

- Visual flow takes the viewer's eye on a graceful, often gently meandering, visual journey through the photographic composition.
- Flow is dynamic, continuous, and unforced;
- Lines, especially curved or undulating lines, are of particular value in creating visual flow as they draw the eye across or throughout the frame.
- Repeating elements can establish rhythm and build momentum to carry the eye from one point to the next.
- Progressive gradations – of color, of size, of light, of shape – are especially powerful in gently coaxing the eye through a photograph; motion blur itself often appears as a gradation of tone, color,



# Visual Flow

# Pan

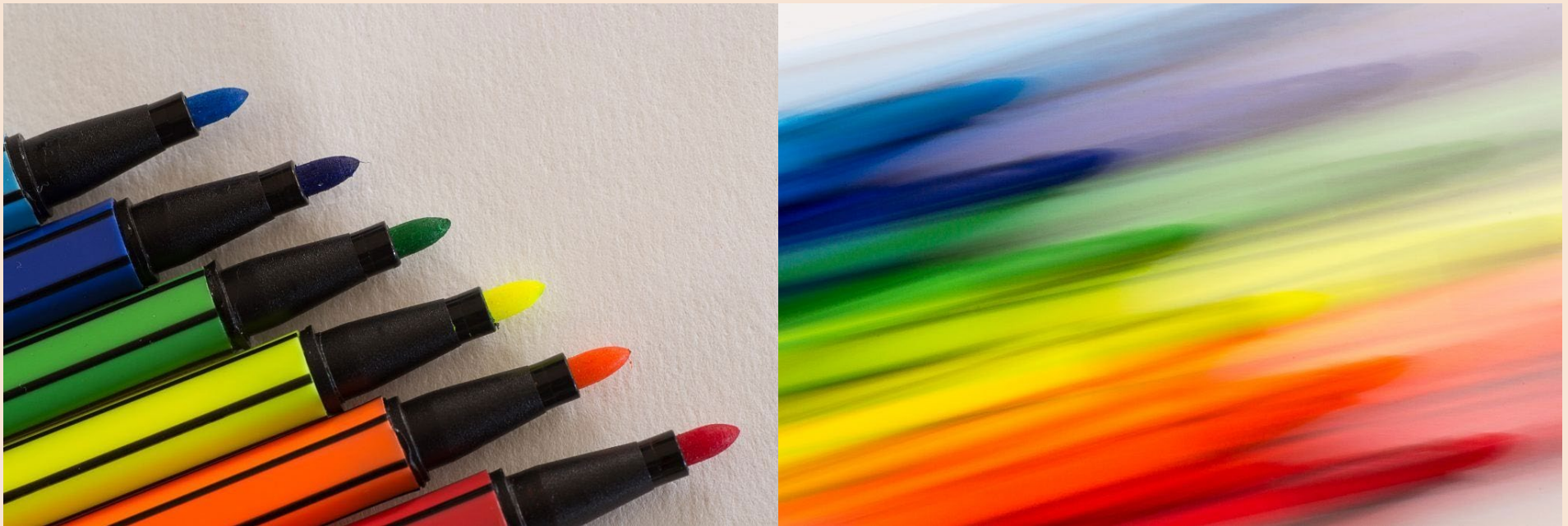
- To pan involves following a moving subject with the camera while keeping the shutter speed relatively slow. This results in a blurred background, with the subject appearing more in focus, conveying the feeling of movement and speed.
- Pan is not
  - A negative review of a performing arts event
  - A metal container used for cooking
  - A stratum of compacted soil
  - A process of sifting gravel to separate gold
  - Drifting pack ice near shore
  - A Greek god who plays a bamboo flute

# Panning



# Intentional Camera Movement and Long Exposures

- Intentionally moving the camera during exposure, creating a unique blurred effect. This can be used to add a sense of dynamism or abstraction to an image.
- A long exposure, even with a stationary subject, can capture movement, such as light trails from cars or flowing water.



