ENJOYING VISUAL TECHNOLOGY

NORTHSIDE CAMCORDER CLUB
SYDNEY

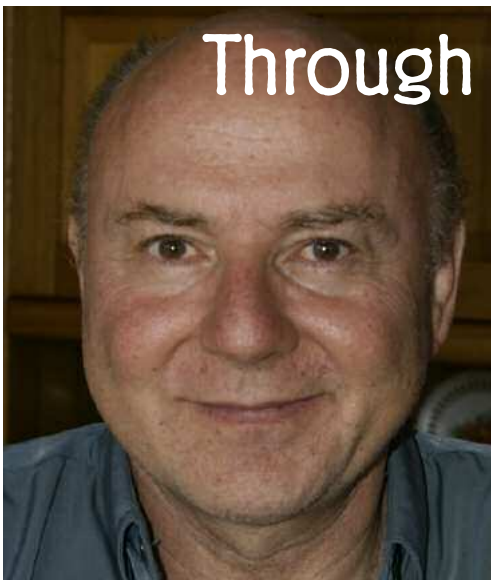
ELECTRONIC EYE
NEWSLETTER

2008

April 2008

Next Meeting
WEDNESDAY
23rd April

www.ncc.asn.au



Through the President's Lens

April offered some interesting technical topics and a social event. I hope you enjoyed the social day at Garden Island.

The Club Night will focus on the issue of finding good locations and how to get the most of the locations from two of our most experienced video makers and prize winners.

The Club Night topic is Location and Capture Lighting. Gerd Kogler, (NCC's Richard Attenborough) will discuss how he obtains those wonderful nature shots of birds and animals in the wild. It takes a lot of patience and skill. How do you know which way that animal or bird will move?

Bob Hallet who is a location expert in obtaining atmospheric outdoor scenarios, particularly for brides and grooms, will give one of his entertaining talks on how he does it and impart his skills and knowledge.

As well as these two presentations we will focus on refining our camera skills. You may have asked yourself the question, "why doesn't my camerawork look like that of the professionals?"

The answer is not a simple one but has something to do with the fact that the professionals hone their skills every day in all sorts of situations. They get lots of practice from studios to war zones. On the club night we will take you through the basic set ups and camera skills that make the difference between good quality footage and poor quality.

Please bring your camera and tripod to be in it.

Peter Frybort,
Club President

April club night - Camera Skills Session

Bring your camera, tripod and an unwrapped tape.

Task 1 - Cold Start
Task 2 - Tracking a subject - forward and backwards
Task 3 - Rock solid - hand held
Task 4 - Panning and tilting

This will be a practical session for everyone to get involved in but you must bring your gear.

SOME QUESTIONS ANSWERED ON GRAPHICS FOR VIDEOS

I have recently been asked a number of basic questions about graphics and associated things like pixels, alpha channel masks and interlacing. I thought it might be useful to put pen to paper and write down some of the answers and publish them in the EE. So here we go with a few items related to graphics for video.

PIXELS

First up is our friend the Pixel the word is a fusion of the words *picture* and *element*. Now we all know that the picture on our computer screen or modern digital TV screen is made up of lots of these little pixels neatly arranged in rows across the screen, then one under the other all the way down to the bottom. All such images are known as raster images, the raster being the arrangement of rows of pixels across and one below the other. Our digital imaging electronics continuously writes one Pixel after the other. Starts on the top row displaying each pixel from left to right, then the next row below and so on down the entire screen and of course pops up to the top and does it all again. Of course the electronics keep doing this as long as we have them turned on. The rate at which this occurs is known as the refresh rate, the faster the rate the more effectively the picture content will show changes in the pixels which create the picture content. A slow refresh rate will mean jerky picture with blurred edges on any moving object in the picture content, a rapid refresh rate improves the picture. Refresh rates are in the megacycle range, a graphics board is usually added to run the display system in conjunction with the LCD monitor. Since there are lots of pixels, in fact 786432 in a 1024x768 resolution monitor. For even a modest 25 frames a second picture update we would need to write 786432 Pixels 25 times a second, a whopping number of 19660800 or 19.6 Mhz. On “good” display boards refresh rates are usually at least 35Mhz. The system just described is known as progressive rastering.

