

WHEELS

for the
MIND



SWINBURNE STEPS OUT INTO HDTV

It's never been easy looking into the future, particularly when you have to provide the technology to make the future real. With digital high-definition television (HDTV) becoming the broadcast reference standard, Swinburne University's Faculty of Design is using Apple HD technology to help its students keep up.

Round UP

Find the fire in your music

Recording live music is always a bit tricky, but PreSonus has made the task a lot more straightforward with FirePod, an 8-port digital recording interface that interfaces with a variety of audio sources and digitally samples the music for pass-through straight to a Mac OS X based system. The high-speed FireWire Network Audio Interface offers sampling rates of up to 96Kbps, 8 discrete microphone preamps with trim controls, 8 analogue mic/line inputs, 2 instrument inputs and S/PDIF, analogue and MIDI input and output. The 48-track Cubase LE audio production application is also included, allowing direct digital recording of live music sources.

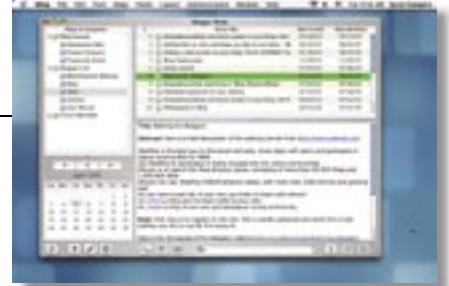
Contact Australian Audio Supplies on (02) 4388 4666 or www.ausaudio.com.au for a list of local retailers.



A blog a day keeps the doctor away

Keen to share your thoughts with the world? You need a good blogging tool. Consider iBlog, a polished blogging app that can manage multiple blogs on various topics, lets you update content using a straightforward interface, then compiles the blogs and automatically publishes them to .Mac, WebDAV, FTP and AFP and iDisk destinations. Archives are automatically managed and offered to readers through the Web site via date. Subscribe to other blogs and newsfeeds, search or sort all your blogs by date or title, and generally spend more time writing and less time fiddling.

A 2-user license of iBlog costs \$US29.95. Download a trial from www.lifli.com/Products/iBlog/main.htm.



Get rid of the shakes

Digital video cameras may make video editing easy, but their small size often leads to footage with a serious case of the shakes. Options for fixing this problem have traditionally been limited, but Pixlock's iStabilize has fixed the problem. Feed in your QuickTime, DV, MPEG4 or AVI video and tell the program a few things about your video to fix shaky motion or smooth the image path caused by video shooting in a vibrating environment or with a highly magnified zoom.

iStabilize costs \$US59. Download a trial from www.istabilize.de/index.html



Value-for-money 3D modelling

If you're into 3D but don't want to break the bank, Cheetah 2.1 is worth a look. Designed from the ground up for Mac OS X as a complete 3D rendering and modelling system, Cheetah is an inexpensive package that provides a full suite of polygon and spline editing tools as well as features like lathe, sweep, extrude, Boolean and subdivision surfaces. Models are arranged in an intuitive scene graph so tools and objects can be grouped, and there is a fully integrated raytracer offering radiosity, HDRI backgrounds, ambient occlusion, anisotropic texture filtering, bump mapping, environment mapping, reflections, refractions, soft shadows, and more.

Cheetah costs \$US69 for a single user license or \$US699 for academic site license. Buy online from www.cheetah3d.de.



Squeaky-clean audio

When shooting video, there's nothing more annoying than having an otherwise perfect shot spoiled by irritating background noise – airplanes, air conditioners, heavy wind and the like. BIAS SoundSoap 2 promises a remedy by applying a range of audio filters to audio and QuickTime video files. Recently released version 2 complements Hiss, Hum, Rumble, Preserve Voice and other filters with features such as Remove Click & Crackle and Enhance. SoundSoap is compatible with Audio Units and RTAS/AudioSuite applications, and plug-in compatible with DirectX and VST host applications including Apple GarageBand and Final Cut Pro, Digidesign Pro Tools and Sony Sound Forge.

Learn more and download a 14-day demo from www.bias-inc.com, or contact Major Music Wholesale on 1300 306 670 or www.majormusic.com.au. SoundSoap costs \$189.



