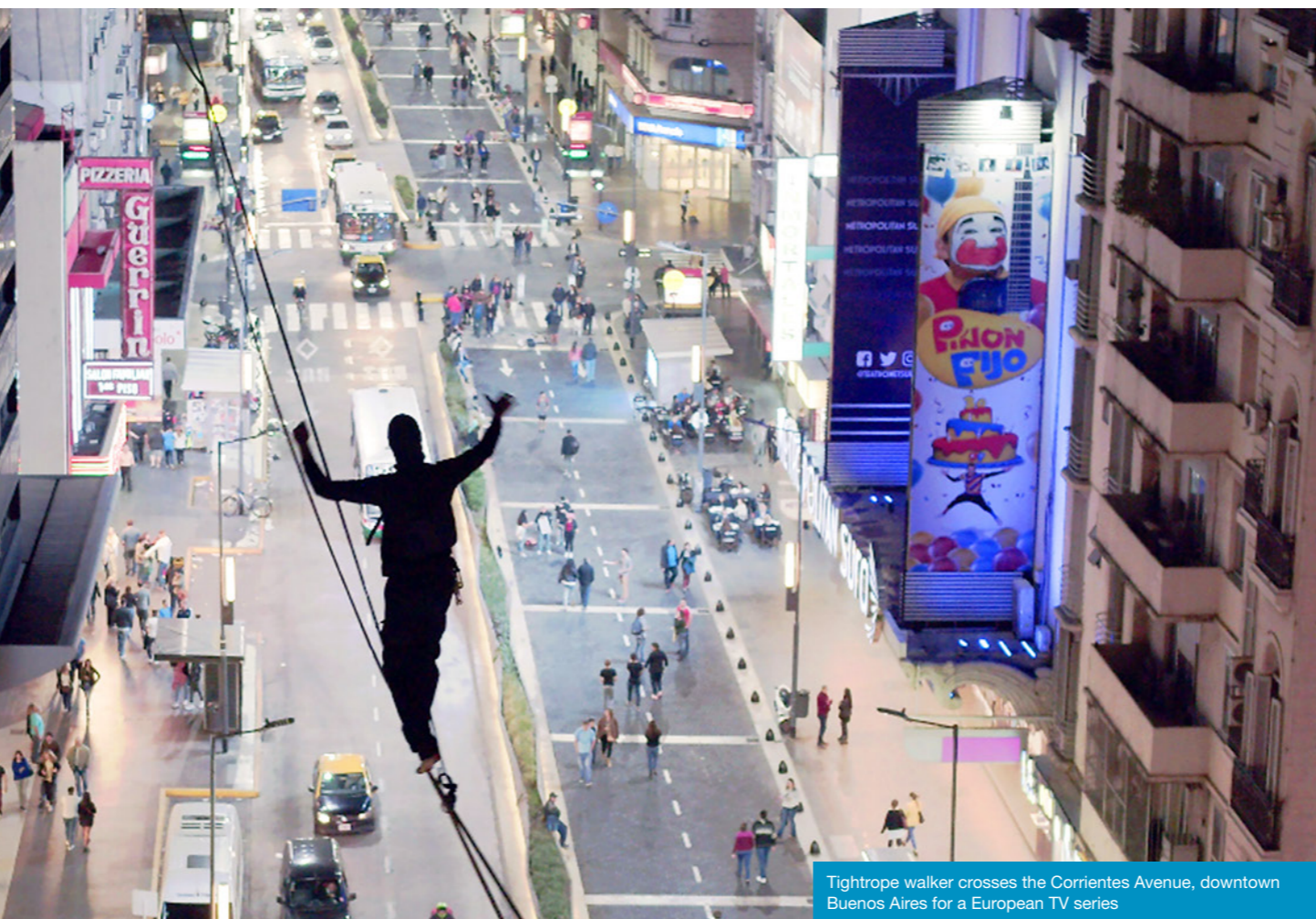
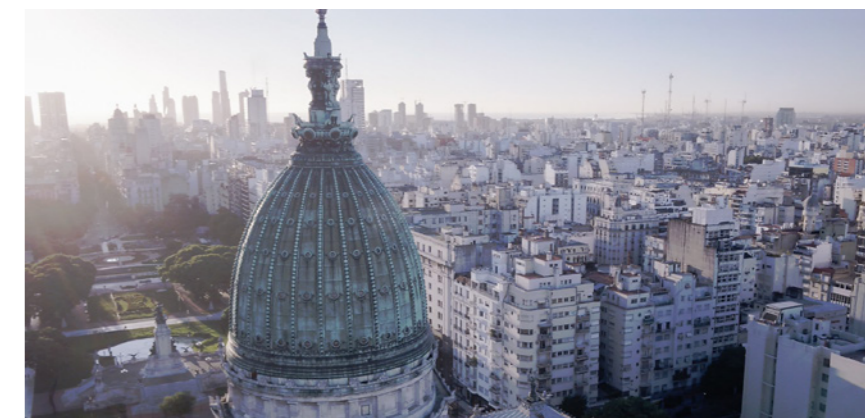


