



Drone journalism takes off

By [Mark Corcoran](#) from Foreign Correspondent

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Drones play an increasing and controversial role in modern warfare. From Afghanistan and Pakistan to Iran and Yemen, they have become a ubiquitous symbol of Washington's war on terrorism.

MAP: [Sydney 2000](#)

Critics point to the mounting drone-induced death toll as evidence that machines, no matter how sophisticated, cannot discriminate between combatants and innocent bystanders.

Now drones are starting to fly into a more peaceful, yet equally controversial role in the media. Rapid technological advances in low-cost aerial platforms herald the age of drone journalism.

But it will not be all smooth flying: this new media tool can expect to be buffeted by the issues of safety, ethics and legality.

Stalked by a drone

There is nothing quite like the sensation of being stalked by a drone. You take it very personally. My first drone encounter was amid the bomb-ravaged apartment blocks of South Beirut in 2006.

Hezbollah and Israel were at war in Lebanon.

From an unseen point high in the sky emanated a faint distant whine: part lawnmower, part chainsaw.

There was a hint of panic as the otherwise disciplined Hezbollah gunmen, our escorts as we filmed the rubble of their South Beirut stronghold, suddenly vanished into unseen bunkers, leaving us alone and very exposed.

Even without firing a shot, the drone, remote pilotless aircraft (RPA), unmanned aerial vehicle (UAV), call it what you will, is the perfect weapon of intimidation.

The Israeli fixed-wing drone above us that day carried no weapons, but high-resolution cameras and sensors, hunting targets for fighter aircraft that were doing lazy circuits out high above the Mediterranean Sea - sitting on a kind of deadly supersonic cab rank.

I imagined a bored young Israeli soldier of the PlayStation generation slumped over a console in

See part one of Lateline's special feature on the US military's rapidly expanding drones program.

Part two will air on Wednesday night and will be followed by an interview with Peter W Singer, a US expert on the implications and ethics of "wired" warfare.

a darkened corner hundreds of kilometres away, peering into the pixellated image of the live feed, determining whether my colleague, ABC cameraman Craig Berkman, was shouldering a camera or a missile launcher. Were we to be obliterated or ignored?

The media is beginning to go micro, exploiting rapid advances in technology by deploying small toy-like UAVs to get the story.

Thankfully the latter. The all-seeing drone buzzed off. The militiamen reappeared and we got on with our job. Hezbollah boasted that they too were using drones to track Israeli military across Southern Lebanon.

Then came my Eureka moment: if combatants were deploying eyes in the sky, couldn't media adopt this technology to obtain TV images in this highly dangerous environment?

The answer in 2006 was no. Costs were prohibitive and the relatively large size of existing UAVs made them impractical to take on the road with us.

Now, six years on, it appears the concept of 'drone journalism' is finally taking off.

Instead of acquiring military-style multi-million dollar unmanned aerial vehicles the size of small airliners, the media is beginning to go micro, exploiting rapid advances in technology by deploying small toy-like UAVs to get the story.

Emergence of drone journalism



VIDEO: [Drone films Polish riots](#)

Last November, drone journalism hit the big time after a Polish activist launched a small craft with four helicopter-like rotors called a quadcopter. He flew the drone low over riot police lines to record a violent demonstration in Warsaw. The pictures were extraordinarily different from run-of-the-mill protest coverage.

Posted online, the images went viral. More significantly, this birds-eye view clip found its way onto the bulletins and web pages of mainstream media.

This recent emergence of drone journalism has attracted the attention of University of Nebraska Journalism academic Matt Waite. In November he founded the [Drone Journalism Lab](#), a research project to determine the viability of remote airborne media.

"We have people who are not journalists doing things that look an awful lot like journalism, so it's not hard to make the leap of imagination. First there was the Polish protests, then the Russian election protests," he said.

Then a US activist near Dallas launched his UAV to [take these pictures](#) of an environmental violation, "a river of blood" flowing from a local meat packing plant.