From idea to image

Turning your ideas into real, demonstrable illustrations can be an exacting and time-consuming process. Cadsoft Solutions' Concepts Unlimited is aimed at speeding up that process by providing a range of tools that allow creating and rendering of graphical models, as well as precision drafting, using a range of 2D, 3D, surface and solid modelling tools. There are 17 surface construction methods, blending, chamfering, shelling, stretching, twisting, bending and more. Work with wireframes for fast development, using built-in tools to automatically create relationships between curves, surfaces, solids and other objects. A Snap feature automatically picks out important joining points on all sorts of 2D and 3D shapes. Concepts unlimited educational licenses cost \$295 of \$1995 for a 10-pack.

Learn more at www.csi-concepts.com/cupproduct.htm or by contacting Industrial Arts NZ on 64 9 578 1898 or www.industrialarts.co.nz



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Less is definitely more at Apple these days. We highlight innovative new technologies including Mac mini and iPod shuffle.

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SWINBURNE STEPS OUT - INTO HDTV

Last year marked a significant milestone for Swinburne University's School of Design, which launched new degree courses in Film & Television in the middle of the biggest upheaval in broadcast technologies – the shift to high-definition (HD) digital – since the introduction of colour TV. This change has forced Swinburne students to learn both the past and the future. But how can a university plan for and teach new technologies that aren't even fully standardised yet?

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Thinking differently about Wheels

Even the best things sometimes benefit from a new look. After many years using the same comfortable format, we have stepped outside the box to look back and make sure we are presenting Wheels to you in the most interesting and informative way.

We've made a few changes with this issue, opting for a lighter structure with more white space and more readily identifiable information about upcoming AUC happenings.

And there are a lot of them. AUC training sessions, for example, have become a significant component of our ongoing membership benefits. Several hundred attendees have already joined us for courses on Mac OS X related topics including Help Desk Administration, Directory Services, and more.

In this issue, we profile a number of people who have done the training to find out how they found the courses and how their newfound knowledge has benefited them. We will continue to offer these courses and to expand our range with relevant courses, such as the Xsan training held this month at Apple Australia's Sydney headquarters.

With so many innovations spilling out of Apple's R&D labs, there is never a lack of new Apple technology to talk about. This month, we look at the latest elements of Apple's new trend towards the miniature, with the Mac mini and iPod Shuffle among the products squeezing familiar Apple capabilities into increasingly tiny cases.

Later in the magazine, we shift from the low end to the high end to find out how Swinburne University of Technology's Faculty of Design has built a cutting-edge Mac video production laboratory to support its new Film & Television curriculum.

Among the many issues they faced was the need to train students in emerging high definition (HD) video production, an activity that requires significant investment in fast storage arrays and networks, as well as appropriate HD-capable video suites such as Final Cut Pro HD.

Finally, we talk with a number recent recipients of AUC WWDC scholarships to find out what they brought back from their time in San Francisco. These scholarships are an important component of AUC's member support benefits, and 2005 recipients will be announced shortly.

We hope you like the new look and feel of Wheels. As always, I welcome your feedback and suggestions on the new layout or on any other topic that concerns you.

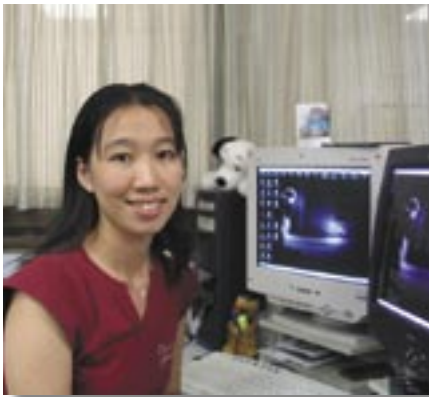
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Even for those who work with computers every day, the in-depth training provided within the AUC courses can be a great way to brush up those skills, pick up new ones, and make contacts that may last throughout your professional career.