# Zoom Blur

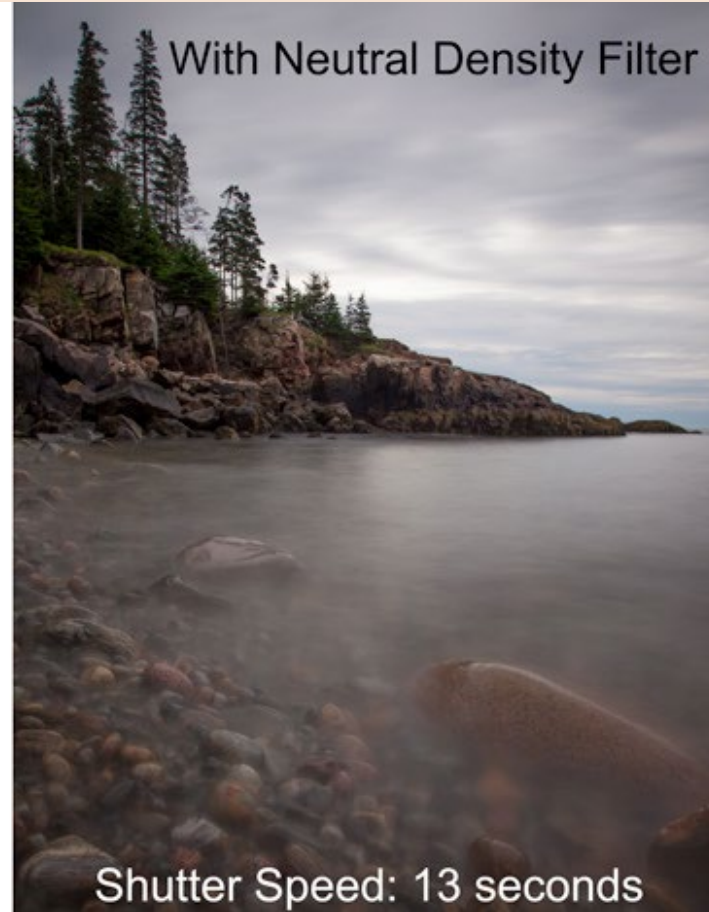
- Zoom blur results from intentionally zooming the lens during a relatively long exposure
- Shutter priority
- Aim for a shutter speed of around 1 to 4 seconds.
- A tripod is helpful



# Freezing Motion and Motion Blur: Fast and Slow Shutter Speeds

- Fast shutter speed
  - E.G., 1/500th of a second or faster
  - Freezes the action,
  - Captures sharp details of a moving subject in a split second.
  - Useful for capturing sports, wildlife, or other fast-paced subjects.
- Slow shutter speed
  - E.G., 1/30th of a second or slower
  - Moving subject appears blurred
  - Background may remain sharper, assuming tripod is used.
  - Used to show the direction and speed of movement
  - Creates a dynamic, abstract look.
  - Slow shutter speeds enable moving objects to blur naturally, which can be very effective in creating a sense of movement.
- Test shutter speed until you have found what works for you.

# Effects of Shutter Speed (a)



# Effects of Shutter Speed (b)

**Digital Camera**

## Moving subjects

Shutter speed choice becomes more important when you photograph moving objects. The quicker the subject is moving, the faster the shutter speed you need to freeze the subject. Go for a slower speed and the moving elements will appear blurred – but get the right degree of blur and your shot can look great.