For media players, drones' low cost and the ability to deploy several at a time are the big attractions.

"News organisations have been using fixed-wing aircraft and helicopters for big stories for a long time," Professor Waite said. "Owning or renting one is expensive.

"Drones are an upfront cost and then minimal costs after. News organisations can get significantly more aerial footage and reportage for potentially significantly less money.

"Originality, the hunger for unique images and video in news is only going to grow. This is a cost-effective way to get new and compelling multimedia content for news organisations."

Outlawed in the US

Despite America's love affair with new technology, Professor Waite says the rate of take-up of drone journalism is still very slow - for one single reason.

"Here in the US the law doesn't allow it - plain and simple," he said.

"The rules right now in the US are basically this: nothing over 400 feet, nothing out of sight, nothing near people and no commercial purposes.

Drones 'R Us

So what's out there now to help launch the career of the budding drone journalist?

For \$399, you can buy a Parrot AR Drone from your local hobby shop. It comes with a 30 metre to 50 metre flying range. Two built-in cameras provide video streaming back to your smartphone, which doubles as the control panel.

Recently, the Occupy Wall Street protestors reportedly [deployed a Parrot dubbed the Occucopter](#) to counter New York police surveillance of their sit-in.

At the top end of the market is the Canadian Draganflyer X8, available online. The \$30,000 price tag buys you a state-of-the-art quadcopter, high-end camera, 15 minutes of flying time to an altitude of 800 metres, with a live link back to your control point. Its range is line-of-sight, which means if you can see it, you can fly it.

Drone journalism may be the 'next big thing', but we are not quite there yet, according to

"If it were (just) the first three, drone journalism would have a fighting chance. The commercial restrictions are the hardest to overcome."

That may be about to change. The aerospace industry, the mining and agricultural sectors and other potential users have lobbied hard to overturn a ban on most civilian UAVs in US airspace.

Earlier this month the US Congress relented, passing a bill ordering the Federal Aviation Administration to open the nation's airways to commercial drones by 2015.

"What those rules will look like is anyone's guess," Professor Waite said.

American commercial airlines and pilots fear flight paths full of uncontrolled hazards, jeopardising safety. The pro-drone lobby estimates there will be 30,000 non-military UAVs buzzing across American skies by 2020.

Drone journalism may be able to hitch a ride in the corporate slipstream.

"Commercial drones are going to be big business soon," Professor Waite said. "I can see all kinds of uses for drones in farming. Law enforcement is one of the biggest proponents of this technology, and oil and gas pipeline owners can use them to monitor their assets.

"There's a huge pent-up market for these services and I think that's part of the reason you see Congress putting drones into FAA budget bills."

Matte Waite.

"While the technology is amazing and moving very rapidly, you are still talking about less than an hour of flight time (for) the drone I have, which is really a toy," he said.

"Military drones can stay on station over the battlefield for many hours. We are still a long, long way from that."

Drones Down Under





PHOTO: Remote-control helicopters fitted with cameras fly above Sydney. (ABC TV)

Australia's fledgling UAV industry may be about to get a big wake-up call from China.

It's dawn as 24-year-old Justin Gong and his team stride down to the launch point at Mrs Macquarie's Chair.

Before them lies the stunning vista of Sydney Harbour: city skyline, Harbour Bridge, Opera House, all bathed in a golden light.

Within two minutes, they've unpacked and launched their drones to record this perfect sunrise.

To passing joggers the team appears to be just a bunch of weekend model aircraft enthusiasts. Police and park rangers drive by, not bothering to stop.

But looks are deceptive.

Justin is at the controls of his third generation X650 V8 - a quadrocopter the size of a wheelie bin lid. The UAV steadies, then rockets upwards. Live video streams back to his control monitor. The sales pitch is impressive:

"This one can go up to two kilometres above the land and also two kilometres away from your home position and this is around \$3,000 for the full unit... and it can go up to about 70 kilometres per hour," Justin said.