A LITTLE

TRA GOES



Greg Preston, a computer support technician at the University of Canberra, has been attending AUC training courses for as long as the AUC has been running training courses. And, despite having more than 20 years' Apple experience under his belt, he still finds the courses reveal some little gems that reinforce the knowledge he uses to help manage the more than 600 PowerMacs that his team looks after within the university.

Even for those who work with computers every day, the in-depth training provided within the AUC courses can be a great way to brush up those skills, pick up new ones, and make contacts that may last throughout your professional career. Rank amateurs and seasoned professionals alike have been checking out the courses, and invariably walk out of the room with more than enough new knowledge to justify the investment in time and money.

Although Greg already knew much of the content in the courses, simply being able to solidify his knowledge through the courses turned out to be a big boon. "With the newer OS X versions, you tend to think that you understand what's going on when you don't," he explains. "Most



of the mistakes you see people making are because they see something they recognise, assume it works a certain way, and never realise that they're missing an awful lot. When things go wrong, they throw scripts all over the place to get it to work.

"The basic rule with Apple technology is that it always works in a very subtle way; the trick is to discover that subtle way because sometimes it's not at all obvious. This is where training has real value."

AUC training is also valuable in providing exposure to new technologies and concepts that are new enough that even experts are unlikely to have had much exposure to them. Greg, for one, is eager to get into the AUC's course on Apple's Xsan 64-bit cluster file system, and is planning a trip to Apple's WorldWide Development Conference to continue keeping the constant process of keeping his skills fresh.

Renewing the use-by date

Refreshing long-dormant skills was a key goal for Maurice Rich, a senior IT support officer in the Client Systems Support division of the University of Queensland's Information Technology Services (ITS) division. Having been certified on Macintosh support years ago, Rich found himself focused on other platforms but recently joined the AUC courses to help support a growing number of Macs being deployed across the university.

The ITS team currently supports several hundred Macs as part of 27 different service

contracts to various U of Q departments. Given the need to keep those Macs as tightly integrated with the university's overall IT infrastructure, Maurice joined the AUC's Directory Services course and found it provided great assistance in understanding how to combine Mac OS X with the university's LDAP (Lightweight Directory Access Protocol) directory service.

"The course covered all the stuff we are really interested in," Maurice recalls, "such as how LDAP works with other things, how it works within the uni, and how we can get it working with [Microsoft] Active Directory. We're fairly interested in things like single sign-on, so it was fairly interesting from that viewpoint. Before the course, my understanding of LDAP and its integration into other services wasn't the best, so I came away a bit better for that."

Although he would have liked more time during the training for practical hands-on exercises, the value that the Directory Services course provided him has encouraged Maurice to look into other AUC courses. Having jumped straight into the top end of the AUC's course offerings, he is especially keen to pursue other courses that are lower in complexity in order to further refresh his earlier desktop support skills.

Don Parsons, IT co-ordinator within the University of New England's Department of Education, Health & Professional Studies, has found AUC training equally valuable despite having nearly 15 years' experience with Macs. His favourite course so far was

TRAINING

By David Braue

A LONG WAY



Photos: Left to Right

Nang Hom

Mark Byrne

Greg Preston

Maurice Rich

Don Parsons

Help Desk Essentials, which provided real value as the department moved to roll out OS X across 170 postgraduate and staff Macs as well as 70 lab Macs.

The training “was extremely relevant,” he says. “We had to put out a lot of machines in a short amount of time, and do it [without disrupting the users]. The presenters did an excellent job, paced themselves and it wasn’t really a dry session.”

As Maurice, Don and Greg have found, the changing technology landscape demands a constant effort to keep current. That’s where AUC training, which is focused both on Apple technology and on the current requirements of member universities, can service members’ training needs better than many other training options.

“It’s the information contact [that’s valuable],” Greg explains. “The courses are a lot cheaper than sitting down with the documentation and trying to figure this stuff out the hard way. What the courses buy you is a chunk of time: they move you one or two years ahead on the learning curve, and that’s pretty big value.”

Better training, better service

For smaller universities, AUC training has been invaluable in providing a boost for support technicians that may be encountering Macs in their work for the first time. At Charles Darwin University in Darwin, technical support officer Nang Keing Hom found the AUC’s Help Desk Essentials 10.3 course to

be a lifesaver in supporting the small population of Macs that recently appeared among the more than 1700 computers that the uni’s IT section supports.