AERIALS OVER BUENOS AIRES



Tightrope walker crosses the Corrientes Avenue, downtown Buenos Aires for a European TV series



Early morning light over the national congress dome, Buenos Aires (title sequence for *El jardín de bronce*, HBO)



Iconic shot of Buenos Aires: Avenue 9 de Julio, which was for years the widest in the world, with Plaza de la República obelisk

A few years ago, Argentina-based GTC member **Alejandro Reynoso** found himself increasingly wishing he could take to the air to achieve those value-adding aerial shots that would nicely complete the storytelling elements of the documentaries he was shooting. Fast forward a while and he is now fully set up to do so through his new company Cine Pilots, which has recently acquired a second DJI Inspire 2, complete with Zenmuse X7 S35 sensor camera, meaning he and his flying partner Hernán Menéndez are now equipped to shoot feature-quality aerial footage. So, how did Alejandro reach this point of take-off?

Several years ago, I was shooting a documentary about soya fields and the impact on the people who are exposed to the chemicals being used. The story cried out for some aerial shots of the fields. In those days, high-quality cameras were neither small nor light, so the only way to shoot aeriels was to hire a helicopter. However, the budget wouldn't stretch to even the cheapest option (handheld shooting from the side of a chopper) and, of course, I couldn't even begin to think of a Tyler mount or the zenith of

the current range of stabilised heads at the time, a Wescam. So, sadly, that documentary never did include any aerial shots. Just to set this in context, big budget productions here in Argentina are very few and far between, so helicopter-mounted, full-size stabilised heads are really only to be seen on high-end commercials.

DIY drone

The years passed by and I kept wondering how I could achieve these much-needed aerial shots. As the technology evolved, lighter and more powerful LiPo batteries, brushless electrical motors and advanced flight controllers were appearing, so I attempted to build a quadcopter that would be up to carrying a GoPro Hero on a two-axis gimbal. I spent hours screwing bolts, soldering cables and programming, compiling and setting up every parameter of an Ardupilot, an Arduino-based flight controller. As a result of all this effort, I found I could successfully achieve some flights with the drone – but it was a long way from being a precise cinematography tool.

Then, just by chance, I heard that a fellow camera operator had bought a DJI Phantom 2 drone with 3-axis gimbal carrying a GoPro Hero 3 Black which, since it was state-of-the-art at the time, I was eager to test out. I invited him to come along on the next shoot that would benefit from some aeriels. As it turned out though, he wasn't great at piloting and also decided he wasn't that interested in aerial shooting – so I bought his Phantom kit off him.

I started to fly the drone on various documentary projects and was really pleased with the kinds of shot I was able to achieve. The more I flew it, the more refined I found I became with the movement of the drone, obtaining some spectacular footage. What's more, I started to really enjoy it.

Teaming up with Hernán

Then I met up with a key person: Hernán Menéndez. Hernán is an old friend, a DoP who had just bought a Phantom 2 as well. He had extensive experience as a DoP/camera operator and had been flying model helicopters as a hobby for years. He had at times hard-mounted a GoPro Hero (or whatever camera he could get hold of) onto a T-Rex RC helicopter or even in a small inflatable 'Zeppelin' to achieve aerial shots – so, compared to that, he was delighted with the ease of using the DJI Phantom as a camera platform, finding the stability of the image remarkable. We were able to share information, review and critique our footage, and train together. We realised that we had a cinematic tool with enormous possibilities and that we were just at the beginning of something very exciting. Eventually the idea of joining

together to form an aerial filming company occurred to us.

