

# CREATIVE CONTENT

THE MAGAZINE FOR THE CREATIVE MIND

REVIEW: GOPRO MAX

Nov / Dec 2023

FIRST LOOK: DJI MAVIC 3 PRO

A LIVE STREAMING VIDEO /AUDIO STUDIO  
FOR <\$3K? YES!

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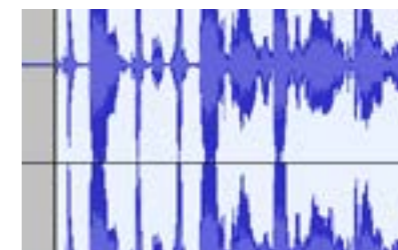
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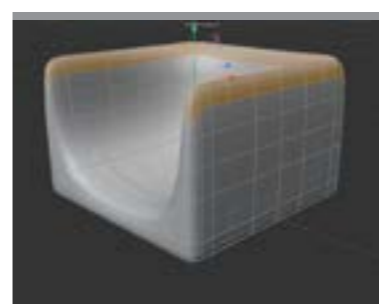
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# CONTACT DETAILS

WEB: [WWW.CRE-8.COM.AU](http://WWW.CRE-8.COM.AU)

EMAIL: [DAVID@CREATIVECONTENT.AU](mailto:DAVID@CREATIVECONTENT.AU)

PHONE: 0456 95 2227

TWITTER / X :@AUSCAMONLINE

INSTAGRAM: CREATIVECONTENTAU

FACEBOOK: CREATIVE CONTENT

ADDRESS: 21 LILLY COURT  
AUSTRALIND  
WESTERN AUSTRALIA  
6233

# EDITORIAL

# W

ell it seems the update to the website and its content has worked a treat. Visitor numbers are up and so is engagement, and in general, it appears that the expansion of the content type has met with approval.

I have also had some meaningful conversations with a number of major vendors about getting better access to review products, and this will soon bear fruit.

But of course there is always room for more.

Now onto the subscription side of things.

Due to suggestions from you, the readers, I have fine tuned this a bit, so that now, in addition to the monthly and annual subscription, there is also a daily and 6 monthly one.

The idea behind the daily sub is simple; for those that just want to read a specific article, review or tutorial that is behind the paywall, they don't have to spend more than AUD\$2 to do so.

I have also decided tweak the e-magazine a bit, as those who are non-subscribers will see; articles that subscribers CAN see in full, have been modified so you can see the basics of the content, but not the whole. It isn't applied to all articles of course, but it is intended so that you may feel the content is worth paying that \$2 (or more for a longer subscription) for.

In other words, it does have a value for you.

As stated previously, the basic website will stay free as is, but you will have started to notice that paywall articles are starting to appear. I have decided to leave them open for a period of 24 hours from publication date before putting them behind the paywall for the next month and guage how this is accepted.

Please let me know what you think via [david@creativecontent.au](mailto:david@creativecontent.au) as I value any ideas or feedback.

And as always, thanks for the support. You can sign up for one of the subscriptions at <http://cre-8.com.au/choose-subscription-type/> and for the next 48 hours, still go into the draw to win a Aputure Lighting Kit worth over \$1500. Not a bad prize for a \$1.95 sub hey?

David Hague  
Publisher



## HIT AMAZON FILM TOTALLY KILLER SHOT USING URSA MINI PRO

Amazon Prime original hit new film "Totally Killer" was shot using Blackmagic URSA Mini Pro 12K OLPF and Blackmagic Pocket Cinema Camera 6K G2 digital film cameras. DP Judd Overton used the cameras, along with DaVinci Resolve Studio, to capture action, splinter unit and slomo shots in the hugely successful time travel horror comedy.

The film, which has quickly become one of the most watched Amazon films of 2023, follows the story of 17 year old Jamie (Kiernan Shipka) and her fight against the infamous Sweet Sixteen Killer. 35 years after his first murder spree, the killer returns to claim another victim, and Jamie accidentally travels back in time to 1987 where she is determined to stop the killer before he can start. Forced to navigate the unfamiliar and outrageous culture of the 1980s, Jamie teams up with her teen mom (Olivia Holt) to take down the killer once and for all before she's stuck in the past forever.

See more [here](#)



## WHY DOES MY YOUTUBE FOOTAGE LOOK LIKE S\*\*T? PROBABLY BECAUSE ...

A question often asked in Facebook forums and other online chat spots for video, GoPros, drones and similar devices is "Why does my footage on YouTube look so crappy? I shot it in 4K and it looks horrible there, but great on my computer".

There are two basic reasons for this. The first is the easiest to understand and doesn't require any technical knowledge.

When you initially upload your video, YouTube initially processes it in a low-quality format. This means the upload is done more quickly and therefore your footage is online faster for viewing on computers, smartphones, tablets TVs and so on.

Higher resolutions like 1080p or 4K require more time to process, so while this processing is taking place, it may appear to be of an inferior quality due to only the low res one being available at that time. But after the processing is finished, rest assured, your 1080p HD or 4K video will appear.

The second reason is slightly tied up in the first. This is due to the fact that that processing time I mentioned is dependent on a few factors, notably the format, length, frame rate and quality of the video you uploaded. It can take up to a few hours in some cases.

For example, if you shot your video at 60 frames per second (fps), that will take longer to process than one shot at 25 fps. Similarly, a 1080p video will take less time to process than a 4K one.

Read the complete story [here](#).

## COMICA AUDIO LAUNCHES VIMO Q FOUR-CHANNEL MINI WIRELESS MICROPHONE SYSTEM

Vimo Q is a lightweight, mobile product, ideal for video shoots, vlogging, interviews, livestreaming, podcasts, online meetings, and online tutoring. The system includes four transmitter microphone units (TX), a receiver unit (RX), a battery case for transport and recharging, plus key accessories.

There is more information available, including technical specifications [right here](#).



## NEW CANON MULTI-CAMERA CONTROL APP / FIRMWARE UPDATES



Canon Australia has announced the introduction of the Multi-Camera Control smartphone application but only for iOS devices[1]. This new free of charge application is said to allow users to seamlessly connect, control and monitor up to four cameras at once and is compatible with the XF605, EOS C70, EOS C300 Mark III and EOS C500 Mark II.

The simple and intuitive user interface provides the ability to remotely

operate an extensive range of camera functions such as optical zoom, exposure control, touch auto focus, picture profiles and more. In addition, up to four camera live view feeds can be monitored simultaneously in high quality and with minimal latency. Users can now control a multi-camera studio at their fingertips, with the ability to adjust critical settings and remotely trigger multiple cameras at once.

Canon is also announcing a host of

free-of-charge firmware updates for the XF605 camcorder and Cinema EOS cameras, including EOS R5 C, EOS C70, ESO C300 Mark III and EOS C500 Mark II. The XF605 professional camcorder now benefits from advanced SRT IP streaming support, enabling high quality and reliable video streaming over Wi-Fi or Ethernet networks.

The complete story is [here](#)

## POCKET-SIZED FIVERAY M20 LIGHTING SERIES



ZHIYUN's new FIVERAY M20 series of pocket-sized lights combine professional-level features with consumer-level ease-of-use in an easily portable format. They offer videographers and photographers a powerful light in a compact and portable form factor, which is suitable for a wide range of applications and scenarios.

The FIVERAY M20 series currently consists of two products: the FIVERAY M20 and the FIVERAY M20C. Both lights feature a 20W power output, a 4500mAh battery capacity, a 40-minute continuous runtime, and a PD charging time of 2 hours.

All the information [is here](#).



# GOPRO MAX

COMBINING THE TECH OF A 360° DEGREE CAMERA WITH THE RUGGEDNESS AND FEATURES OF A STANDARD GOPRO

Over the years, I have done a lot of work and written heaps about GoPro action cams, but not spoken much about the GoPro Max which I also have.

For those unaware, the GoPro Max is a camera that shoots in 360 degrees by utilising twin lenses and then “stitching” the images together. Whilst the GoPro Max can be called an action camera similar to the GoPro Hero 12 or other siblings as it is a) rugged and b) also waterproof, if you are tempted to buy one instead of a regular GoPro, be aware that shooting in 360° requires a totally different mind set and approach to your photography or video.

So here are some tips and ideas to get you started.

The first thing I’d suggest is pretty much forget about shooting handheld; as the camera is

picking up a full 360° image, you want to keep it as steady as possible. Once you have the finished image where people can view it and are then able to “move around” in the 360° space you have shot by using a mouse or keyboard controls, there is nothing worse than having the camera jumping around.

Smooth is the keyword here, so get yourself a decent tripod, or at worst, a solid selfie stick.

Next, be very aware of what is called the “stitch line”, This is the part of the image where the two separate images are joined together. Sometimes, mainly due to the subject matter, the stitch line can be seen and even one or two pixels out of alignment can be jarring. It will take practice, but after a while you’ll look at a scene before shooting and instinctively know where the stitch line will be and set the camera up accordingly.