“Most staff would like to use Macs, and people are asking for them but we didn’t [really] support Macs until last year,” she says. “When I started working in this section, there was no technician to support Macs and I didn’t have any idea about them: I just knew how to turn them on and use them, but I didn’t know, for example, how to get the network working if there was a problem. After I came back, I knew where to find a solution to a problem so I started doing desktop support for the Macs.”

Several individual faculties, including the Faculties of Education, Health & Science and Law, Business & Arts, currently maintain their own small Mac labs, but a growing presence for the systems on campus will allow the IT organisation to provide more consistent support – which will be invaluable as the concentration of Macs at Charles Darwin University continues to grow in the future. For her part, Nang is looking forward to more AUC training – the ‘Tiger’ course looks particularly interesting for her – and having more practical hands-on training during the courses.

Hands-on time under the care of the instructor is, of course, one of the major benefits of any kind of training. In designing the multi-day courses, AUC trainers have had to weigh up hands-on time for experimentation against the need to keep

the program moving towards completion.

For some attendees, this may mean the training is a bit more hurried than they like, while other, more seasoned experts may find some parts slow-going. On the whole, however, positive feedback suggests the length and tone of the courses have helped them meet most attendees’ needs.

“OS X was a shift in paradigms for the Macintosh: you went from a basic simplistic system to something that has quite a bit of grunt underneath it,” recalls Mark Byrne, service desk manager within the Division of Teaching & Learning at the University of Tasmania’s Launceston campus, who spent nearly 15 years supporting Macs and now manages the service desk in the university library.

During his years, Mark has attended numerous AUC training sessions and conferences, but hadn’t been to one recently until he signed up for a recent Mac OS X Administration Basics course as a refresher: “I have found all the Mac courses that I have done to be well thought out and well presented.”

“The things that really impressed me were the little examples – where the trainer would go off and remove privileges or something else that caused the computers to do weird and wonderful things, and we would have to fix it. They were good little challenges. I found the course really good, and the information that was passed along was excellent.”

Call for conference papers

The 2005 AUC Academic & Developers Conference is scheduled for late September in Hobart. The conference theme is 'Evolution of the Species: Universities, Students and Technology'.

Academics, developers and students are encouraged to submit paper proposals; successful authors will be financially supported to attend the conference at the Wrest Point Hotel and University of Tasmania from September 25 to 28. The AUC will also be offering subsidised funding for a number of staff from each member University. See www.auc.edu.au/conf/conf05 for more information.

Show us your Dashboard

In the leadup to the launch of Mac OS X v10.4 ("Tiger"), the AUC wants to find out what development creativity is lying dormant amongst its readers. The Dashboard Widget Challenge competition is open to staff and students of AUC member universities, who are encouraged to submit their best Dashboard Widgets to be in the running for prizes including a Mac mini and iPod Mini.

Learn more about Widgets at www.apple.com/macosx/tiger/dashboard.html or see www.auc.edu.au/misc/dashboard/ for details about the competition – and act now as entries close very soon!

A milestone worth celebrating



The traditional 20th anniversary present is fine China, and it was present in abundance as the AUC celebrated its 20th anniversary with a dinner held at the Westin Hotel in Sydney. Invited delegates included past and present AUC representatives, Apple Education staff, Vice-Chancellors and IT Directors from member universities.

Talking Tiger tech

The AUC assisted over 90 staff and students in attending Apple's Tiger Tech Talk on February 3 and 4 at the University of Technology, Sydney. Feedback from the event has been extremely positive, with many attendees commenting that it was a fantastic opportunity to hear from and talk directly with the Apple engineers working on Tiger, the upcoming v10.4 of Mac OS X. Attendees came away enthused about the great opportunities that Tiger will offer developers, administrators and end users, as well as with a better knowledge of everything from Core Image to Dashboard.

Claims for TTT Scholarships covering travel, accommodation and 50% of the registration cost are still open. See www.auc.edu.au/training/tigertechtalk for more information.