Drone accessories include night-vision capability, GPS navigation, auto-pilot and automatic return home.

Justin concedes there are limitations: current battery technology limits flight time to 20 minutes. And the small size of the aircraft can make it unstable in moderate winds.

Still, it's an impressive performance.

Justin says he comes from a military family. He's the son of a retired Chinese Air Force fighter pilot.

He moved to Sydney five years ago to work as a freelance news cameraman and film maker.

But he is first and foremost a budding entrepreneur, the Australian director of XAircraft, based in the city of Guangzhou.

I think this stuff is definitely going to change how we do video and photography.

Justin Gong

Flying paparazzi?

Imagine a camera drone slowly climbing to a 30th-floor hotel window. Now visualise the face of the targeted celebrity, caught in an indiscrete moment: the million-dollar

"Three years ago, a bunch of guys, us, we formed a team called the Geeks, and we designed our first prototype," he said.

He claims the business has now taken off.

"We can on some days probably sell 350 units in China, not including Hong Kong and Taiwan.

"I think this stuff is definitely going to change how we do video and photography.

"It is probably going to take over the helicopter jobs from the emergency news, for example bushfires, floods, earthquakes and also for the evaluation of disaster afterward."

He says Australian commercial TV networks are now showing a strong interest.

"There are several media companies already using our aircraft and also one real estate agent. And they are pretty interested in replacing the helicopter with this small product."

Apparently Chinese TV viewers have also been enjoying a drones-eye view of some big Australian news stories.

Justin shoots Australian news reports for China's Phoenix TV network.

Justin Gong says XAircraft is developing three versions of its technology: recreational, commercial and military.

His fellow 'Geeks' in China are now working on the next generation of small UAVs that will use artificial intelligence to navigate to a target, recognise and film a pre-programmed object and return to base - all without direct human intervention.

Civilian UAV developers benefit from a trickle down from military research and development. Justin says commercial drones lag about five years behind current military UAV capabilities.

money shot.

For the paparazzi, fines or confiscation of a drone may be a very small price to pay.

The possibilities seem endless, as do the legal and ethical issues.

Drone Journalism Lab founder Matt Waite said: "What are the property rights over your home? Am I trespassing by flying over your house? Beyond questions of personal privacy, another issue raised is the free speech issues raised by drones. For instance if there is a bad chemical spill... and police close the area down to keep people away... can I fly a drone over it and get a look? What if police close the airspace? Where is the line between the public's right to know about something versus the state's want for security?"

"People are immediately leery of the idea of the paparazzi having drones. And I can understand why, but at the same time I point out that the paparazzi already use helicopters and other vehicles to get photos.

"Is this any more of a privacy invasion than paparazzi already are? I'm not certain that it is.

"I understand people being uncomfortable with the faceless 'capital M' media getting flying robots with cameras. It's a similar concern as police getting the same: eyes in the skies, watching all the time."

Professor Waite's solution is to formulate a kind of aerial code of conduct for drone journalism.

"We're going to create an ethical framework, a guide on what is and what isn't good use of a drone and we're going to publish that for everyone to see. If the media start to abuse drones, the marketplace will respond and I don't think the media has so much credibility

But he says the Chinese military is also keen to learn from the young cost-conscious entrepreneurs, and that XAircraft is now working with the People's Liberation Army.

"We have the beginning of cooperation with them and we provide our carrier, and they put their own technology, the equipment on it," he said.

"Because it is nimble, it is very small, it can go in a door or out a window or under the trees, which a normal helicopter can't do."

According to Justin, it's the perfect platform for stealthy surveillance.

However, the proliferation of cheap, small, high-performance drones is creating problems in China.

There are no effective national controls there, just a city by city ad-hoc approach.

"No rules - a lot of accidents," conceded Justin.

He recalls the case of a drone enthusiast arrested in Chongqing after his control frequency inadvertently jammed the radar for the city's busy airport.