Because the camera shoots literally everything

around it, of course you are going to end up in the shot! The way around this is to either set the self-timer in the camera (you can set it for either 3 seconds or 10 seconds) and then get yourself out of the shot or buy the GoPro Remote control. I recommend the latter. Oh and of course you can also use voice control.

There is another potential major thing to be aware of when shooting 360°. With a conventional or smartphone, anyone in the field of view will know (generally) they are having their photo taken or will be in a video.

With a 360° camera however, everyone in the field of view within the full rotation of the camera will be in shot. This could cause issues, and someone may become a tad upset about this if they later found out they were shot without their knowledge or permission. Just be aware of it that's all.

If you are planning on using a GoPro Max for shooting video, my tip is to shoot a single clip for no longer than 90 seconds. Editing 360° footage is a whole different ballgame to standard footage, so you only want to be playing with smaller clips – and you'll need a computer with reasonable grunt to do it too!

You also have to approach the way you shoot video with a totally different eye. You can think of shooting video with a GoPro Max as a

multi-camera shoot in effect. If you think about it, you can edit one scene into your final clip that is a portion of the complete 360° image, and then move the point of view around to take a completely different portion of the same clip.

It does take a bit of getting used to having this sort of flexibility, but once you get your brain around it, it does open up whole new possibilities in your video shooting, letting you do things utterly impossible with a standard single camera shoot.

Of course, you'll also need decent editing software. Just about all the major packages allow editing in 360° these days, and some I have used even have the camera profile built in that the footage was shot on, letting you import the clips seamlessly.

Whilst I know Adobe Premiere allows 360° editing, I have never actually used it for that purpose, instead sticking with either DaVinci Resolve or Vegas Pro.

You'll also want a location to show off your finished images. I have been using [Momento360.com](http://Momento360.com) for years now (and its free for up to 750MB of imagery and very affordable after that too) and easy to use. There is even a WordPress plugin that lets you display your 360° imagery on your own website, assuming you use WordPress of course.



Above is an image I shot a few years back at Eco Beach near Broome in the northwest of Western Australia. The image is stored at [momento360.com](http://momento360.com) and if you click the image, it will take you to the full 360° version online. Using your mouse you can scroll left or right and with the mouse wheel, zoom in or out.

## CONCLUSION

As I have said a number of times, shooting in 360° whether it be stills or video is a whole new approach. But just like any other photography or videography,

practice will make perfect, and it can be very satisfying as you can display the world you shoot in a whole new way, and indeed, even allow viewers to become totally immersed in what you have shot.

So take your time, read the manual for the camera and learn all its tricks, and experiment a LOT. Just make sure you have fun while doing so!

At time of writing, the GoPro MAX costs AUD\$799 and more info can be obtained [here](#).

“

**“IT DOES TAKE A BIT OF GETTING USED TO HAVING THIS SORT OF FLEXIBILITY, BUT ONCE YOU GET YOUR BRAIN AROUND IT, WHOLE NEW POSSIBILITIES OPEN UP”**

# A GOPRO OR A MIRRORLESS / DSLR?

**D**espite lots and lots of posts answering questions regarding what GoPros can and cannot do, there still seems to be a major confusion as to their role in the photo / video world, as against what people seem to think they are.

So, I thought I'd try and make it simple and do an apple v apple comparison between a GoPro and a basic mirrorless camera.

For the sake of the exercise, I have chosen a GoPro Hero 12 versus a Fujifilm X-S10 simply as I have both, and the Fujifilm is pretty indicative of what this type of camera is about.

First, let's look at the technical and physical differences between them.



	GoPro Hero 12	Fujifilm X-S10	Notes
Price	\$559 with no accessories	\$1869 with 16-80mm lens	
Sensor size	5.75mm x 4.28mm	23.5mm x 15.6mm	The sensor size goes a LONG way to dictating how good an image is and especially low light capability
Lens	Fixed	Interchangeable	With interchangeable lenses you get much more flexibility as you can change lenses for different circumstances. Eg extremes of insect closeups to surfers 200metres away in full frame
Zoom	2x electronic	Lens dependent to 800mm +	See above
Flash	No	Yes	You need to add external lights to the GoPro in darker environments
Storage	MicroSD	SD Card	
Battery Life	Variable depending on ambience but up to 35 mins	Still: 325 frames approx. Video: 40 mins approx	
Waterproof	Yes to 10m	No	
ISO	100-3200 (photo)	160-12800 (photo)	The higher the ISO, the more sensitive to light the camera can be (ie better in low light)
Shutter Speed	Max 1/2000 <sup>th</sup> sec	Mechanical: 4 sec – 1/4000 <sup>th</sup> sec Electronic: 4 sec – 1/32000 sec	

Slo-Mo	240fps	240 fps	
Aperture	F2.5 fixed	Lens dependent average F2.8 – f22	Variable aperture allows control over depth of field eg: getting the background out of focus and foreground pin sharp.
Stabilisation	Electronic	Image sensor 5 axis	
Viewfinder	No	Yes	In bright sunlight, GoPro viewscreen often unusable.
Number pixels	27.1 million	26.1 million	
Exposure compensation	-2.0EV - +2.0EV	-5.0EV - +5.0EV	
Exposure Mode	None	Program, Aperture Priority, Shutter Priority, Manual	Exposure mode allows camera settings to suit different environments
Focus	None	Single Auto, Continuous Auto, Manual	Lets you focus on a specific object or part of the whole image
White Balance	Yes (in ProTune)	Auto or 9 presets	
Self Timer	10 sec / 3 sec	10 sec / 2 sec	
Hot Shoe	No	Yes	Allows adding of external devices. With GoPro need the MediaMod
HDR	Yes	Yes	
Connectivity	USB, Bluetooth, Wi-Fi	USB, Wi-Fi, Bluetooth, HDMI	
Gimbal supported	Yes	Yes	

## CONCLUSION

In a nutshell, it comes down to flexibility and control. A GoPro is designed to do a specific job. It is an action camera that has been primarily created to get action photos and footage from a first-person perspective.

A mirrorless (or dSLR) is designed with flexibility in mind via interchangeable lenses and camera control over aperture, shutter speed, depth of field and so on.

Whilst a GoPro \*could\* be used for say, landscape or portrait photography, or at night, it is not designed for this and the results will be far inferior to a mirrorless or dSLR with the correct lens and settings.

A GoPro shines in rugged environments due to its build and of course its waterproofing. Using it for other purposes will generally give unsatisfactory results.

The best comparison I can think of is this: if a mirrorless / dSLR is a Toyota Camry (adaptable under many circumstances), a GoPro is a Toyota Hilux (best in 4WD mode in the bush).

If you have any specific questions, feel free to email me via [david@creativecontent.au](mailto:david@creativecontent.au)

# REVIEW: CANON V10

## Q uirky

That's the word I'd use to describe the Canon Powershot V10. Not necessarily in a bad way you understand, more in the vein that it doesn't quite fit the mould.

Y'see, the Powershot V10 is unashamedly designed for a specific task, that of Vlogging. Given that most smartphones these days can lend themselves to this task, I am not sure whether too many people could justify the AUD\$569 price tag for something they mostly already probably have.

So, with that in mind, and Canon must have looked at this angle, the best way to approach a review of the Powershot V10 is to see what advantages it might have over a smartphone, or indeed, other cameras that are also aimed at the vlogging market (such as the Sony ZV-1F) as well as the features and functionality it might share.

## DESIGN

The design itself is clever in that a kick stand has been incorporated eliminating the need for any sort of tripod that a smartphone would need to act as a vlogging camera. Not that a basic tripod is that expensive, but it does mean less to carry around and / or set up.

In handheld mode, the V10 is comfortable to hold, and it is certainly small enough that you can slip it easily into a pocket.

The orientation is the same as a smartphone, but that does not mean it also shoots vertically; the V10 does not, having a default 16:9 widescreen orientation. This is viewed on a 2" flip up touch screen by the way, letting you monitor what you are shooting. If you are a TikTok-er, you'll need to turn the camera on its side when shooting or switch the orientation in post, which can get messy.

## TECHIE STUFF

The 1" internal sensor shoots 20 megapixels and imagery is gathered by a 6.6mm

F2.8 (equivalent to approx. 19mm in 35mm speak) lens shooting at a fixed F/4. Photos are taken as JPG only – no RAW here folks – and for video, the V10 supports 4K30 and 4K24, as well as 1080p at up to 60fps in the H.264 format. You can choose whether you want Standard or Light IPB quality in an



8-bit 4:2:0 colour space. 3x digital zoom is available.

For specific colour "looks" there is a choice between 14 different profiles such as Bright White, Clear Purple, Sepia, Story Teal and so on. I had a play around with some of them and they vary from the subtle to the downright garish. Each to his or her own in this department, I guess. One man's ceiling is another man's floor and all that.

Oh, and you also get a "Skin Smoothing" system with a range of 1 to 5 to minimise those unsightly wrinkles and other blemishes. If you must.