Now our little friend the pixel has another attribute of interest, its shape. Since monitors today are rectilinear it stands to reason that the pixels will

also be rectilinear to match the aspect ratio of the intended output screen. Theoretically a pixel should be square but this not so in PAL our pixels are 1.0 unit high and 0.9 units wide. So what, it really doesn't make a lot of difference until you want to see a perfect circle. Because of the pixel distortion our circle will be oblate when we see it on screen. It is quite noticeable so when you are in Photoshop or some other graphics software drawing the circle which you intend to import into your video. Use the correction facility in your graphics software to compensate for the effect.

Interlacing is a bit of a leftover technology now since most display systems and cameras are using pixels and not interlacing lines. Analogue TV used two interlacing pictures to make one frame and our NLE had to do the same. When we wanted to grab a frame we had to ask for the two halves to be merged together by enabling the non-interlace feature. This way we got reasonable definition in the grabbed frame. Most NLEs automatically adopt interlacing if you select VHS recording, now not a lot of this is done today. Your DVD player sorts out the interlacing for you if it is attached to an old style TV so you don't need to worry about it at all when working with DVDs. Incidentally the same technology in the camera is known as progressive scan, when the captured image from the imaging chip is scanned in pixels row after row top to bottom. Same system as display rastering but in reverse.

Let's address the Alpha channel question. Now we all know that our NLE can make a composite video by placing images in multiple video tracks one above the other. Compositing assembles the final video by superimposing the upper layers on top of each lower one right down to the lowest video track. In fact the video tracks are said to be layered. If we were to "make a transparent hole' in one track then the image from the track below would show through the hole. A simple example of this is evident when we create a title. Title text is automatically put on a transparent background by the titling software and now when we place the title on the track above the main track the text is seen superimposed on the main image. In fact we see the lower track through the transparent background around out title text. The titling SW

has in fact used and alpha channel to make the transparent background around the text. Graphics programs like Photoshop also use layers in the same way so that complex composite images can be built up with one layer blocking part of the one below and so on to get the creative effect required by the user. If we want to do the same thing as the title but using more complex shapes and colours we can build our graphic in Photoshop and save it together with an alpha channel in Photoshop and when we go across to the NLE the transparency information (alpha channel) will be there and recognized by the NLE as long as we arrange our objects onto the appropriate tracks of the NLE.

Consider the following simple example which is shown in the illustration. Our final production calls for our subject to be observed with binoculars and then lined up in the telescopic sight of a rifle. First we capture our video of the subject, V1 & V2. Note that in the case of the binocular shot we use a depth of field setting to keep the background out of focus, to produce the "as seen through the binoculars" final view. In our graphics SW we draw up the shapes shown in figs 1 & 2 these are the binocular and gun-sight object views. In the graphics SW we save the images with alpha channels for the transparency required, which will be the reverse of the Fig 1 & 2 images, the chequered marking indicates transparent. Now put the images on the appropriate tracks and reveal the desired effect. You might like to use a Gaussian blur on the binocular shape to make it look a little more realistic.

There are many areas where we can use imported graphics to enhance our video presentations. These need only use basic level of graphics, able to be used by any of our readers without the need for very complex and comprehensive software or top shelf video editors. In any case the best effects at video club level usage are dependent on applied creativity not dollar investments in software. So why not experiment a bit and see what you can do.