**1/250 sec**  
Exposure: 1/250 sec at f/4; ISO100

**1/60 sec**  
Exposure: 1/60 sec at f/5.6; ISO100

**1/30 sec**  
Exposure: 1/30 sec at f/8; ISO100

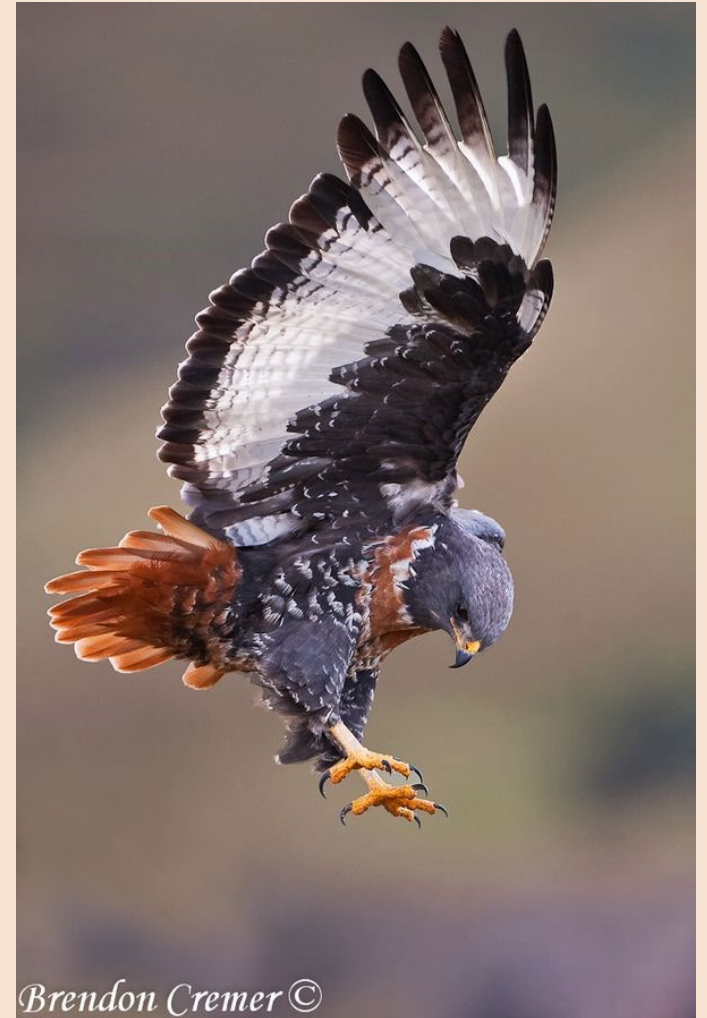
**1/15 sec**  
Exposure: 1/15 sec at f/11; ISO100