Whilst there is the expected Auto Everything mode most people will stick to, you can get into the guts of the Powershot V10 and tweak a few settings like EV adjust-

ment, ISO, the built in ND filter and shutter speed etc.

I found the auto focus system could do with a bit of work. At times, face detection seemed to "lose it" and for a brief moment, the background was brought into focus. You can also switch to a moveable

focus box instead of face detection but there is no special focus mode for say, product reviews as the Sony ZV models.

## CONNECTIVITY

The battery in the Powershot V10 is an internal unit charged up via the USB -C connection. This also doubles as a data connection, and when connected to a computer, the V10 can double up as a web cam. Aiding in this is the inclusion of a 3.5mm mic port and a micro HDMI port.

If you want to live stream to say Facebook or Youtube, Wi-fi and Bluetooth are also supported.

One thing I did notice, and obviously Canon are aware of, is that, just as it plagues GoPro cameras, heat is a big enemy of the

Powershot V10, so much so that a heat meter is actually shown on screen.

In my testing, I got a shutdown due to overheating after only 20 minutes of recording at 4K, so this is something to bear in mind. Just in case this was unique to me, I did check some other reviews, and no, I was not alone in this area.

## CONTROLS

Control of the V10 is by a combo of touch screen and physical controls. The record on / off button is prominent under the lens, and all other controls are on the rear of the camera in a single 4-way control panel. These include, the power button, play, transfer, delete etc. They are straight forward to use as is the touch aware menu system.

## CONCLUSION

The Powershot V10 has no pretences about it. It is designed for a specific job and it does this without too much fuss. The let downs are in the auto focus and battery life in my book, and the overheating is also an issue.

Will people shell out to buy this and replace their existing smartphones for Vlogging?

While the V10 can double up as a point and shoot camera for everyday use, I am not sure this is enough to sway people who are absolutely welded to their phones. It just doesn't do anything markedly better than a reasonable smartphone does.

Maybe Canon are just testing the water to see if there is merit in developing the V10 further? At the moment though, it reminds me of the [Canon Pick](#) I reviewed back in December last year, in it seems to be a solution trying to find a problem.

It's almost as if there is some internal section in Canon's otherwise excellent camera division that is there to come up with some oddball ideas in the hope that one day, they'll strike gold.

Sadly, this is not the day in my book.



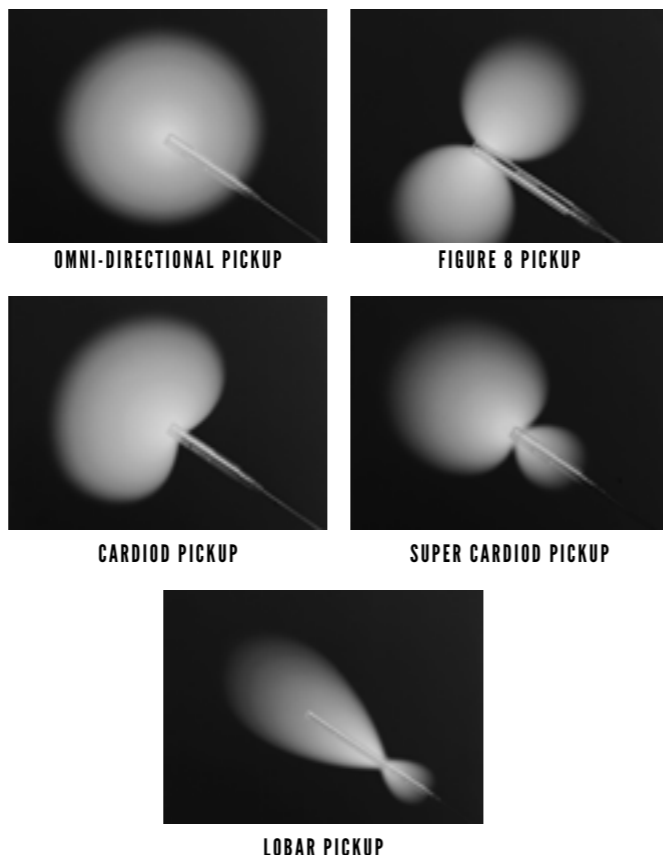


**A**udio is important. I've said it before and no doubt I will say it again. And I'll repeat what was said to me many donkeys ages ago that reinforced this; turn on the TV at 7pm, switch to the ABC News and turn the sound off. Then tell me what it's all about.

And to get audio, of course you need a recording device. Like a microphone. No, not like a microphone, it IS a microphone. But what sort? A mic is a mic is it not?

Well no.

There are a number of different mic types, and each has its own use in certain circumstances. And this is defined by what is called the "pickup pattern".



# WHICH MIC?

THERE ARE NOT JUST DIFFERENT MIC MODELS, BUT MIC PICKUP TYPES. WHICH TO USE WHEN? THIS WILL HELP.

BY  
DAVID HAGUE

For example, if you are doing an interview at a press conference or following a person after a "door step" you want an omni-directional mic that will pick up the audio from a multitude of directions. An example is the Sennheiser MD42.



SENNHEISER MD42

A cardioid pickup pattern on the other is slightly more directional and useful for events recording such as weddings or when making documentaries. A Sennheiser MD46 is a typical example.



SENNHEISER MD46

There is also the hypercardioid though so don't get confused. These are common as camera mounted mics otherwise known as "shotgun" mics. These are also really good for recording musical instruments by the way.



SENNHEISER MKH416

A more refined type is the supercardioid / lobar (super directional) mic such as the Sennheiser MKH416 which you see in photos of film and TV sets where typically they are mounted on a boom pole, but are also used as camera top mics.

A bi-directional mic which picks up audio from both the front and the back are typically used for radio or podcasting. eg the Sennheiser MKH 400



SENNHEISER MKE400

So choose the mic that is best for the job, and you won't have to muck around after the fact with trying to sweeten dud audio. [For even more information, read our article here.](#)

# DJI MAVIC 3 PRO FIRST LOOK

like cars, as anyone who knows me will attest, I even cut my journalistic teeth as a motorsport photo journo (and I am still accredited) w-a-y back in the late 70s when Brock, Moffat, Grice and Bond were household names.

Back then I even owned a Torana A9X (which I later sold – sob!), and had a succession of desirable cars ever since, culminating in my current weapon of choice, a Holden Monaro 5.7 litre 6 speed owned from new.

## IF CARS WERE DRONES

If my cars were drones, then my first, a genuine Mini Cooper S would be the DJI Mini 2, lightweight, quick and nimble. My second last car, an Opel (Holden) Calibra, a DJI Mini 3, with lots of features, but still small and agile. In terms of power, I guess the Monaro would be an Air2S, - plenty of grunt and stamina.

But the one that arrived today, would surely be a Lamborghini Guillardo. And this is the DJI Mavic 3 Pro.

## FLAGSHIP

The Mavic 3 Pro is the flagship of the DJI consumer range of drones and is simply bursting at the seams with features. The most notable of course, is not

one, not two but three onboard cameras. This adds a 70mm medium telephoto lens to the existing 24mm Hasselblad and 166mm telephoto that were in the standard Mavic 3.

This means you have extraordinary control, with shooting capabilities up to 5.1K / 50 frames per second and 4K / 120 frames per second video, and

up to 48 megapixel stills. To get the best from these cameras, you have access to ActiveTrack, MasterShots and Hyperlapse to play with too.

## TECHNICAL STUFF

For the technically minded, the Hasselblad camera supports 10-bit D-Log, 12-bit RAW and 12.8 stops of dynamic range. This puts it in the company of cameras such as the Blackmagic Pocket Cinema Camera 4K by way of comparison, which puts

it in exalted company indeed.

Flying time is an impressive 43 minutes according to DJI but of course this is dependent on factors such as current windspeed. You do get a

## CRUISE CONTROL

movement-oriented footage. My Mini 2 and Air2S being controlled by smartphone would only do Waypoints – programmed flying if you will – by using the 3rd party Litchi software, so having Waypoints built into the controller for the Mavic 3 Pro is most welcome, as the smartphone as a controller becomes pretty well useless in bright

To keep the Mavic 3 Pro in one piece, it sports full omnidirectional obstacle avoidance, which is a fancy way of saying it will automatically detect and then avoid anything in its way on all axes and in all directions. This is taken advantage of in the RTH functionality too, as while flying, it will pre-plan a safe return to home based on this data. There is some serious computing power going on here.

I haven't flown the Mavic 3 Pro as yet; the batteries are on charge and as I started writing this, our freak November hot spell (in the 40°C area which is causing catastrophic bush fires, but thankfully away from here 200Km north) has been at least slightly broken by a roaring sea breeze.

## ON PAPER AT LEAST

So, it will (hopefully) be tomorrow. But on paper, the Mavic 3 Pro looks awesome and I cannot wait!

If you are interested, this particular version, the DJI Mavic 3 Pro with the DJI RC controller is on special right now at the D1 store with \$200 off the list of AUD\$3099.

For more information, [click here](#).