This was the genesis of Cine Pilots – and the opportunity to turn this notion into a reality arrived thanks to a French project, a documentary series that called for 10 days shooting around the rooftops of Buenos Aires. The production company liked our reel very much and so, taking a chance, we offered to bring to the shoot the recently released DJI Inspire 1, a big upgrade to the Phantom 2. They went for this idea – and this allowed us to buy the new drone.

Steep learning curve

We had a couple of weeks to train in dual operator mode. Unlike with the Phantom 2, the pilot moves the aircraft while the camera operator can move the camera in three axes: tilt, pan and roll. Our first attempts at this were not that good! We would confuse the direction in which the drone was moving relative to the direction the camera was pointing (not a problem with the Phantom as the camera always faces forward). We quickly had to develop a communication system to ensure coordinated movement. We learned to use all the tools the flight controller interface could give us: readouts of horizontal and vertical speed, direction of camera relative to the drone head, height, distance, etc., and we also acquired a pair of wireless headsets to enable us to communicate effortlessly with each other. After a couple of sessions we were ready.

The Cine Pilots debut was a big success and the French production company were very pleased, dubbing our service "excellent". We achieved some phenomenal drone shots



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of Buenos Aires, which at the time only a few could have done. We realised that our 20+ years of experience behind camera were key. Even though there were some good drone operators around, most of them came from a model pilot background and didn't understand the art and craft behind camera movement, lens choice, light, exposure, etc., let alone how to communicate with a director to help them realise their visual idea and offer best options for their desired image. We knew then we had what was needed.

That was five years ago and much has moved on since then.

Legislation kicks in

As in many countries, Argentina has brought in various rules to control the growing number of drones. We wanted to work to the highest standards, not just as highly skilled aerial cinematographers, but also in complying with all the relevant regulations and new safety protocols. From the beginning we understood that a solid knowledge of this would be key to providing an all-round professional, safe and prestigious service. We even had meetings with the civil aviation authorities to make sure we fully understood the world of air traffic we were already getting involved in. We had to pass an exam to become certified pilots, register every drone and have a commercial licence in order to work. We asked for the highest rated drone-specific insurance, in our case a policy covering up to USD5,000,000 in damages, which makes us eligible to work for big clients. For every flight, we follow a protocol to get permission for operations: we have to submit the flying area to the air traffic authority, including coordinates, day and time of flying, and wait for a response notifying us of any restrictions, such as maximum altitude depending on the area. Then, prior to take-off, we contact the designated airport tower to inform them of the flight. There are a number of airports, heliports and a lot of flying corridors, especially inside and close to Buenos Aires. This thorough approach creates a sense of peace of mind in our clients that they appreciate; they seem to be reassured that we place the same emphasis on the quality of shots as we do on the safety of the operation.

Honing our skills

Meanwhile, the demand for high-quality aerial shots has increased, meaning we now get the chance to fly all over the country for both local and foreign companies. We have built up hundreds of flight hours and this shows in the way



Top left: Gear ready for live broadcast of a major polo match, Palermo, Buenos Aires for ESPN; Bottom left: Selfie of Hernán and me, ready for live broadcast of the 'Abierto de polo de Palermo' final; Right: DJI Inspire 2 flying over Mar del Plata city near the coast

we conceive and execute shots. During this time, we have been exploring possibilities for close-range aerial shooting, so now we can talk to directors and DoPs to suggest the best approach for their ideas and try to convince them to enhance the narrative by exploring more diverse aerial shots than just the regular high point-of-view establishing/beauty shots. For example, working with ESPN, we have pioneered different ways to cover particular sports from the air, matching the style of our shots to the nuances of the individual sports, in each case working out the optimum positions, movements and speeds. We were also the first to transmit live from a drone to an OB truck on polo, rugby, turf and horse jumping.

For each shoot, we establish our roles. Even though we both possess a pilot's licence, most of the time Hernán operates the camera while I am in charge of piloting the drone. We have also defined our role-specific checklist duties; one will look after battery charge, altitude of emergency return to home, radio channel, etc., while the other works out the lens choice, recording codec, exposure, etc. We have developed a smooth style as we both know what to ask and expect in most situations, and understand that we are both responsible for the conception and execution of the shot. We also know each other's way of working very well by now, so a few gestures during the flight is all we need to complete a complex shot. We have become the ideal team!