**1/5 sec**  
Exposure: 1/5 sec at f/25; ISO100

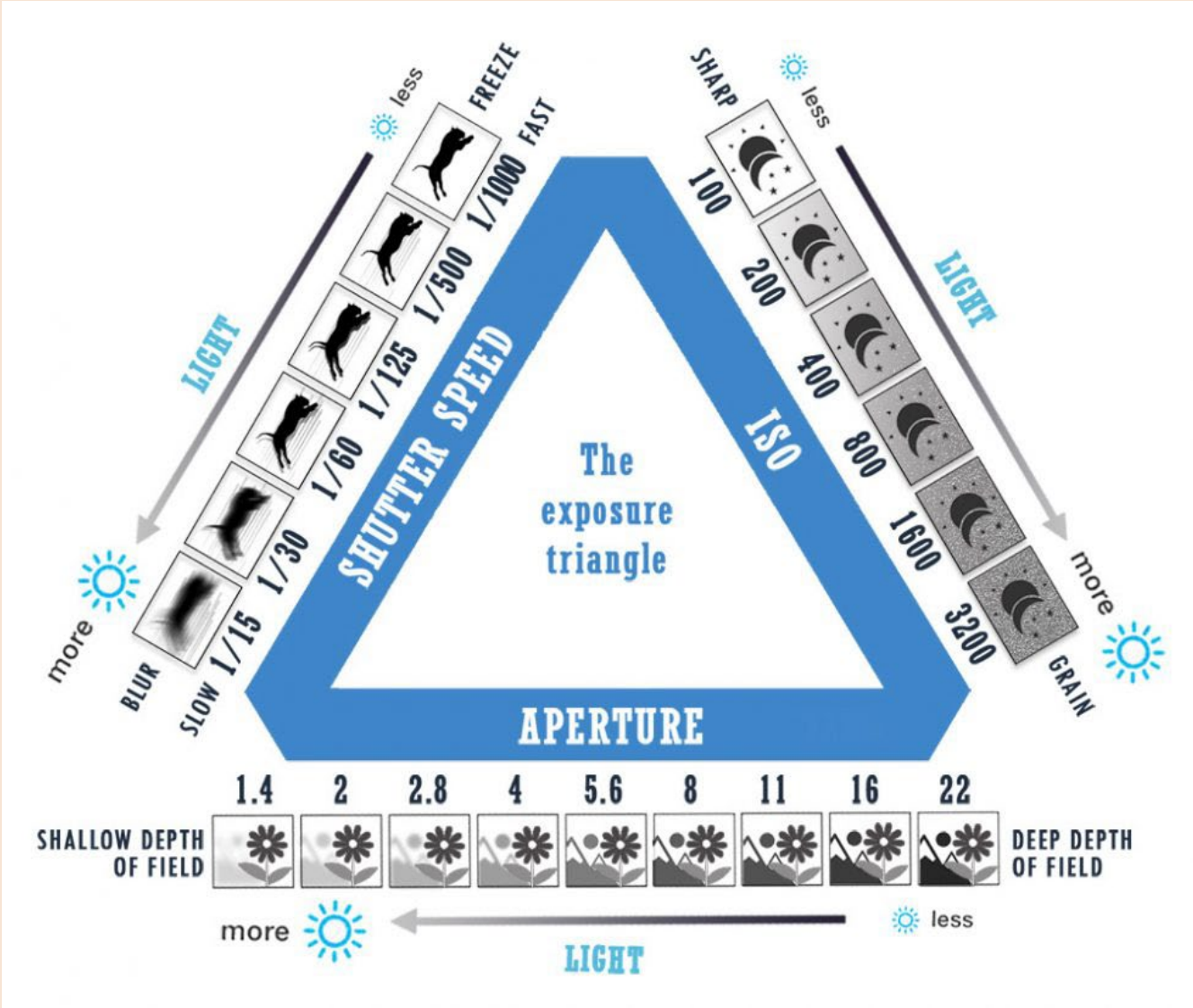
Photo: Thomas D. Hubert

# Shutter Speed for Stop Motion Photography

- Shutter priority
  - Set the shutter speed
  - The camera automatically adjusts the aperture
- Auto ISO mode
  - Set both shutter speed and aperture
  - The camera automatically adjusts ISO
- Full manual.
  - Set both shutter speed and aperture
- A shutter speed of 1/250 sec should freeze people walking around,
- Shutter speed of 1/2000 sec through 1/4000 sec
  - Birds in flight
  - Cars
  - Small children or dogs
  - Athletes.



# Exposure Triangle



# Photographing Professional Baseball Games

- Use your ASMP press pass
- Call ahead
- Use the photographer's pit
- Long lens.
  - 300mm f2.8 is standard
- Set up tripod
- Point lens at second base
- Prefocus on second base or use auto focus
- Do not move tripod or change aim during game
- Use cable release
- Use multi-shot (motor drive)



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# How To Capture Motion Blur

- A shutter speed of 1/30 sec works well for bicycles, whereas shutter speeds between
- 1/60 sec and 1/125 sec work well for cars and motorcycles.
- To blur a waterfall, use a relatively long exposure of 3-5 seconds. This also works well for 'blurring' people out of shots when they're walking around, effectively removing them from architectural shots of street scenes or busy landmarks.
- If exposure goes over 30 seconds use manual mode and the bulb setting.
- Long Exposure: Use a slow shutter speed. Start with 1/15th of a second and experiment from there.

# Reduce Shutter Speeds with Neutral Density (ND) Filters

- Neutral Density (ND) filter reduces the amount of light hitting the sensor, extends the exposure.
- ND Filters are often visually opaque.
- For SLRs, compose and focus the lens manually before installing filter
- ND filters are calibrated differently than everything else in photography (next slide)

# Danger Neutral Density Filter Labeling

Stops	Optical Density (OD)	ND Factor
1	0.3	2
2	0.6	4
3	0.9	8
4	1.2	16
5	1.5	32
6	1.8	64
7	2.1	128
8	2.4	256
9	2.7	512
10	3	1024