Scotty

V1

V2

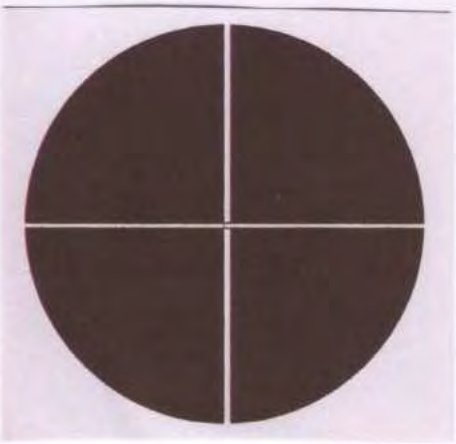


Fig 1

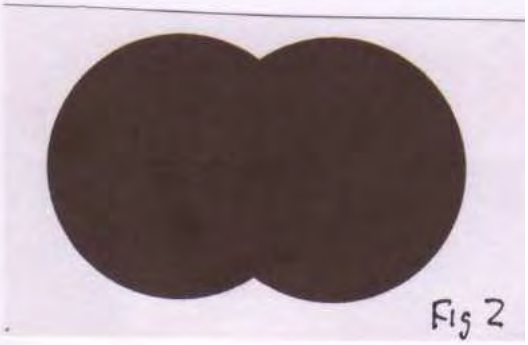


Fig 2

Composite 1

Composite 2

STAGES IN ASSEMBLY
of.
COMPOSITES.

[Editor] My apologies for accidently running February's Focus Night two months running! Here is the report from the March Focus Night that I missed, followed by this months report:

March Focus - Travel Night

Travel night is devoted to showing short films taken by members on their holidays it also provides a forum where members can discuss their camera techniques, story boarding and composition with other members and is screened on a focus night for this purpose.

March saw the screening of movies in High Definition (HD). To compare Standard Definition (SD) with high definition Kent showed a few minutes in SD then screened the same sequences in HD. The film Shark Feeding was shot in the Coral Sea at Osprey reef where we witnessed sharks in a feeding frenzy 15 meters below the surface. An interesting sequence was the shot taken showing the videographers/ photographers clinging to the surface of the reef and obvious panic on their faces showing through the face masks as reef sharks swam around them. Kent had to cut his film short when the tour operator dropped his camera equipment over the side of the rubber runabout with the total loss of a Sony high definition (HVRA1P) camera, lights and waterproof enclosure.

Ron screened a short film taken in Prague showing great street sequences with the local "buskers" and street bands showing the stuff. These sequences show the skills of the videographer as each clip is captured without pre planning or rehearsal. This short movie was also screened in HD.

Chris showed a film on the recent historical event “The Passing of Two Queens” where the two passenger ships Queen Elizabeth and Queen Mary passed each other in Sydney harbour. This was shot in AVCHD format and edited with Ulead editing software. It was interesting to see how this format compared to the previous screenings taken with and edited using professional equipment.

Jim showed part of his recent visit to Czechoslovakia and the area of Kutna Hora Some interesting internal shots of churches highlighting medieval decorations made from humane bones in low lighting conditions, together with the external architecture showing the delicate stonework on flying buttresses. The churches were started by the silver miners and then taken over by the Jesuit monks, which preserved some of the paintings and frescos on the walls. The voiceover complementing the visual images and maintaining viewer’s interest. This was shot and screened in SD.

Mike showed his first draft of the “Tale of Two Cities” I understand this is still “work in progress” the two cities being Paris and London Mike showed the difficulty in using a hand held camera on a moving platform as a lot of the sequences were shot from a moving bus.

Phil Brighton showed his film where he visited his childhood home and places where he grew up. Bill added transport museum, London Eye and boat ride down the Thames River to broaden the viewer’s interest.

Ian showed his latest trip to France and screened the segment on the Normandy Coast and the D Day landings. These sequences showing the historical locations of the landing sites and war graves, highlighted the cost and sacrifice made by the allies to defeat the Nazi government. Ian used a postcard and graphics to tell the story of the landings. The graphics were created using Corel draw saved as bitmaps then animated with liquid edition.

With the recent acquisition of the HD projector members who are migrating to HD will now be able to see their work on the big screen at club nights.