Cruise Control, access to Waypoint Flying and of course Return to Home (RTH) if something goes wrong.

find Cruise Control especially interesting as it means you can effortlessly get smooth pans and

sunlight. The RC controller mostly solves this issue.

Top speed is stated to be 74 Km/hour so in terms of power to weight, we are well inside Lambo supercar territory here!

## RANGE

In consumer world it's a bit of a moot point due to the CASA regulation of making sure your drone is in line of sight at all times, but for the licenced professional – which let's face it, at whom the Mavic 3 Pro is aimed – a range of 15Km with stable HD footage is mouth-watering.



# MY BLACKMAGIC DESIGN ATEM MINI PRO SETUP

FOR AN AMOUNT UNTHOUGHT OF NOT THAT LONG AGO,  
YOU CAN HAVE A FULL ON VIDEO AND AUDIO RE-  
CORDING STUDIO

BY  
DAVID HAGUE

For quite some time now I have waxed lyrical about the [Blackmagic Design ATEM Mini Pro](#). I have stated many times that this amazing piece of kit, that not that long ago needed gear costing in the thousands of dollars to replicate what it does, forms the hub of my editing / broadcasting computer system.

Conversely, I have lamented the fact that Blackmagic don't complement the ATEM Mini Pro with an audio equivalent, instead relying on a software-based solution built into the ATEM Control software. But I recently resolved this by implementing a [RØDE-Caster Duo](#) into my setup.

A number of people have asked if I could explain in depth how I have put together the whole system – mics, cameras, monitors, audio and video etc, and how it all comes together for recording and streaming.

So here goes.

## THE EQUIPMENT

### VIDEO

I run a hybrid setup of gear as distinct from sticking with one brand. This is mainly due to the nature of how my setup has evolved, as against planning the complete system from the start.

Being skewed towards the video side of things – although it has also been designed to cater for podcasts – I'll start with the cameras. I run 3 at present, the main one being a [Blackmagic Cinema Pocket Camera 6K Pro](#). This is the one facing me.

It is permanently connected to its charger, and the internal mic level is down to zero as I don't want it recording audio.

The other cameras two are [GoPros](#) – a 10 and 11 Black – and both of these are housed in [GoPro MediaMods](#) to enable the HDMI connectivity the [Blackmagic Design ATEM Mini Pro](#) requires. One [GoPro](#) picks up a ¼ side shot of me and the other is at the

back of my office / studio and designed to be used when I am demonstrating something I am holding, or some manual technique or another. In other words, it's a 'dogsbody' camera, suitable for a number of purposes outside straight vlogging.

Both [GoPros](#) are powered by 240v USB adaptors putting out the required amperage, and the batteries have been removed to minimise overheating. You cannot disable the internal mics on a [GoPro](#), so the trick is to put an adaptor into the [MediaMod](#) audio port.

All three cameras are on tripods; the Blackmagic on a baby Manfrotto, one [GoPro](#) on a [PGYTECH MantisPod](#) and the other on a [GoPro](#) tripod.

The [Blackmagic Design ATEM Mini Pro](#) has 4 HDMI ports, so obviously I still have one free after the cameras are connected. This is used to take a feed from my left-hand monitor so I can either demonstrate / show what is happening on the desktop, or if I want to have a remote guest in

the video / stream, I could use a Skype, Messenger, Teams or Zoom etc image.

To achieve this, I use a simple HDMI splitter on the video cable from the computer to the monitor.

The [Blackmagic Design ATEM Mini Pro](#) also has an HDMI out port, and this is connected to an [OSEE LCM215E field monitor](#). This in turn via the [Blackmagic Design ATEM Mini Pro's](#) firmware displays Preview and Program windows, the images from the 4 video feeds (cameras and monitor), the currently selected image from the ATEM Software control Media Library (more on this later), recording and hard drive status and the audio mixing panel, again from the ATEM Software Control.

The [Blackmagic Design ATEM Mini Pro](#) has a USB-C port that can either be connected to the computer, effectively turning the whole environment into a super webcam, or alternatively, have a hard drive plugged in to enable recording and subsequent editing of the audio and video streams.

I use a recommended [Samsung T5](#) USB drive for this. By the way, it is essential that for recording from the [Blackmagic Design ATEM Mini Pro](#), you DO use a Blackmagic Design recommended drive otherwise, I promise, there will be unpredictable results.

Finally, to allow live streaming, I have an Ethernet cable from the [Blackmagic Design ATEM Mini Pro](#) directly into my mo-

dem. Wi-fi is not supported in this ATEM model.

The whole video portion of my setup is quite straightforward, and while I use the GoPros and the [Blackmagic Pocket Cinema Camera 6K Pro](#), pretty much any HDMI supported camera can be used, bearing in mind you a) need to stick to 1080p and b) need to have the ability to get a “clean” HDMI feed from the camera ie: no screen overlays.

#### AUDIO

Initially, I simply ran mics directly into the two available ports of the [Blackmagic Design ATEM Mini Pro](#), but this had a couple of limitations. The mics I used at the time were a [Sennheiser MKE 600](#) with



an XLR to 3.5mm adaptor and a [Sennheiser XSW Digital Wireless Lav](#) set. The first limitation is that the [Blackmagic Design ATEM Mini Pro](#) has no audio out port so you cannot monitor the audio via headphones, for example. Yes, I could plug the ‘cans’ into the audio port of the OSEE monitor, but I found this to be a clumsy work around.

Secondly, as the audio control of the [Blackmagic Design ATEM Mini Pro](#) is pretty much tied to the ATEM Control Software eg no sliders as such on the [Blackmagic Design ATEM Mini Pro](#) itself, if you wanted to say, fade music in and out, again it was a little clumsy.

So when the [RØDECaster Duo](#) turned up, it opened up a whole new world.

I now have at least 4 audio ports to play with, that I can mix into a single out port with the [RØDECaster Duo](#) and send to one of the [Blackmagic Design ATEM Mini Pro](#) audio in-ports, leaving one in port free. (The [RØDECaster](#) has four ports with physical sliders and 3 “virtual” ones. In the setup of the Duocaster, you can switch these around at will).

The mics are mounted on [Elgato Mic Arms](#).

The way I finally decided to do this was by keeping the [Sennheiser XSW Digital Wireless Lav](#) on audio port 2 of the [Blackmagic Design ATEM Mini Pro](#), and into the [RØDECaster Duo](#), have Line 1 as the [Sennheiser MKE 600](#) (via XLR), Line 2 with a [RØDE PodMic](#) (XLR), Line 3 a feed from my computer via

USB-C for music etc, and Line 4 for the inbuilt ‘pads’ on the [RØDECaster Duo](#) (which can be programmed for stings, effects and so on).

I also now could use my [Sennheiser HD 25](#) headphones for monitoring via the [RØDECaster Duo](#) (it has 2 headphone ports). If I wanted to, I could use the USB-C port on the [Duocaster](#) for recording the audio feed for which for which I’d use a [Samsung T7](#) USB-C hard drive.

The reason I kept the [Sennheiser XSW](#) connected to the [Blackmagic Design ATEM Mini Pro](#) directly was it gives me an ease of use (and mobility) when I am involved in one of the product briefings I attend via Teams or Zoom. It’s a simple matter to turn the [Blackmagic Design ATEM](#)

**“By the way, it is essential that for recording from the Blackmagic Design ATEM Mini Pro, you DO use a Blackmagic Design recommended drive otherwise, I promise, there will be unpredictable results.”**

Mini Pro system into a webcam as mentioned earlier. Using the whole ATEM / RØDECaster Duo thing is an overkill for this sort of thing.

## SOFTWARE

As mentioned earlier, I also use the ATEM Software Control package and while the Blackmagic Design ATEM Mini Pro works without it, having it as part of the overall mix greatly increases the flexibility of the whole system.

As well as being able to manipulate the Blackmagic Design ATEM Mini Pro using on-screen controls (as against physical ones), you also get two major benefits.

The first is the Media Library. Here, you can store up to 20 still images (not video sadly) and queue them up as overlays, lower 3rds and so on, or indeed whole screen images in their own right, and swap them in and out as needed. Both upstream and downstream keying is supported by the way.

For example, if I person-

ally am on screen I have a lower 3rd with my name, email address and title on it. Additionally, I have a logo on the top right of my feed. I also have opening and closing titles and credits. Its only limited by your own imagination.

A second benefit of the ATEM Software Control is that of its use of macros. These can be created to automatically perform tasks at specific times or on triggers.

For example, rather than manually move graphics around in and out of the media library as a part of an opening or closing sequence, you can create a macro that does this for you automatically.

Macros use standard the XML language which is relatively easy to pick up. They are initially created by physically performing the required tasks and recording them for later editing in a standard text editor if needed. Macros can also call macros which is a useful feature.

## IN OPERATION

It has taken many iterations of the layout of the physical devices on my desk to get to the point I am at now.

I just couldn't find a way that everything fell to hand so I could control everything without having to look away from the camera.

But I think I have finally found it, with the RØDECaster Duo to the left of my keyboard, and the Blackmagic Design ATEM Mini Pro on a raised shelf above that.

