

Five awesome uses for drone technology

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Interest in flying robot technology is skyrocketing, bringing a thrilling wave of novel uses for drones from saving lives to creating new entertainment.

Initially known to many for their military use, drones have evolved

quickly into tools for creating and enjoying new experiences. They have become flying extensions of the human desire to innovate, help people and have fun.

Nearly four million commercial drones are expected to sell this year, rising to 16 million a year by 2020, according to a new report by Juniper Research.

"Three years ago, this technology was so expensive, so unattainable, that only the professional cinematographer could afford it," said International Drone Racing Association CEO Charles Zablan in an interview with The New York Times. Zablan said that now a full drone racing kit with flying google can be bought for about \$1,000.

Like many new technologies that become affordable and widely available, these flying robots are proving to be useful as well as entertaining.

In war-torn Syria, drones are delivering food to starving villages. Drones carry cargo so frequently in Rwanda that they have their own airport.

While drones bring stunning aerial video perspectives on life, they're also inspiring people to create art and invent games that never existed before.

Here are five innovative ways drones are bring used:

Drones on the Silver Screen

Using drones to capture footage that would normally require expensive helicopters or cranes is more common not just in major Hollywood productions but also in videos created by small production houses and even amateurs.

In "First Flight of the Phantom," viewers see the oft-filmed grandeur of NYC from a totally new perspective, with the DJI Phantom moving from street level to building-top in one continuous shot.

It's not just for smaller indie films, either—Chappie, Neil Blomkamp's latest venture into South African sci-fi, filmed several of its action shots with [aerial drones](#).

This November, the Flying Robot International Film Festival will even make history as the first to feature films exclusively made by, and about, these autonomous flying devices.

Drones Scare Geese to Protect Other Animals

On the beaches of the Ottawa River, geese reign wide swaths of land as tyrants, proving resistant to all efforts to dislodge them and rendering most of the watery real estate uninhabitable.

Ottawa, however, has a new trick up its sleeve. The GooseBuster is a drone fitted with speakers blaring the howl of a grey wolf as it zooms through the air (geese hate flying wolves). Unsurprisingly, it's done wonders, scaring off the winged bullies at lightening speeds.

Aside from terrifying geese, drones can also be used to protect endangered animals.

Lian Pin Koh and Serge Wich, two scientists spearheading conservation efforts for the Sumatran orangutan, developed an inexpensive, lightweight drone that maps large swaths of land, a process that was once costly and time-consuming. They've even used their drone to take aerial photographs of orangutan treetop nests, something that's been impossible to do in the past.

Drones Capture the Eye of the Storm

Because drones are unmanned and cheap, scientists can send them into all kinds of dangerous situations. One explorer, Sam Cossman, even sacrificed a camera-mounted drone to capture mind-blowing images and footage of active volcano Vanuatu.

For those more interested in academics, drones can venture inside a tornado. Right now, scientists have a lot of questions about how tornadoes are formed, and although the movie *Twister* showed otherwise, humans can't safely collect data from the center.

Engineering students at Oklahoma State University could be changing that in the future. They are working to develop drones capable of flying into dangerous storms and collecting data.

NASA is also developing a drone for monitoring dangerous weather: The Hurricane and Severe Storm Sentinel, or HS3, studies the storms from above, closer than any piloted aircraft could ever safely attempt.

"Our hope is to be able to make better predictions about the impacts of hurricanes," meteorologist Sharan Majumdar told *Discover Magazine*.

That's certainly a crucial task, considering how hard coastlines around the world have been pummeled by severe weather in the last few years.

Drones Lift Urban Artists

When these flying machines are used for surveillance and military combat they invoke authoritarian symbolism, so it was shocking for many to see rebellious drones defacing a colossal Calvin Klein outdoor

advertisement in New York under the dark of night.

Last April, KATSU, a well-known graffiti artist, vandal and ne'er-do-well, used a drone armed with a can of spray paint to draw horizontal slash marks across the gargantuan billboarded face of Kendall Jenner.

While the art itself wasn't terribly impressive, it's the kind of performance that could never have been accomplished by mere human hands. As drone technology improves, so, too, will the displays of public tagging.

"Seventy percent of the concentration is in maintaining this equilibrium with the two dimensional surface while you are painting," KATSU explained to Wired.

But he seemed optimistic about future careers of drones as graffiti artists.

"It's exciting to see its first potential use as a device for vandalism."



Drones Join a Fight Club

The dream of battling robots to the death has been around ever since robots were first imagined. Something about unmanned machinery summons the inner toddler in everyone who used to mash action figures together until a limb popped off.

So it seems only natural that the most exciting use of this high-tech gadgetry is making them fight each other for human amusement. Robot Combat League, anyone? But fighting while flying takes the amusement to new levels.

As this video from Intel's Meet the Makers series shows, it takes more than cutting-edge technology to win. Pilots are constantly fixing their fighters on the fly, which requires them to become skilled engineers in order to best their opponents.

The Aerial Sports League (ASL) currently leads the pack in flying robot death matches, featuring races and obstacle courses for pilots to navigate.

But the real draw is the cage matches (or net matches, more accurately) where two drones try to get the drop on each other by jamming their frames on top of the other's propellers, sending the lesser drone into a crash landing.

But ASL founder Maqrue Cornblatt points out that the heavy-duty drones used in these sports are great for reasons other than aiding destruction.

"They're really ideal for STEM and educational outreach," he explained. "It's a drone little kids can build and smash and take apart and rebuild over and over again."

Cornblatt and his team specifically incorporated "pit stops" that allowed pilots to fix their fighters on the spot, making [drones](#) sports a fantastic hobby for burgeoning engineers.

"We have an intrinsic human desire to see violence," Cornblatt said. "But to put it in this context, where it's safe and actually educational, is extremely rewarding."

Presumably, though, it's only a matter of time before flamethrowers and buzzsaws are added to the fray.

As drone technology continues to improve, philanthropists, makers and rebels will find new and interesting ways to entertain, inform and accomplish their goals.

Provided by Intel

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