X World III and the Tiger

Technical staff and system administrators will benefit from the next X World event, to be held at UTS from July 6 to 9, 2005. Based on feedback from earlier events, we aim to have Beginners and Advanced streams to cater for a wider audience. There will also be a large number of sessions about Mac OS X 10.4 ("Tiger"). More details will be available soon.

Got a minute?

We have them all. Copies of minutes and reports from recent AUC Executive, General and AUDF meetings will be posted on the AUC Web site (www.auc.edu.au) soon.

Get into the Xsan

Xsan is Apple's new 64-bit cluster file system, complementing the XServe RAID environment with a scalable file management architecture that's designed to handle the most rigorous computing tasks.

If you're involved in a high-level environment where XSan may be relevant, you will benefit from AUC's three-day Xsan Administration Training course. The AUC has given each member university one subsidised place at \$495, as well as highly discounted rates for extra students. Regional and interstate universities are also eligible for travel and accommodation subsidies for one member each to attend the training at Apple headquarters in Sydney.

See www.auc.edu.au/training/xsan for more information.

AUDF Grants for 2004/5

Thanks to everyone who promoted the AUDF Grants for 2004/5. We have received well over 50 Development Grant applications, as well as a large number of Seeding and Challenge Grants. The AUDF Committee will be working their way through the applications over the next few weeks, and we will be announcing the grant recipients soon.

Details at www.auc.edu.au when they're available.

Pack your bags for WWDC

WWDC 2005 is just around the corner, and the AUC is again offering scholarships to staff and students of member universities to make the trek to San Francisco in June.

This year, the AUC will award WWDC E-tickets and subsidies for staff and students with return domestic and international airfare, and twin-share accommodation in San Francisco for 7 days. A number of staff and students will be selected on a nationally competitive basis, and each AUC member university has also been allocated one scholarship to be used either at WWDC 2005, or at MacWorld in January 2006.

For more information, please visit www.auc.edu.au/audf/wwdc05.

Are you ready for Tiger?



World III

**Technical Training for Mac OS X System Administrators
6 to 8 July 2005
University of Technology, Sydney**

Check AUC web site in mid-April for details

Interested in presenting? Contact Andrew Jeffrey <ajeffrey@asia.apple.com>

AUC



Downsizing has become a dirty word in the corporate world, but at Apple it's recently become a way of life – for the technology, that is.



SMALLER

fast
BETTER
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While the steady flow of innovative products from Apple's R&D gurus has continued unabated over the past few months, there are some real standouts – two of which are downsized versions of popular Apple technologies. Here, we run you through the latest in Apple tech.

Mini me, meet my mini Mac

New Macs aren't quite down to the impulse buy level yet, but Apple certainly seems to be working on it. Released in January, the Mac mini takes much of what you love about Macs and crams it into a 5cm tall square box that weighs just over 1kg and measures just 16.5cm on a side.

That's tiny, but its specs aren't. With a 1.25 or 1.42GHz G4 chip inside and 32MB ATI Radeon graphics inside, the Mac mini is a more than capable multimedia machine that's been designed for usability.

Inside, you'll find the full suite of Apple multimedia applications in there in the form of Mac OS X 10.3 and iLife '05 (read on for more information on this one). There's also integrated 100Mbps Ethernet, a 56Kbps modem, a 40GB hard drive, DVD/CD-RW drive, space for an optional 54Mbps AirPort Extreme expansion card, 256MB RAM, a FireWire and two USB 2 ports, DVI and S-video outputs, and a range of family software.

The more expensive 1.42GHz model includes an 80GB hard drive. Both can be built to order with options including a SuperDrive, 1GB of RAM, AirPort Extreme Card, and internal Bluetooth module. A Kensington security lock in both machines ensures they stay where you put them.

With these specs, you may not be able to use it for professional-level video editing or real-time texture shading. Still, you may well be surprised at just how much power you get out of what is, specification-wise, basically a PowerBook G4 bundled into a tiny box. Yet while its marketing is aimed in at retail home consumers, the Mac mini's price tag of \$799-plus also makes it an extremely cost-effective option for university computer labs.