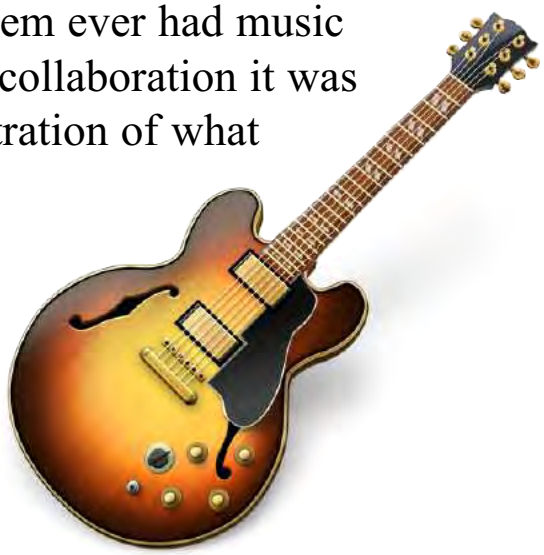
April: Mac Attack on Focus Night

There is no doubt about the dedication of those Mac lovers and I'm not talking about hamburgers. Joy Saunders our leading promoter of Macism organized an excellent presentation of "GarageBand". The word was out and we had a record turnout for a Focus night session. Our Treasurer was ecstatic; I think we even collected enough to pay for the room hire.

For those of you not in the know GarageBand is software which only runs on the Mac and enables you to do wonderful things with music arranging, mixing and so on. I could not begin to describe the possibilities of this Mac secret weapon. On the night it was very capably described to us by Gerard Anderson. He ran us through the basics in a very clear and understandable style. He certainly knows his stuff and presents it very well.

Just to add lustre to the presentation and show more of what could be done Ron Cooper pulled out his flute and played a few bars of some delightful but unknown tune. Gerard then proceeded to show how it could be altered with effects to create all sorts of different outcomes.

Now the crowning glory was a presentation by Terry Brett. He had managed to convince his resident Kookaburra at home to let him record a few bars of his famous call. Terry then added some chords from his keyboard and mixed the lot together into a very interesting and beautifully sounding combination. He still claim's that neither he nor the Kookaburra attended any rehearsals nor have either of them ever had music lessons. Whatever the true situation of their collaboration it was top class and an absolutely brilliant demonstration of what GarageBand can do.



It was a splendid evening enjoyed by all, thanks to all who contributed.

Ian Scott

Programs such as GarageBand offer thousands of pre-recorded “loops” that can be arranged, mixed, and used royalty free.

A virtual “mixing deck” is used to arrange your composition.

At the focus night, Ron Cooper tried out the GarageBand “tuner” with his flute!

Get some new gear for 2008!

Our new projector allowed us to discern between SD and HD a lot more convincingly. The need for HD Cameras is becoming more imminent having seen Chris's A/B demonstration.

And as we gravitate towards HD cameras we also seem to require computers with not only extra processing power, but ones with specific attributes. The two technologies are congruent; you can't have one without the other. But we are avid Video enthusiasts after all (enjoy the pun) and we do often set the trends here at NCC, buying a big name PC off the shelf like Acer, Dell or HP does not guarantee a fast editing machine.

With so many PC variations available I thought I should highlight some of the new trends that I look for when choosing a PC in case you too are in the market, do let me know if want one so as to get a group discount.

OS: Mr. Gates wants you to buy Vista, but Vista expends a lot of cycles just to look good, it will slow editing programs down a fair bit. So if you enjoy editing you better stay with windows XP until Windows 7 is released. I hear that Microsoft is about to release service pack 3, which will further speed up XP!

Brand: AMD is talking about a revolution in HD friendly processors that are on the horizon, but right now Intel is the chip to get.

Processor: Get Quad Core CPU, that is the power of 4 brains working in one PC, each processor handling one aspect of your session. For example "Core one" may process your OS and anti virus while "Core two and three" are busy with your editing software and so on. If you already have a recent dual Core processor and you don't edit too much then that will do, in which case remove Vista, reinstall XP and increase RAM. But if your current PC is an old P4 (as mine is 4 years old), or Celeron then you should get Quad Core, and of the vast quad array available I considered four models: Q6600, Q9450, QX9650 and QX9775.