To the right of the Blackmagic Design ATEM Mini Pro, I have a DaVinci Resolve Speed Editor for use with the editing software of the same name, and to the right off the keyboard, a Loupedeck CT which I have found an almost indispensable tool as a controller for DaVinci and Cinema 4D as well as other packages like Excel, Google Chrome, Outlook and more.

I could like many, if not most, do vlogging and create videos with a single camera, but coming very much from a video production background, I simply find this boring.

Having the option to switch camera angles while broadcasting makes things much more interesting, and the extra facilities of the Blackmagic Design ATEM Mini Pro with the Media Library adds to this, along with other features like picture-in-picture, fades, dissolves and other

transitions.

Further, having more than a single audio source also 'spices' things up beyond the norm.

With the video feed from the computer letting me mimic a 2<sup>nd</sup> (or even more) people in the 'studio' via Zoom, Teams, Skye etc gives additional flexibility to what things I can achieve in broadcasts, the 3<sup>rd</sup> camera allows more depth to the potential subject matter as it lets me go beyond a simple 'talking head' and the ability to record to hard drive and later edit lets me remove any rough edges or glitches before going to air if I want.

In actual practice, a broadcast might start with opening titles and music timed with Blackmagic Design ATEM Mini Pro based macros and then fade to input (camera) 2 (the Blackmagic Cinema Camera 6K Pro).

The subject matter could be introduced with images perhaps showing software on the desktop (Input 1) and then a dissolve back to input (camera) 3 to give a different angle of the presenter.

This could be repeated as required, or even then switch to input (camera 4) showing the presenter walking towards this camera holding a prop (maybe a manual or book on the subject matter, or the object itself if it is hardware) and then have a demon-

stration of using it. If you have timed everything correctly, another macro could then kick in showing a series of full screen graphics letting the presenter return to the chair and return to input 1.

This brief description hopefully shows not just how flexible the system is, but that it is also very capable with a bit of forethought of quite sophisticated broadcasting / video capture.

## CONCLUSION

This combo of hardware and software I have does truly give me a complete recording studio or live broadcast facility for relatively low cost. And of course, if I want, I can dispense with the video component and instead have a complete audio recording studio for podcasts, musical instrument recording or indeed, even a live radio station.

## EQUIPMENT COSTS

Blackmagic Design ATEM Mini Pro \$449.00  
RØDECaster Duo \$690.00

Sennheiser MKE600 \$374.00

RØDE PodMic \$138.00

Sennheiser HD25 Headphones \$349.00

Samsung T5 USB-C SSD \$160.00

Samsung T7 USB-C SSD \$178.00

Elgato Mic Arm \$139.00

OSEE LCM215E Monitor \$1219.00

## CAMERAS

I have tested this system, with a number of cameras in addition to the ones I use.

These include Fujifilm X-S10, Fujifilm X-S20, Canon 5D, GoPro Hero 9, GoPro Hero 12. The only real requirements are an HDMI output and a 'clean' HDMI feed (no overlays).

## CABLING

I have found through trial and error it is best to use premium HDMI cables and adaptors if necessary, especially if running more than 2 metres.

## ADDITIONAL EQUIPMENT

DaVinci Resolve Speed Editor (incl full licence of Resolve) \$599.00

Loupedeck CT \$809.00

SideshowFX Loupedeck DaVinci Resolve Profile \$49.00 apprx

**“It has taken many iterations of the layout of the physical devices on my desk to get to the point I am at now.”**



# ATEM MINI PRO CREATING MACROS

USING EASY TO CREATE MACROS, EXTREMELY POWERFUL SYSTEMS' OPERATIONS CAN BE BUILT

BY  
DAVID HAGUE

In reading just about all the posts in the various Blackmagic Design ATEM Mini Pro forums as I do, it strikes me as interesting that very few people seem to be aware of the macro capability of the Blackmagic Design

ATEM Mini Pro along with the Blackmagic Design ATEM Software Control app.

I wonder how many actually know it even exists.

For those who are not aware (and even perhaps do not know what a macro is and have never heard of Lotus 1-2-3 either), a macro is a sequence of operations that are executed automatically by a single action.

For example, you might have a set sequence of shooting between two cameras that have critical timing. Before it starts, you might show a start-up splash screen for 5 seconds, camera 1 rolls for 2 minutes with a lower 3rd coming in at 10 seconds and holding for 10 seconds, a transition of a specific type occurs for 1 second, switches to a graphic for 5 seconds, transitions for 1 second to camera 2 rolling for 2 minutes with a lower 3rd at 10 seconds for 10 seconds and then transition for 2 seconds to a shutdown message.

All of these steps can be listed in the Macro window (accessed from the Blackmagic Design ATEM Software Control app and assigned to a single button. When the button is pressed, voila, the macro runs autotragedically!

The Blackmagic Design ATEM Software Control app software has provision for up to 100 macros to be stored within 5 pages of 20 macros each.

In the Blackmagic Design ATEM Software Control app manual, a sample tutorial macro is detailed on page 62, but if you don't have the manual (you can download it for free here), the steps are listed below.

1. Launch ATEM Software Control and open the macros window.
2. Click on the create button in the macros window to select the create page.
3. Click on a macro slot you want to record your macro to. In this example, click on macro slot 1. An orange border will appear around the slot you have selected.
4. Click on the create macro button, which is labelled with a 'plus' icon, to open the create macro popup window.

If you want to, you can enter the name of your macro and type a description. This lets you easily keep track of your macros and quickly see what each macro does. When you click on a macro, your notes will appear in the status window.

5. Click the 'record' button.

The popup window will close, and a red border will appear around your ATEM Software

Control panel indicating your macro is now recording. Notice the red 'add pause' button at the top of the border.

6. Click on the bars button in the program panel on the switcher's program output.
7. Select colour 1 on the preview output.
8. Open the transitions palette and set it to mix.

If mix is already selected, make sure your macro records the setting by selecting a different transition type, for example the wipe transition, then clicking on mix again.

9. Now change the transition Rate to 3:00. This sets the mix transition duration to 3 seconds.
10. Click on the auto button in the transition style panel. Your switcher will perform a mix transition from colour bars to colour 1.

11. To set the switcher to wait for 2 seconds before applying another transition, click on the add pause button at the top of the red border. The 'insert pause' window will open.

Set the pause to 5 seconds and 00 frames and click 'confirm'.

# ATEM MINI PRO CREATING MACROS



Why set a 5 second pause when you only want a 2 second pause? That's because when the mix transition occurs, it takes 3 seconds to complete. So, if you want to add a pause, you need to consider the transition duration, plus the pause you want to happen before the next transition occurs.

In this example, it takes 3 seconds for the transition to complete, then 2 seconds for your 2 second pause, so you should enter a pause of 5 seconds. Another way is to add two separate pauses, one for the duration of the transition, and then another for the pause you want. It's up to you.

12. Now select black on the preview panel, and click the auto button

in the transition style panel. Your ATEM switcher will perform a mix transition to black.

13. Click the record icon in the macros window to stop recording your macro.

The macro you just recorded will now appear as a button in your selected macro slot.

To preview your macro, click the run button in the macros window to enter the run page. Select recall and run, which sets the macros window to run a macro as soon as you click on a macro button. Now click on your new macro button, named 'Transitions'.

14. If you want your macro to instantly run as soon as you select it, click on the 'recall

and run' button. By enabling this feature, you can load and play your macros with only one click of a button.

If your macro was successful, you should see your ATEM switcher perform a mix from colour bars to colour 1 using a 3 second transition, pause for 2 seconds, then perform another 3 second mix transition to black, all by clicking one button in the macros window! Your ATEM switcher will also display an orange border around your software control panel to indicate a macro is playing.

If you have an idea for something that will be bigger than Ben Hur, it is better to break this down into smaller chunks making it easier to trouble shoot. You can then get one macro to "call" the next and so on.



MKH 416

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**Heritage** you can trust.

**Reliability** you can put to the test.

**Innovation** that's yours to unleash.



Select Board



# ARDUINO - YOUR FIRST CIRCUIT

If you know nothing about electricity or electronics, then the subject may seem a little like magic to you.

However, it is not that hard to understand, and once you have the basics, it is quite amazing what you can achieve for just a little outlay and time and effort.

To give you an idea, here is an excerpt from the Arduino Projects Book that comes with the Arduino Starter Kit. You can get the full kit with over 200 components and the book [from this link online](#) for USD\$80 or so, or from a local [Jaycar](#) store for around AUD\$130.

This particular circuit demonstrates the use of different coloured LEDs, what resistors are used for, and introduces a simple switch. Initially the green LED is on, and when the switch is pressed, this will go out and the two red ones will flash for a period before returning to the original state.