A bigger market

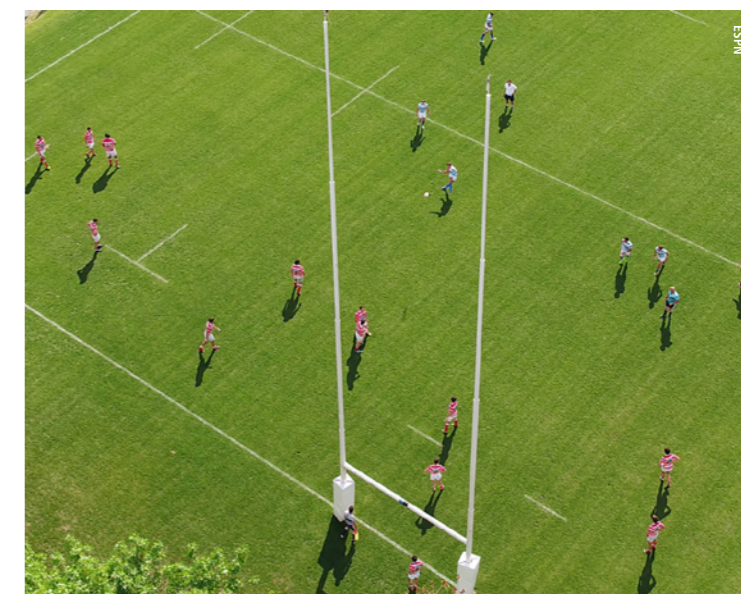
For a while, we kept working with the Inspire 1, and although we really liked the small footprint, ease of use, autonomy and interface, if we ever got the opportunity to shoot 4K, the restriction of working with a highly compressed codec (H264) meant we couldn't really shoot commercials or feature

films. So, when DJI announced the Inspire 2/Zenmuse X5S combination, after studying the specs, we knew this was the way we wanted to go. The Inspire 2, capable of shooting Apple Prores HQ 422, Prores XQ 4444 and Cinema DNG up to 5.2K, could also be fitted with high-quality Olympus Digital primes. With 16 minutes of flying autonomy (average), it could travel up to a remarkable 100kph. Other features include anti-collision sensors, an FPV (first person view) camera to help the pilot navigate the drone independent of the main camera, and some other interesting functions such as a 360° continuous pan of the camera with 'quick spin' enabled (the drone makes an automatic full turn when the gimbal limit is reached). All of this would potentially open up a whole new market for us.

The X5S camera reviews were pretty good too, so we decided to give it a real-world evaluation, and even took some test shots to one of the top local post-production studios.



Polo at the Hurlingham Club, Buenos Aires (founded by English residents in the 19th century)



San Isidro Club rugby player kicks the ball through the goalposts in a match broadcast by ESPN

The senior colourist who viewed the shots was really amazed by the high quality of the sample footage, especially coming from such a compact camera. He assured us that this drone footage could easily be matched to ground camera footage from an ARRI ALEXA or RED EPIC.

Around that time, we were called to do some aerals for a Netflix documentary series. They wanted 4K/RAW aerals for a sports-related series. A few other operators had the capability to offer the high resolution images, but our competitors couldn't match our profile. By now, we had built up a



An old Chevrolet on the dusty roads of Balcarce, 400km from Buenos Aires city, for Netflix documentary *Fangio: the man who tamed the machines*

great reel, had some very good references from colleagues and clients, and came recommended by a producer friend. In addition, the efficiency and practicality of our Inspire 2 solution set us apart. The only other alternative would have been a heavy-lifter carrying a RED EPIC or ALEXA Mini. There are a few heavy-lifters here, but the downsides of this option are clear: no heavy-lifter owners are also camera owners. Rental companies ban the use of their cameras on drones and, even if a camera owner agrees to the use of USD100,000 gear on a drone, insurance policies will not cover this kind of operation. Also, extra permissions, such as street closures, may be required when flying a drone that might weigh 15kg.