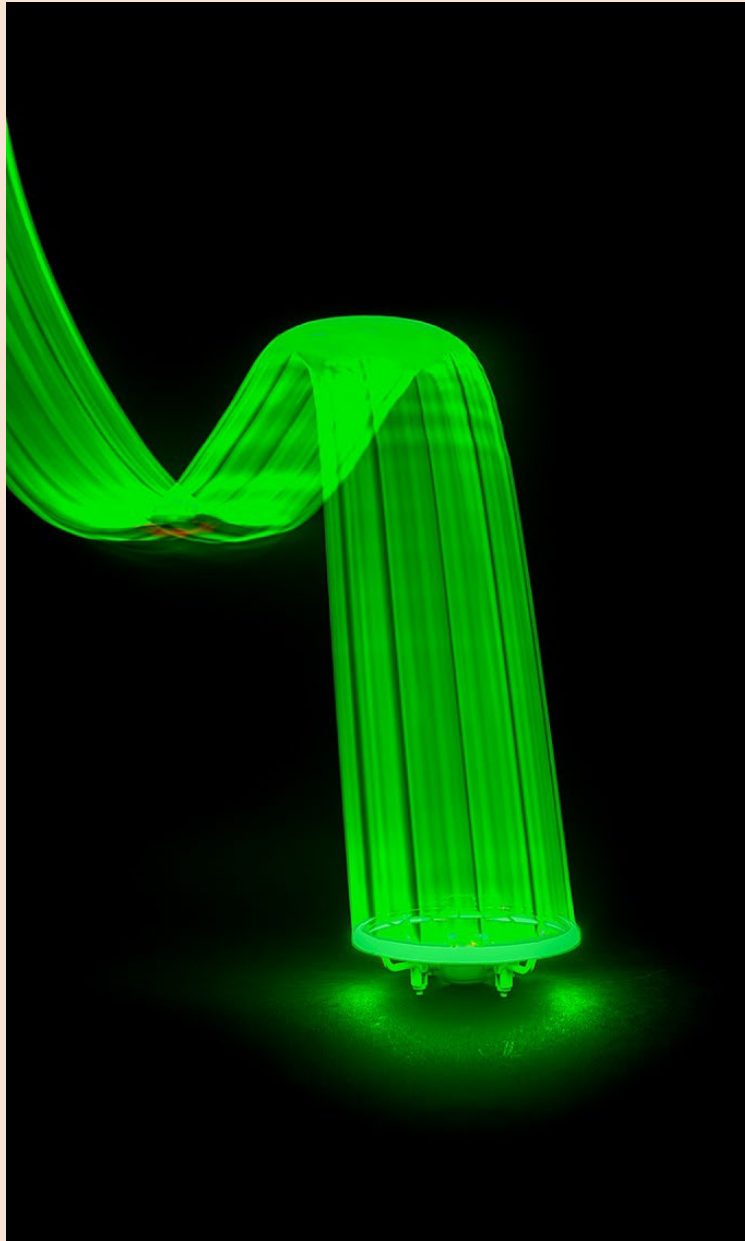
# Creative Ideas

- City Lights at night.
- Natural light in forests or gardens.
- Completely abstract pieces with light and color.
- City lights at night
- Bright objects.
- Lighted toy top in dark studio