"Suddenly all the airplanes on the radar screens disappeared, and that caused a big problem - and this guy, he got caught and jailed for five years," Justin said.

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Justin Gong

Attack of the drones





PHOTO: Justin Gong with X650 V8 drone. (Foreign Correspondent)

Until now, Justin Gong has flown under the radar of public attention. Not so Channel Nine's 60 Minutes program.

Australian drone journalism hit the headlines in controversial style last year, when 60 Minutes [flew a mission over the Christmas Island immigration detention centre](#).

After being denied entry to the facility, the 60 Minutes team, led by reporter Liam Bartlett, launched a quadcopter to record exclusive, if somewhat unremarkable, aerial images of the detention centre, before the craft crashed into the sea.

Authorities were unimpressed by this barnstorming moment in Australian newsgathering history. The Immigration Department branded the 60 Minutes mission reckless.

"The sight of this drone instilled fear for all concerned below and it jeopardised their safety," said Immigration spokesman Sandi Logan.

"Fortunately, when this drone crashed it was over the Indian Ocean at the time and not the detention centre, where it could have caused injury to the staff and detainee clients below."

Mr Logan says his department referred the matter to the Australian Federal Police for investigation.

"But no laws appear to have been broken," he said.

Immigration has now dropped the matter, and Sandi Logan says the Department has not asked for tighter airspace controls over detention facilities.

Channel Nine declined to comment for this article.

The 60 Minutes episode has helped define some key issues:

Is drone journalism a legitimate tool in pursuing public disclosure, or an invasive, unregulated practice and a hazard to our airways?

What defines a UAV today, when a high performance craft can be bought online or at the local hobby shop?

All good questions, says Civil Aviation Safety Authority spokesman Peter Gibson. CASA has been grappling with these complexities for some time and he says it is "just months away from completing a comprehensive overhaul of the rules".

*The sight of this drone instilled fear
for all concerned below and it
jeopardised their safety.*

Sandi Logan

Unlike the US, Australia has long embraced the potential of civilian UAVs, introducing the world's first national drone legislation in 2002.

But the breathtaking speed of technological advances has swiftly rendered those regulations obsolete.

"Things have changed and we now need to bring the rules up to date," Mr Gibson said. "We are trying to guess ahead."

Current regulations divide UAV operators into two camps:

hobbyists flying small line-of-sight models under 400 feet and well away from airports; and commercial operators, who work under rules similar to helicopter operations.

Currently there are just 14 licensed UAV operators in Australia, mainly engaged in commercial activities such as mining survey, agricultural and forestry observation. Most of them are using larger conventional fixed-wing drones.

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Xaircraft's Justin Gong and his high-performance craft don't appear to be governed by any rules. Justin says he self-regulates.

"It's a big responsibility to control it. We won't sell the commercial version to private customers and we also set limits on the aircraft itself," he said.

"For instance, the flying ceiling we have already set the maximum to one kilometre high, (but for private users) we are probably going to bring that down to 300 metres."

Peggy Mactavish is the executive director of the [Association for Unmanned Vehicle Systems](#), an industry body formed just 18 months ago, and now with 200 members.

Her association supports CASA's review as "there has been phenomenal growth in the past 18 months".

For Ms Mactavish it's not a question of if but when more UAVs will be deployed in Australian skies.

She says there's plenty of room for the new generation of small high-performance craft "as long as they are licensed for operations".

She also wants weekend hobbyists restricted to "designated zones".

But with 20 years of industry experience in Australia and Canada, Ms Mactavish suspects some performance claims of the small 'next generation' UAVs have been exaggerated.