True, you need to BYO keyboard, mouse and screen to make it work (although those with enough desk space can use a KVM switch instead to share with another system). However, for many labs with existing old desktops, this hardly presents a problem – and the combination of OS X-ready hardware and solid performance means that the Mac mini is more than ready to handle the most common lab functions like Web surfing, word processing and other productivity tools.

The small size of the Mac mini opens up other possibilities. Although it doesn't run on batteries, the Mac mini nonetheless one-ups the iPod by letting students take their entire digital lives – and the computer to access those lives -- along with them. Rather than relying on a separate portable hard drive or iPod to carry content, researchers or media designers with large disk space needs could simply carry their whole computer around with them, from their home to uni and back with them. Lab managers could, theoretically, provide a number of zero-admin workstations with nothing but a screen, mouse and keyboard.

Other users might tuck a Mac mini into a corner of their existing desk, providing

a no-nonsense Web server and media storage house that's just there when it's needed. Alternatively, lab managers could store multiple disk images on a Mac mini, then bring it to service calls to have a fully networked diagnostic platform when troubleshooting is necessary.

With so much computer in such a small box, the possibilities are endless. The miniaturisation comes thanks to Apple. The rest is up to you.

The musical floppy

The huge capacity of CD-RW disks made them the obvious replacement for the floppy disk years ago, but even those disks have faded into relative obscurity given the rise and rise of USB memory drives. Able to be plugged into any PC and carry files in a rewritable, reliable form factor, such pint-sized devices have become the standard means of moving files among all university students.

Of course, the other option for students is an iPod, which functions like a portable hard drive but has the added advantage of being a great way to enjoy your favourite music as you go. Admittedly, however, they're not as easy to connect, since they require a FireWire cable and a system to plug it into.

With the launch of the iPod Shuffle, Apple has found a useful medium ground that combines the ease-of-use of a conventional USB memory drive with the music-playing credentials of the iPod. You can not only use the iPod Shuffle to carry your files

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around, but can listen to music while you're walking between lectures. It automatically skips around the onboard MP3 and AAC files, reorganising your music in random order to add a bit of variety.

Weighing just 22g and available in \$149 512MB and \$229 1GB flavours, the iPod Shuffle works like the myriad MP3/flash drives available today, but with a few differences. First, the 12-hour battery is rechargeable via the USB port, rather than requiring separate AAA batteries. Secondly, its integration with iTunes means you can keep it randomly stocked with songs from playlists. Third, it includes a control that lets you specify how much of the storage space should be used for music and how much for data; this is invaluable so you don't get carried away with the music and run out of critical space for your documents.

Improve your iWork/iLife balance

The latest from Apple's R&D Central isn't just about making existing technologies smaller; Apple is also working to make them better. Two major upgrades to Apple's lifestyle suites – iLife '05 and iWork '05 – do just this by building out the functionality of already robust and industry-leading software.

iPhoto 5, for one, include advanced editing tools including adjustment of exposure, black and white balance, tint, colour temperature, sharpness, histogram adjustment and new straightening. RAW photo support is built into every part of the

application, and a new advanced slideshow builder gives better control over slideshows.

In the new iteration of iLife, iMovie has been replaced with iMovie HD, an upgrade that combines the ease of use of iMovie with support for HD and MPEG-4 videos. Once those videos are in the computer, you can work with them in iMovie or pass them to iDVD 5, which includes features such as moving drop zones – which run moving clips across DVD menus – and OneStep DVD, which automatically makes a DVD after the user plugs in their video camera.

There's also iTunes 4.7.1 and GarageBand 2, which brings to the mix new features such as 8-track recording, pitch and timing correction, and real-time musical notation as well as a broader range of Jam Pack expansion packs (the latest is Jam Pack 4: Symphony Orchestra).

While iLife '05 feeds your creative side, iWork '05 will do the same for your productivity urge. Added to this new version is Pages, a new word processor that combines dynamic text flow with a broad range of templates for graphics, text, photos, tables, and charts. Support for multiple columns, footnotes, table of contents, styles, dynamic text wrapping and alignment guides complement Mac OS X's built-in typography features to provide an all-in-one productivity tool that breathes life into today's tired productivity offerings.