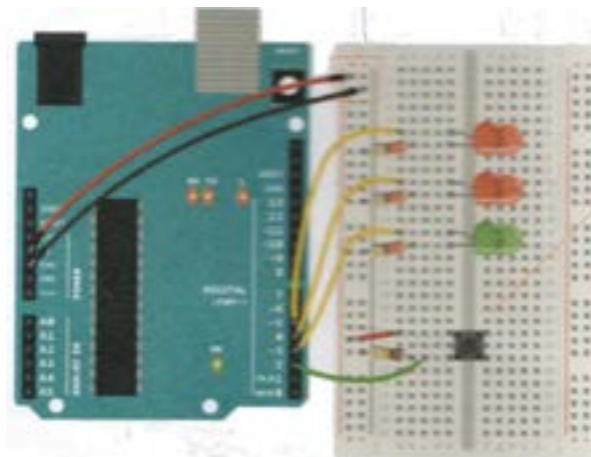
The first thing you need to do is create the circuit using the Arduino board, a breadboard to hold components and some jumper cables to connect them.

Once the components are all in place, the program that controls everything is then entered into the Arduino's editor on your computer and uploaded. If all is correct, as mentioned, when you press the button, the red LEDs will flash. If this doesn't work, you need to check all the connections and that you have entered the code correctly (if there are any errors in the code, when you upload it, generally the editor will find them for you in order to correct any typos etc, but NOT logic errors).

## THE COMPONENTS YOU NEED ARE:

- ARDUINO BOARD
- BREADBOARD -
- ONE GREEN LED
- TWO RED LEDS
- PUSHBUTTON
- 10 KILOHM RESISTOR
- THREE 220 OHM RESISTORS

AND A POWER SOURCE



**“With Arduino, you can create basic circuits very easily, and with some patience and knowledge, some very complex ones too!”**

```

/*
 // Create a global variable to hold the state of the switch. This variable is
 // persistent throughout the program. Whenever you refer to switchState, you're
 // talking about the number it holds
int switchstate = 0;

void setup() {

 // declare the LED pins as outputs
 pinMode(3, OUTPUT);
 pinMode(4, OUTPUT);
 pinMode(5, OUTPUT);

 // declare the switch pin as an input
 pinMode(2, INPUT);

}

void loop() {
 // read the value of the switch
 // digitalRead() checks to see if there is voltage on the pin or not
 switchstate = digitalRead(2);

 // if the button is not pressed turn on the green LED and off the red LEDs
 if (switchstate == LOW) {
  digitalWrite(3, HIGH); // turn the green LED on pin 3 on
  digitalWrite(4, LOW); // turn the red LED on pin 4 off
  digitalWrite(5, LOW); // turn the red LED on pin 5 off
 }

 // this else is part of the above if() statement.
 // if the switch is not LOW (the button is pressed) turn off the green LED and
 // blink alternatively the red LEDs
 else {
  digitalWrite(3, LOW); // turn the green LED on pin 3 off
  digitalWrite(4, LOW); // turn the red LED on pin 4 off
  digitalWrite(5, HIGH); // turn the red LED on pin 5 on

 // wait for a quarter second before changing the light
 delay(250);
 digitalWrite(4, HIGH); // turn the red LED on pin 4 on
 digitalWrite(5, LOW); // turn the red LED on pin 5 off

 // wait for a quarter second before changing the light
 delay(250);
 }
 }
}

```

TEXT PRECEDED BY // ARE COMMENTS AND USEFUL TO REMIND YOU A SPECIFIC PIECE OF CODE IS TO DO

ITS HANDY SOMETIMES TO WRITE OUT LONG HAND WHAT YOU HOPE THE CODE TO ACHIEVE. THIS HELPS IN PLANNING THE REAL CODE

BE AWARE THAT IN ANY COMPUTER CODING, CASE SENSITIVITY IS VERY IMPORTANT

CODE INSIDE CURLY BRACKETS { } IS A FUNCTION AND CAN BE CALLED FROM ANOTHER PART OF THE PROGRAM AS OFTEN AS IS NEEDED

ONCE ALL THE CODE IS ENTERED INTO THE ARDUINO EDITOR, IT IS THEN COMPILED AND UPLOADED TO THE MAIN PROCESSOR ON THE ARDUINO BOARD



# INTRO TO 3D MODELLING

IT'S NOT AS HARD AS IT MAY INITIALLY SEEM - AND IS A LOT OF FUN TO BOOT!

BY  
DAVID HAGUE

I first got into 3D modelling in order to learn just how filmmakers managed to create the stuff I had seen in my favourite films, particular science fiction. This then led into using the technique for some practical things – for example I created a TV commercial that was done totally inside Cinema 4D, my 3D program of choice.

I have also used it to make some green

screen type scenes, for titling and other elements of some personal videos.

And of late, I have used Cinema 4D to create physical models via a Flashforge Adventurer 3 3D printer.

Whatever you use 3D for, the basics are always the same; you create models out of primitive objects such as cubes, spheres, cones, cylinders and tubes, and then manipulate them, join them, deform them or otherwise modify them to get your finished object.

While serious 3D programs have a huge swag of commands and functions, you can stay with a few basics and still create things. From there, by adding to your knowledge with a few decent tutorials (I use greyscalegorilla online), you build on your repertoire and find ways to speed up the processes and increase your modelling repertoire.

In this article, I am going to show you some of these basics, and hopefully you'll get an idea of how the whole

thing works.

It is fair to say that programs such as Cinema 4D are not exactly inexpensive, but for those on a tight budget, there is a program out there, which despite being a brilliant piece of modelling / 3D generation software is actually free, and it's called Blender, available for Windows, Macs and LINUX.

The steps I'll describe below cannot be done verbatim in Blender if you choose to use, but it shouldn't take long after doing a couple of Blender tutorials that you'll get the idea as all 3D programs use roughly the same workflow.

To demonstrate how easy it is, I'll start with a basic cube, and turn it into a comfy office chair in just a few steps.

## MAIN INTERFACE

At left is the main interface of Cinema 4D showing the Perspective view. There are four built in viewports that you have on singularly like this, on in combination in different windows. The others are top, right and front. Additionally, you can place virtual cameras anywhere you like and have a viewport showing what this camera "sees".

I tend to do most of modelling in the Perspective view, and switch to other views as needed to make sure things are lined up etc.

To the left, above and right of the viewport is access via icons to all the tools and features and functions of Cinema 4D. A separate window at bottom right is the Attributes pane, showing all the different values of a selected object such as size, position and so on.

## STEP 1

The first thing we need is a starting primitive with which to construct our chair. For this, I'll select a cube primitive and give it the values of 50 x 4 x 50.

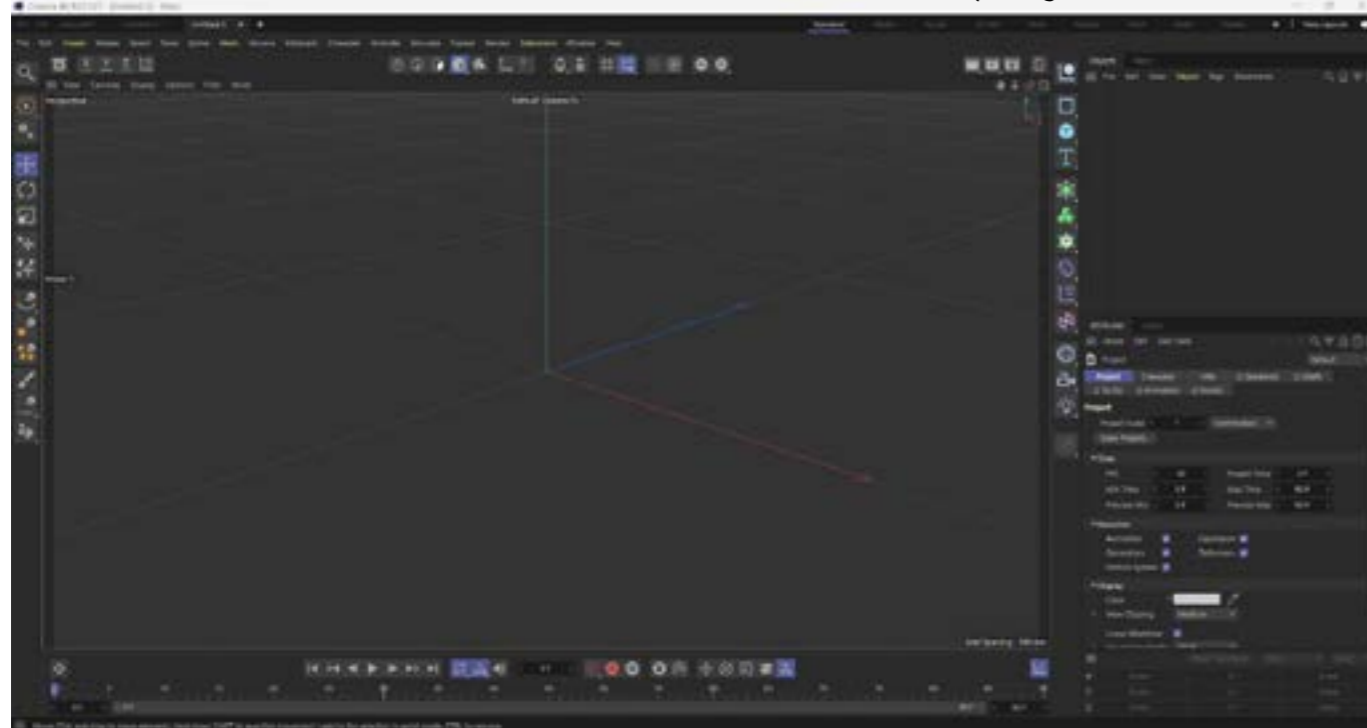
Note that in Cinema 4D (and other similar programs), you can nominate what units to use such as millimetres,



THIS WAS MODELLED IN CINEMA 4D, 3D PRINTED AND THEN PAINTED. THE WIRING IS FOR INTERIOR LIGHTING AND WILL BE CONTROLLED BY AN ARDUINO BASED SYSTEM FOR TIMING ETC.