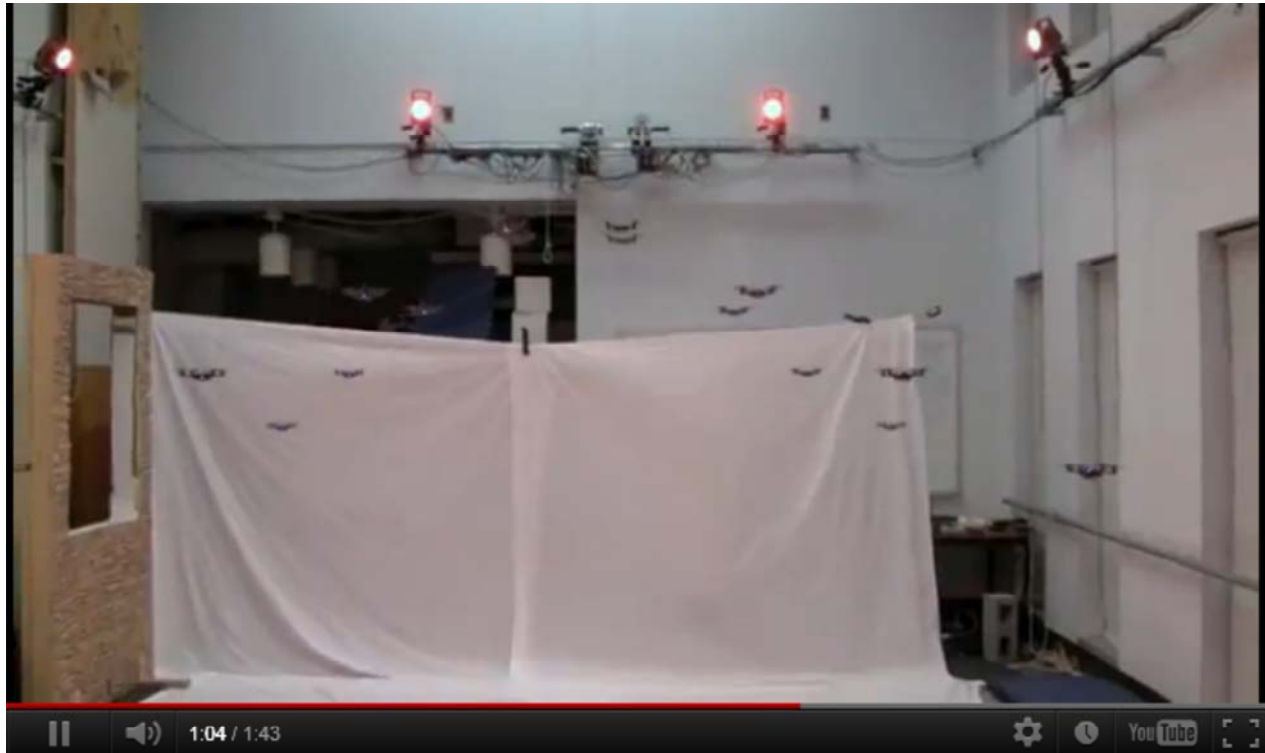
"Just because you can read it and say it doesn't means it's true," she said.

The association doesn't have a problem with the concept of responsible drone journalism and Ms Mactavish laughs off concerns over the potential for a greater invasion of privacy.

"You've got to keep this in perspective - they won't be doing anything new. Google Earth can look right down into your backyard. Satellites have been doing this for 20 years.

"They've arrived... Now it's all about safe and ethical deployment."

The future?



VIDEO: [Swarm of nano quadrotors](#)

If the concept of drone journalism worries you, what should you make of this glimpse of the future?

The General Robotics, Automation, Sensing and Perception Lab at University of Pennsylvania unleashed this "swarm of nano quadrotors", in which the drone team flies aggressively in perfect formation - through windows and doors.

This mesmerising clip has become a big hit on YouTube, with 5.3 million views.

Today's press pack may be tomorrow's nano-swarm.

Credits

Reporter/Producer: Mark Corcoran

Editors: Nick Brenner, Andy Saunders

US research: Janet Silver

Executive producer, Foreign Correspondent: Steve Taylor

Topics: [journalism](#), [sydney-2000](#)

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