Currently the Q6600 Quad should be a minimum new standard for us in 2008, it is cheap as it is about to be replaced with newer QX series but it works well.

CPU Speed. Our understanding of CPU speed has to change too, now that we have 4 heads doing the work of just one: things get done a lot quicker.

Its like changing to a higher gear in your car: the car travels faster but the engine revs go down so don't be too obsessed with CPU speed as there are other important parameters that influence the highly specialised editing software that we use, these are: SSE4, L2 cache and FSB. Quad core has upgraded them all.

SSE4: These are little software instructions that pertain mainly to Multimedia. SSE4 is embedded within the CPU core itself and it will automatically process certain repeated actions that are normally done by your editing software, there are 47 such instructions with quad with more to come.

L2 Cache: Extra "built in" memory on the CPU. The CPU's that are recommend herewith have had a massive increase in cache to 12 MBs.

What is FSB? "Front Side Bus" is like a regular bus that takes you from place to place. A computer is made up of many separate components; CPU, Memory, Hard Drive Graphics, Sound, etc. it needs a bus to move your project within the motherboard. If your computer has a slow FSB then your main processor will sit idle waiting for instructions to return. This bottleneck can slow down your project.

Typical FSB speeds are 800, 1066, 1333 and now 1600 MHz. But to get the fastest (1600 MHz) FSB means you have to spend big (DDR3,QX 9775,X48 chipset), simply put, it will double the price of your new rig without yielding major benefits for most of us.

It is worth mentioning that the run of the mill motherboards for 1600 MHz are still in its infancy and are mainly supported by 3rd party board makers. So I am staying with a FSB of 1333MHZ to keep the cost down.

Graphic cards: Depending on the software you use Video cards are not so critical, a mid range card is adequate as Ron suggested.

Some offer HD acceleration that can alleviate graphic chores from the main CPU and into the GPU card itself for certain decoding functions, ATI has the "Avivo HD" range while nvidia has the "Pure video".

However, for HD future proofing both Video card and your monitor should support HDCP (Intel's digital content protection) so look for that.

Conclusion: Q series processors (Q6600 in particular) have the best performance / value for money for April / may. But if you can wait till June/ July price drop then go for the newer QX series such as QX9650 (at 3 GHz and 1333 FSB), that would be my choice along with the 8800GT graphics card. Add a Blue ray burner and you are set.

As for the operating system; given the significant increase in processing power above, perhaps I might re consider Windows Vista (64 bit version). As you may have noticed from my selection I tend to select (about) the second highest model in any component range rather than the very latest, this represents a significant upgrade at a reasonable cost.

Rob Nercessian

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NORTHSIDE CAMCORDER CLUB

CLUB INFORMATION

www.ncc.asn.au

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Vice President:
Ian Scott

Secretary:
Kent Fry

Treasurer:
Elvio Favalessa

The Club meets on the ***FOURTH WEDNESDAY*** of each month (except for November & December) at 8PM at the Dougherty Centre, Victor Street, Chatswood. Tea & Coffee are available from 7PM.

FOCUS nights, which usually cover technical subjects, are held on the ***SECOND TUESDAY*** of each month (except January & December) at 7.30PM at the Dougherty Centre, Victor Street, Chatswood.

The Committee meets on the ***FIRST WEDNESDAY*** of each month. Members are always welcome to attend, and for meeting time and venue, see any committee member.

Member's guests may be invited to meetings; the first visit is free, subsequent visits are $5. New members are always welcome. Annual membership is single $56, self and spouse $76, country member $28 - with an initial joining fee of $10.

Note: Equipment brought to a Club night is not covered by the Club's insurance. Members should study their household insurance and check whether their video equipment is covered away from their premises and consider whether their cover should be extended.

Disclaimer: In regard to any products, services or procedures which are either advertised or mentioned in this newsletter, members should determine for themselves the reliability and/or suitability for their own requirements. The Northside Camcorder Club cannot accept responsibility for any product or service statements made herein, and the opinions and comments of any contributors are not necessarily those of the club of the Committee.