ANOTHER CINEMA 4D GENERATED MODEL AND THEN 3D PRINTED. CINEMA 4D TREATS TEXT AS SPECIAL OBJECTS THAT CAN BE EXTRUDED AND RESHAPED VERY EASILY



THE MAIN CINEMA 4D INTERFACE SCREEN (PERSPECTIVE VIEW)

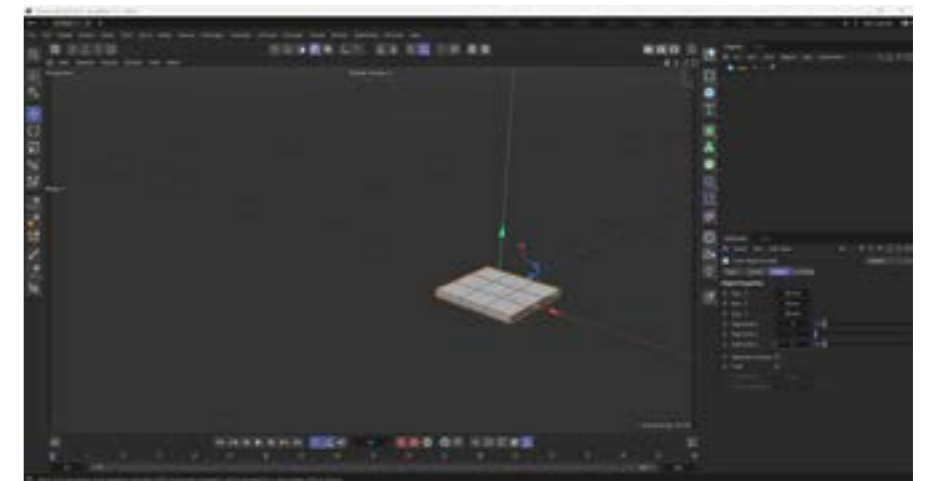


FIGURE 1 - ADDING A CUBE AND SUBDIVIDING IT INTO SEGMENTS OF 3 X 1 X 3

centimetres, miles or whatever. I personally prefer to work in millimetres, but if I am sending something to my Adventurer 3 3D printer, I have a better feel for the real size of the model. However, in the case of our chair, these values of 50 x 4 x 50 could be inches, feet, yards, or centimetres. At this point it doesn't really matter. In effect, our chair in relation to anything else will be 50 units by 4 units by 50 units.

You can see these values in the Attributes pane. By default the object is placed at location 0, 0, 0 on the x, y and z planes. The next thing we are going to do is subdivide this cube into segments so that the x side is made up of 3, the y side of 1 and the z side of 3. Think of a segment like the individual squares making up the sides of a Rubik's Cube.

## STEP 2

Before we can perform any modelling on this, we need to make it editable. To do that, we simply press the letter "C". Now we can switch to Polygon mode and are then able to manipulate those individual segments on each side. This is done by clicking the 3rd icon from left in the top row.

We can now select the two centre rings of polygons and change their values to 42. This will create the "seat". To create the "arms" we next select 3 of the 3 sides of the narrower polygons surrounding the "seat" and using the Extrude command, increase their size to 30.

## STEP 3

One last step, and we have the basics of our office chair. This is by adding what used to be called "hypernurbs" in Cinema 4D, but these days, for some reason, the name has been changed to Subdivision Surface which is far less sexier I think.

(Other examples of "Nurbs" objects include Lathe, Sweep and Loft. An example where one of these might be used is say you had a spiral line that started at 0 (the ground) and rose in its

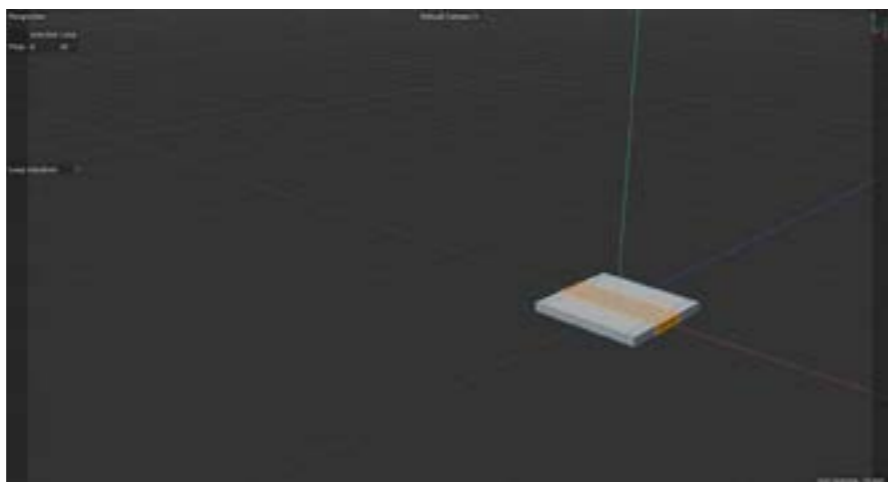


FIGURE 2 - SELECTING THE CENTRE SEGMENTS TO START THE SEAT

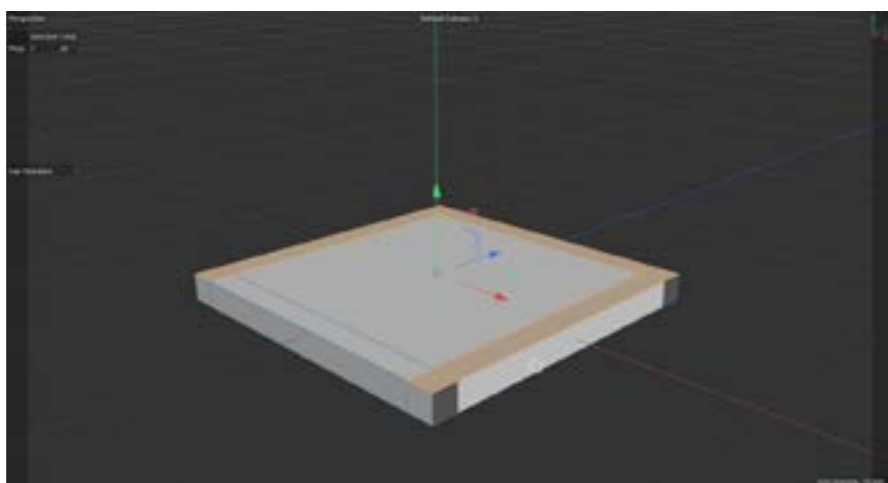


FIGURE 3 - SELECTING ARMS IN ORDER TO EXTRUDE UPWARDS

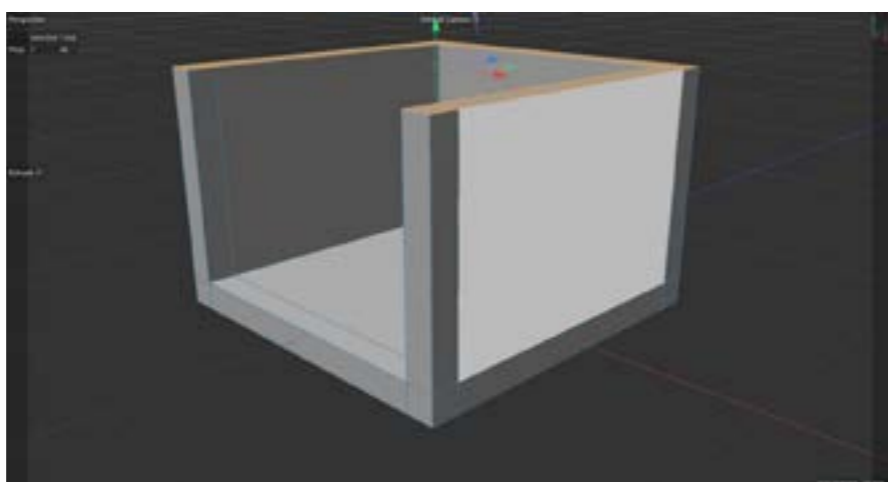


FIGURE 4 - ALL THE MAIN ELEMENTS EXTRUDED AND IN PLACE

spiral shape to 50 units above ground. By building an object made up of this line, a circle with a diameter of 5 units and adding a sweep nurb, you would make a spring as shown in Figure 6.)