# Amusement Park Rides

Robert Breese



**Studio  
Light  
Trails  
No  
Flash**

**(Toy  
Flying  
Saucer)**

# Lighted Toy Top

**Instructions:**



Press The Handle  
Down To The  
Spinning Top



Turn 4 Full Times



Press The Button  
And Enjoy

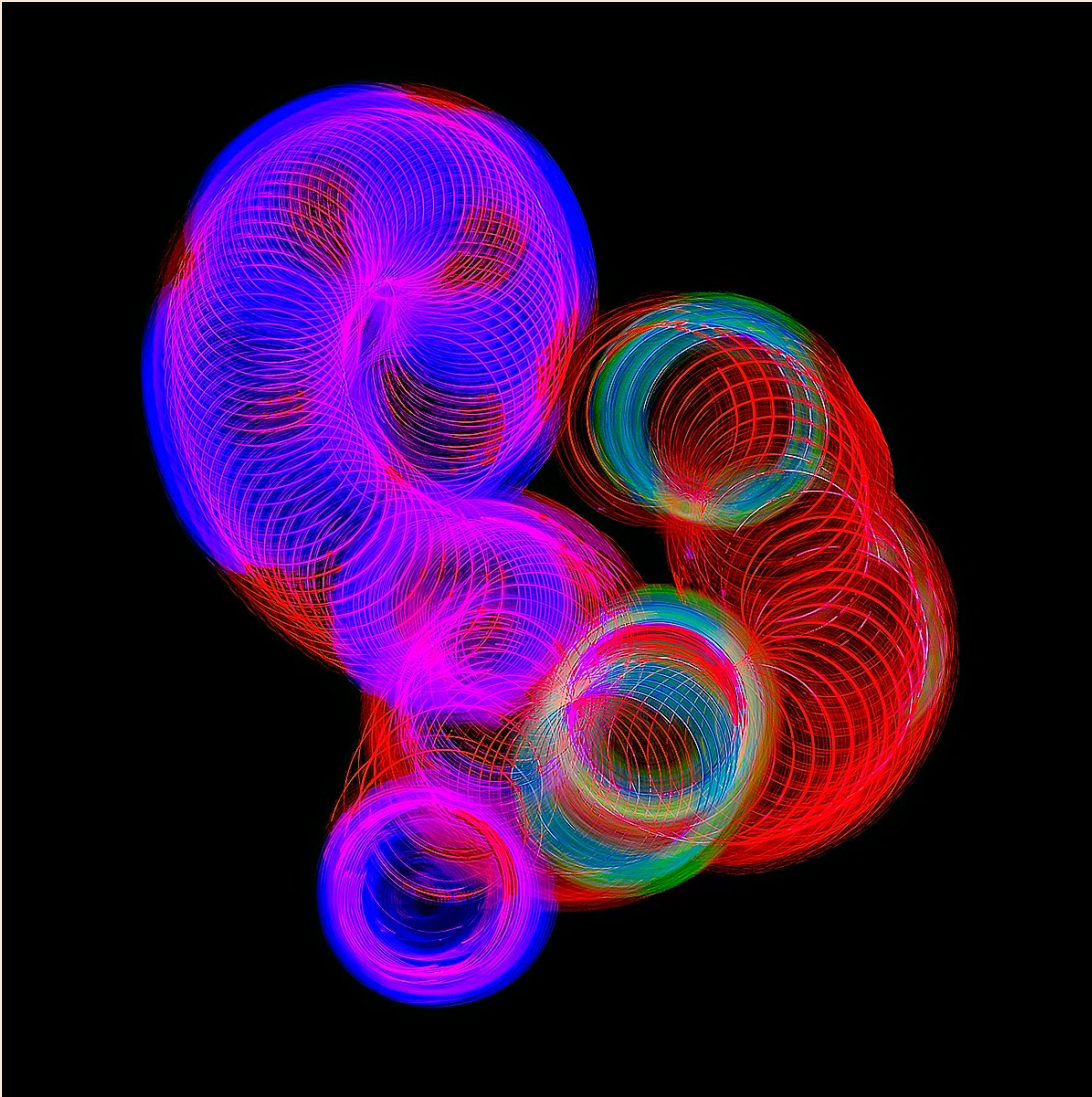
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X002K0AJ37  
IPIDIPI TOYS Light...g UFO Spineez Tops  
New  
Made in China





# Multiple Lighted Toy Tops from Above

# Light Trails Moving Vehicles at Night

- In darkness there's little chance of overexposure
- Aperture priority if your camera's automation handles low light
- Use a Bulb exposure and leave the shutter open for a few minutes
- Use a tripod



# What is Kinetic Photography?

- Kinetic photography, also known as camera-toss photography or motion blur photography, is all about introducing deliberate camera movement during a long exposure. Instead of freezing for a moment, it stretches it, using motion to paint with light and color.
- Kinetic photography stands out by turning motion into an art form. This technique involves moving the camera during exposure, creating images that are vibrant, abstract, and full of energy. It's a creative playground for photographers who love experimenting and pushing boundaries.

# Kinetic Photography Techniques

- Start in Low Light
  - Evening or night settings work best to capture light trails.
- Experiment with Patterns
  - Move the camera in circles, waves, or zigzags.
- Play with Settings
  - Adjust ISO, aperture, and shutter speed for different effects.
- Focus
  - Pre-focus your camera before moving it.
- Post-Processing
  - Enhance colors and contrast in editing software
- Camera Toss
  - Risky. Equipment damage possible



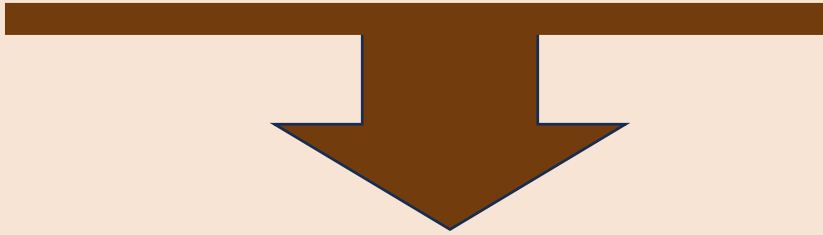
## **Ryan Gallagher: Warp Jump Camera Toss**

