American Cinematographer

AUGUST 2018

An International Publication of the ASC

ANT-MAN AND THE WASP
DANTE SPINOTTI, ASC, AIC
SHOOTS GIANT-SIZED ADVENTURE

necessary permits, and full insurance. We can also advise on location and timing, and we provide creative solutions to achieving a particular shot.

How many people come out on your team?

Austin: The crew size can vary based on the specific project and camera we are flying. For most TV work we are a two-man team: pilot and camera operator. For larger features, we might have three or four on the crew.

In the larger team, one of those individuals is the spotter, who keeps an eye on the drone itself and its flight path for safety, and one is an assistant — is that correct?

Austin: Yes, that's correct.

What is the flying time of a drone with a high-end camera?

Austin: Technology keeps changing and getting better, and there is some new tech coming out that will change my answer. But today, flying our Red Weapon 8K Monstro with a Zeiss CZ.2 28-80mm [T2.9] zoom, we average a little over 12 minutes before a quick land and battery swap.

How often do you suggest a different drone or camera to a cinematographer?

Austin: Quite often, actually. Everyone understands how seriously cinematographers take their craft. Sometimes, however, aerial shots have to be looked at differently. The cost of flying our DJI Zenmuse X7 6K camera on an Inspire 2 drone is drastically different from flying an Arri Alexa Mini or Red Weapon. If it is web-

Cinematographer Roham Rahmanian checks the frame for a shot of 958 Intel Shooting Star drones forming a 328'-tall rendering of *Time* magazine's cover.

Pro Perspective
Roham Rahmanian:
Lighting the Sky

Beyond carrying cameras to unique vantages, drones can also serve as aerial-lighting platforms. Perhaps the most widely seen demonstration of this was the opening ceremony of the 2018 Winter Olympics in Pyeongchang, South Korea, during which Intel Shooting Star drones, carrying integrated LEDs, formed a massive snowboarder in the sky.

Cinematographer Roham Rahmanian recently had the opportunity to work with this technology when he was brought onto a special shoot for the June 11 cover of *Time*, for which 958 Shooting Star drones formed the magazine's logo and red-and-white cover border. Rahmanian is a partner, cinematographer and creative technologist at consulting firm and production company The Astronauts Guild; as a director of photography, his credits include the short *Break the Will*, for which he received an Emerging Cinematographers Award in 2017.

Rahmanian was referred to *Time*'s multimedia producer Josh Raab by drone-services provider Astraeus Aerial, which was already on board to provide the drone platform from which the cover image would be shot. He was invited to join the project as a technology consultant, but once he arrived on location in Folsom, Calif., for the three-day shoot, "it turned into a cinematography role," he recalls. "I started coordinating with D.W. Pine, *Time*'s creative director, and figuring out what we had to do to realize his vision, and then I liaised with the Astraeus team, deciding how we were going to do the shot."

Rahmanian shared the cinematography credit with the Astraeus Aerial crew, which included pilot Corey Gineris, camera operator Zack Haskell and spotter Travis Samson. Flying an Astraeus Aerial unmanned aircraft system, the crew worked with a Red Weapon camera with a Helium 8K sensor, paired with a 35mm Canon Cinema Prime (T1.5). When the lens was wide open, Rahmanian reports, "We got this really nice blooming that made the drone lights look a little bit bigger and gave them a bit more presence." Balancing that effect with the need to maintain a sharp image, Rahmanian ultimately opted to shoot around T2.8 to T2.8½, at an ISO of 800.

The Shooting Star drones were arranged in a 328'-tall formation, with the top edge approximately 400' off the ground. The fleet of drones flew into position as a unit, having been programmed under the supervision of Intel animation lead Tim Heath. When the Intel team launches the drones, Rahmanian notes, "it's an awe-inspiring ballet of lights.

"Once the drones went up and came down, we had about an hour of turnaround before they could go back up, so we only had one shot each morning and night," he adds. "All of it had to be at sunrise or sunset to get the right gradient of light in the sky. We actually got the shot the first night; the other nights were bonus, so we got to experiment with all the different variables."

The Shooting Star drones cascaded into position, building the cover's borders first and then the *Time* logo. "We had to wait for them to stabilize, and then they held their position up there for about 3 to 5 minutes," Rahmanian notes.

Rahmanian predicts that it won't take long before the technology behind drone clusters becomes more readily available and its applications evolve in new directions. In the motion-picture arena, drone clusters could certainly be put to use for large-scale environmental lighting. Additionally, Rahmanian foresees clusters, outfitted with cameras instead of lights, being used to create 360-degree VR environments.

"The sky's limitless with this kind of thing," he says. Laughing, he adds, "No pun intended."

— Jon D. Witmer