Of course, a Zenmuse X5S is not a RED EPIC W or ALEXA XT, and it can't take all the preferred DoP lens choices nor shoot 300fps, but more and more productions are choosing the Inspire 2 for their aerials to match with a RED or ALEXA on the ground. With colourists and DoPs having given the thumbs up to the X5S, we have shot three local feature films, several TV series and a few commercials for companies such as Netflix, HBO, Paramount Network / Viacom, Turner and the aforementioned live TV broadcasts for companies like ESPN. One feature film and one of the TV series were shot in really challenging conditions over snowy mountains and in strong winds up to 70kmh. The Inspire 2 performed superbly.

New 6K Zenmuse X7

In late 2017, DJI introduced the Zenmuse X7, offering a Super 35 sensor, 6K and 14 stops of dynamic range. This also comes with a custom set of 16mm, 24mm, 35mm and 50mm lenses. This is a really big upgrade from the X5S, so we decided to add another Inspire 2 to our fleet, this time with an X7.

Just after we had completed the legal registration of this drone, an opportunity to test it on a major film came along. Earlier that year, MGM had shot *Operation Finale*, directed by Chris Weitz, in Buenos Aires, and during the edit they had decided some aerials of the city were needed, so a second unit was sent to find an Inspire 2/X7 to obtain the missing shots and the production contacted Cine Pilots. We shot in several locations around the city and suburbs, which made it to the final cut. The second unit director was very pleased with the footage and we later heard they really liked the way the X7 matched with the ALEXA ground camera. We have also used it on some other TV drama and commercial projects, and have been really pleasantly surprised and impressed at what an advanced, complete and high-quality package this provides in such a compact flying platform.

Loving our work!

As cinematographers/camera operators, through shooting with drones, Hernán and I have found an exciting new freedom in how and where we can move the camera, seeing this as a very powerful storytelling tool. Of course, there are occasions when a perfectly stable aerial shot doesn't fit with the story the director wants to tell, but it can often enhance the storytelling in many different ways: revealing in a few seconds where the story is going or what has taken place; chasing characters or vehicles to add drama; presenting a God's eye view or POV of a flying character; suggesting a flying feeling; or purely immersing the viewer in the vast expanse of the skies to enhance their experience and add value to the production. In skilled hands, this genre of shots has endless possibilities – and every possibility is a challenge and risk we want to take! This encourages us to push even



A group of wild horses run free at sunrise over the Argentinian pampa for *Criollos*, a TV documentary

further and try more new things. We want to feel part of the story. We get a real buzz when each amazing shot works out, and it's pretty common for us to ask "Can we try another one?" if we feel we can make it even better. It has breathed fresh air into our work – and we love it!

Even though we both still get frequent calls to work as a DoP or camera operator on shoots, these days we are overwhelmingly attracted to focusing on the aerial cinematography that is the heart and engine of Cine Pilots. It's undeniably hard work building up a business, making it grow and keeping the high standards we have set. Even when we aren't flying, we are still working hard: keeping informed about new alternative drones or accessories which might enhance our services (we are currently working on a project for live TV that includes a fully wirelessly controllable camera and a wide range HDTV zoom lens); tracking our clients to ascertain specific needs; working on our Instagram, Facebook and other social platforms; editing short video pieces to promote our work; and keeping track of our work on clients' websites. We also blog on LinkedIn, work on our image and invest in marketing our brand to try to be as visible as possible.

Even though we know that this is just the beginning, and that drones are revolutionising the industry and will continue to do so, we are both very proud and grateful to have arrived at this point – and, best of all, we're having a really good time!



Fact File

Having worked more than 20 years as camera operator/DoP, with credits on feature films, TV drama, commercials and documentaries, and always having been attracted to the moving camera, GTC member **Alejandro Reynoso** spotted a chance to combine his interests in airplanes, piloting, camerawork and aerial cinematography. Five years ago he teamed up with **Hernán Menéndez**, another DoP/camera operator with a remarkably similar profile, to found CINE PILOTS, an aerial filming services company based in Buenos Aires.

Since then, Alejandro and Hernán have worked closely with directors on aerial shots for many productions including feature films, commercials and documentaries for international companies, including HBO, Paramount/Viacom, Netflix, MGM as well as many local companies.

Fully certified, insured and complying with every local FAA rule and protocol, CINE PILOTS is constantly evolving and learning, in order to offer the highest standards possible and fulfil all production needs.

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