# Combining Existing Light and Flash

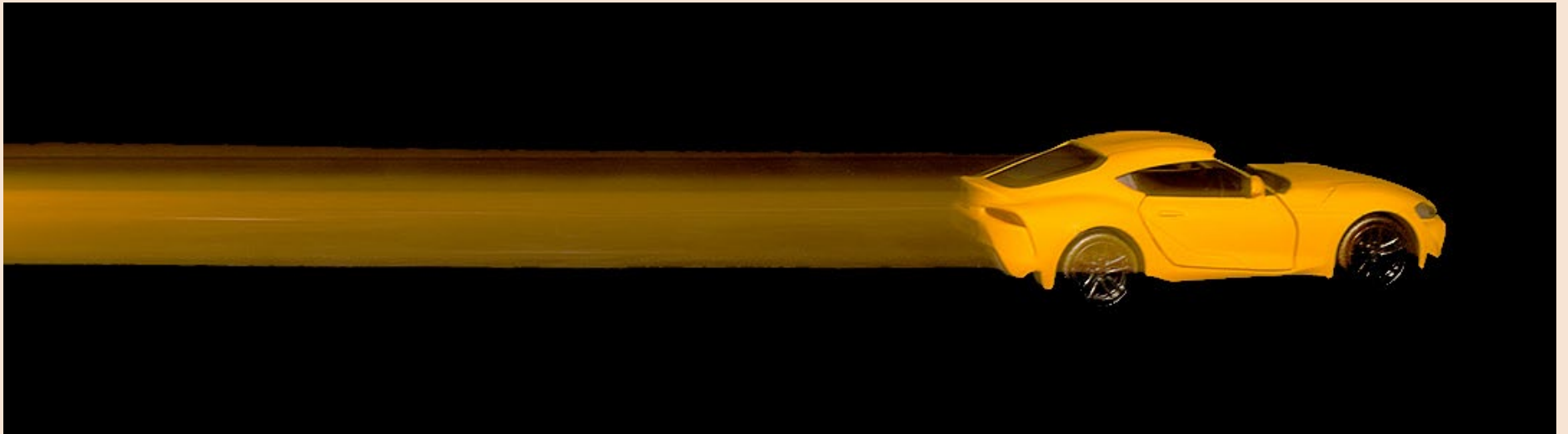
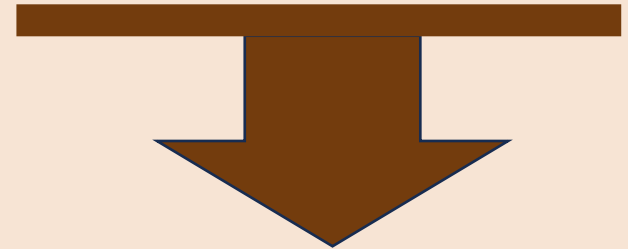
- Use a bulb exposure to leave the shutter open
- Use a flashgun to stop the moving object
- Front-curtain flash mode fires the flash at the beginning of the exposures
  - Light trails will appear to extend in front of the subject
- Rear-curtain flash mode fires the flash at the end of the exposure
  - Light trails will appear to extend in behind the subject

# Second Shutter Curtain Sync

Main slow shutter speed  
"Time Exposure"



Second Curtain Flash  
at End of Exposure



# Falling Feathers

(l) Time only (r) Time with strobe



# Falling Confetti

(l) Strobe only (r) Time with strobe



# Challenges and Overcoming Them

- **Unpredictable Results**
  - Embrace the unpredictability as part of the fun.
- **Too Much Blur**
  - Shorten the exposure time or reduce the movement.
- **Finding the Right Light**
  - Experiment in different lighting conditions to find what works best.
- **Secure Your Gear**
  - Always use a neck strap or wrist strap.
- **Start Small**
  - Begin with gentle movements.
- **Be Aware of Your Surroundings**
  - Ensure you are in a safe area, especially if trying camera tossing.
- **Believe and follow all "No Trespassing" signs !!!**



**Bonus  
Challenge**

**Identify  
this  
Bird**

**Double  
Bonus  
for  
Range**



*Brendon Cremer* ©

## **Jackal Buzzard**

**Buteo rufofuscus**

**Ignominious  
in  
southern  
Africa.**

# References

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