And there we have an office chair! We can of course now modify this by changing some dimensions, adding some materials and textures and so, on, on, but you get the basic idea.

## CONCLUSION

There are many uses for 3D modelling, and hopefully this short and sharp introduction – whilst certainly not a full-on tutorial – has whetted your appetite to at least dip your toes in the water.

If you want to have a real play, I can recommend getting the trial download of Maxon's Cinema 4D from [www.maxon.net](http://www.maxon.net). I also highly recommend the tutorials you'll find at [www.greyscalegorilla.com](http://www.greyscalegorilla.com), especially [this one](#) which at time of writing at least, very comprehensive and even better, is free.

Alternatively, I can also recommend the freebie program, Blender, and you can download this from [www.blender.org](http://www.blender.org). I have not looked specifically for any tutorials for Blender, but I am assured there are plenty available on YouTube etc. If like me, you prefer your training from a real live book, I have used [Blender for Dummies](#) which is excellent.

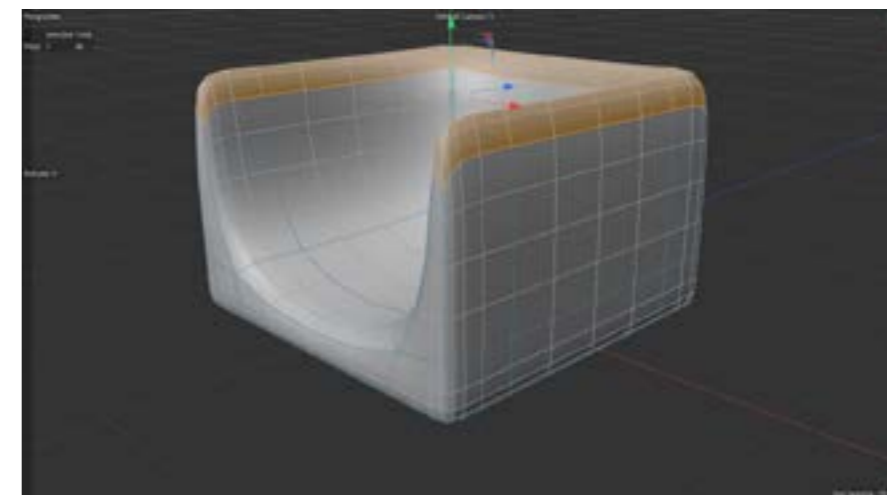


FIGURE 5 - THE COMPLETED SEAT BEFORE APPLYING MATERIALS AND TEXTURES

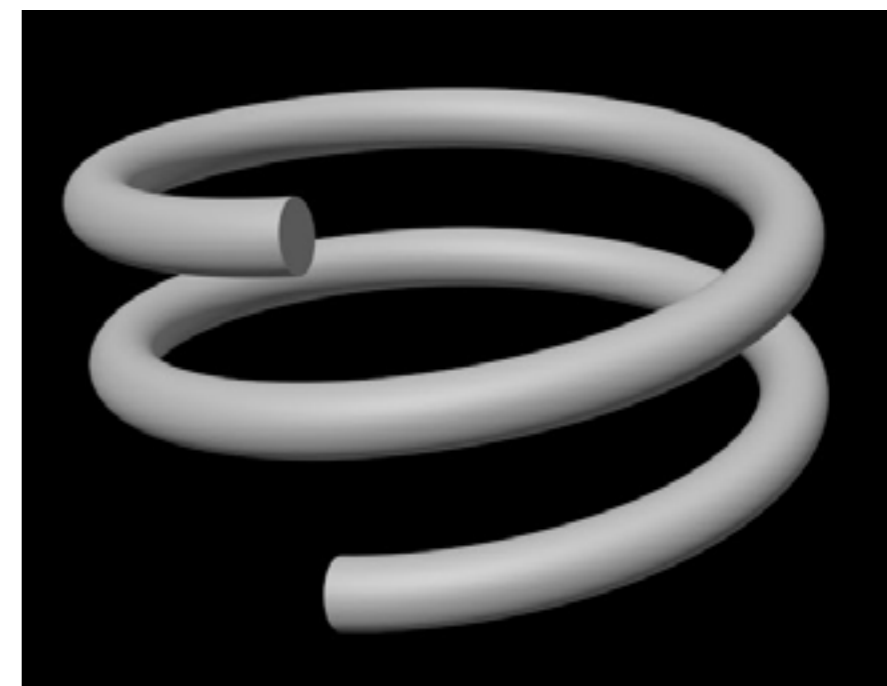


FIGURE 6 - EXAMPLE OF A SWEEP NURB MADE UP OF A SPIRAL, CIRCLE AND SWEEP NURB

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EW-DP

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Learn More

# 3D PRINTING

THERE ARE A FEW THINGS YOU NEED TO KNOW, BUT MOST OF IT YOU LEARN AS YOU GO ALONG

Until a couple of years ago, I admit I had never even seen a 3D printer, let alone thought about buying one. That would probably still apply if it weren't for a part time gig over the COVID period at my local Jaycar store.

Prior to COVID, I had already been planning and starting to build an HO model railway set in my outside shed, and when I first set my eyes on the FlashForge Adventurer 3, I immediately saw the potential to create my own buildings and other models.

I mean, genuine Hornby farm house can cost up to \$100 or more, and I could download and print one, or create and print one for a fraction of that cost eg the miller's cottage you see on page 31.

A quick check of the internet showed me there were literally thousands of models I could download, many for free, and then either print directly or modify in something like Maxon Cinema 4D or Blender and then print.

The Jaycar staff discounts were very generous, so I bit the bullet and bought one within a month or so.

Learning how to use it was initially pretty straight forward, but very quickly you learn to understand that things like levelling, keeping the build plate clean, knowing how keep the various feeder tubes clog free etc become mandatory knowledge.

Not difficult, but you need to be aware.

The Flashprint software, where you load your models for "slicing" and sending to the printer is very comprehensive, and full of terms you have never encountered before in this sort of context, such as Brim, Raft, InFill and Shell.

Thankfully there is a 60 odd

(that are cheaper) are positively a waste of money, so yes, stick to brand names and reputable outlets when it comes to buying filament.

Finally, you learn patience. As amazing and clever as these 3D printers are, you won't be knocking out replica Daleks in a few minutes.

(The first model I attempted to print that I had downloaded from the 'net was a 15cm tall Dalek and that took 9 hours +. And the model turned out to be flawed.

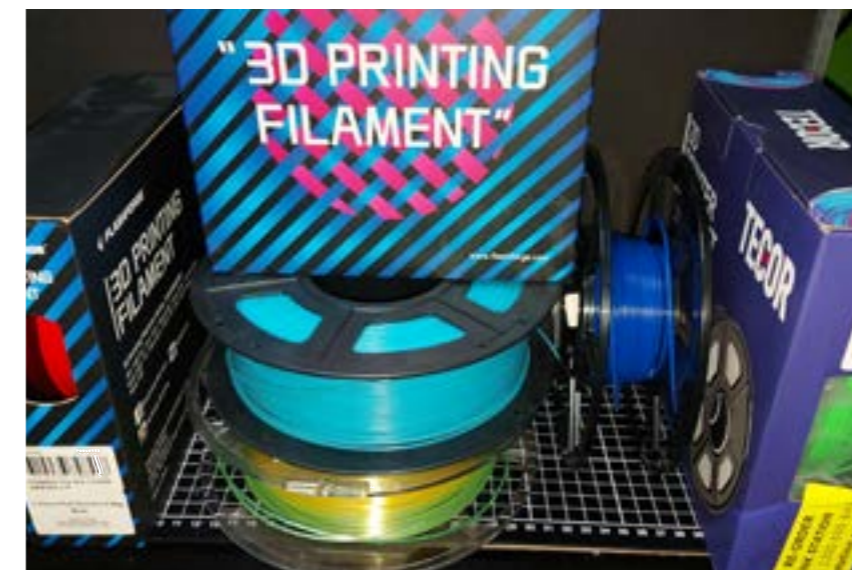
I may at some stage invest in a resin printer as well, as these are superior for fine detail work such as creating miniatures for gaming, but time will tell on that one.

Anyway, if you have even a smattering of interest, go and have a look at a 3D printer in action. If nothing else, they are mesmerising to watch!

There are many different models to choose from with different

size build plates, some have increased height capability of your models, some even allow multiple filaments to be printed at once thus mixing colours.

At the end of the day, you pay for what you get.



page manual you can download which is very comprehensive, and if you do get stuck, there is an active and helpful Facebook group dedicated to the Flashforge Adventurer 3.

You also quickly learn that not all filaments are made equal. Some of the brands I have tried

AT LEFT: FLASHFORGE ADVENTURER 3 IN ACTION. THE MODEL BEING PRINTED IS THE ROOF OF THE COTTAGE SHOWN ON PAGE 33