Also bundled in iWork '05 is Keynote 2, an updated version of Apple's presentation software that includes new slide animations to synchronise the movement of multiple objects, as well as a build-in media browser, 20 pre-built

themes, support for a second monitor, and more. Both iWork applications offer bidirectional compatibility with Microsoft Word and PowerPoint, and Keynote 2 can export presentations to Macromedia Flash for effortless online publishing.

PowerBooks get even more power

More power for less money? Absolutely. Announced at the end of January, the five models in Apple's lineup now run at up to 1.67GHz with faster hard drives and an 8x SuperDrive. All models also include standard 512MB RAM, faster graphics, integrated 802.11g Airport Extreme and Bluetooth 2.0 wireless, Mac OS X 10.3 'Panther', iLife '05 and innovations including the scrolling TrackPad and Sudden Motion Sensor.

These last two features alone can make mobility a little easier for anyone. Touch the TrackPad with two fingers instead of one, and you can quickly scroll or pan across the display window. The Sudden Motion Sensor incorporates an accelerometer that detects if the PowerBook is accidentally dropped and parks the hard drive head before it hits the ground. All models now also include the backlit keyboard with ambient light sensors for working in low-light conditions.

Specifications for the new models range from a 1.5GHz, 60GB PowerBook with 12" screen and DVD-ROM/CD-RW drive (\$2399) through to the 1.67GHz 100GB model with 17" widescreen display (\$4299) with 8x SuperDrive, Gigabit Ethernet and every other feature you can think of. See www.apple.com.au/powerbook for details.

SWINBURNE Steps OUT - INTO HDTV

By David Braue

The shift from conventional analogue to widescreen, digital high-definition television (HDTV) is said by many to be as dramatic a change as the introduction of colour TV nearly thirty years ago.



Astoundingly sharp images, more versatile delivery methods and seamless integration with desktop PC editing suites had combined to produce a video standard that's clearly set to knock out the incumbent within a few short years.

Facing this reality, however, has proved a challenge for Swinburne University of Technology's Faculty of Design, which has faced a steep learning curve as it plans the right video editing technology to support its new Film & Television curriculum.

The course, which welcomed its first cohort of 40 undergraduates in 2004 and added an additional 49 this year, is a multi-disciplinary partnership with industry designed to give students a range of usable skills for film and television production. Rather than relying on expensive standalone video editing tools such as Avid Media Composer, the Faculty uses a variety of Apple technologies to handle all facets of video editing and manipulation on media ranging from Super 16 film to full-resolution HDTV video.

In an industry undergoing such rapid technological change, the lag time between students' starting and finishing their degrees has turned into a novel problem for Stephen Huxley, director of the Film and Television program and Academic Leader of Multimedia Design within the faculty.

"There's been a good anticipation of what's coming, and we've made some very good

decisions about how we roll out and test this technology," says Huxley. "Before we even looked at the technology, we knew digital was just on the horizon – so why buy the old but proven technology? We made the decision to go digital."

Finding the right balance between current and future digital technologies, however, wasn't easy. While planning the technology to support the new course, Huxley and his peers had to both address current industry-relevant methods of video production, and deliver HDTV training -- despite the fact that standards for handling HD video are still evolving and basic equipment such as video cameras are still prohibitively expensive.

The tech behind HD

Buried in a basement of the Faculty of Design is the program's main computer lab, where 25 dual-processor 2GHz and 2.5GHz PowerMac G5 desktop PCs hum quietly underneath countertops dotted with 19" flat displays. A standalone editing suite, installed in an adjacent sound-proofed room, includes a complete Final Cut Pro HD and surround sound setup as well as five 2.5GHz Power Mac G5s available to assist with intensive number-crunching tasks.

Major rendering jobs can be split between the laboratory computers to work in parallel if necessary. Three digital HD video cameras stand at attention on one side of the room, wired up to mobile monitor and video

recording carts that help students output their projects onto a variety of formats. Installed applications include Final Cut Pro HD, ProTools, Adobe Photoshop, AfterEffects and related tools, Macromedia Dreamweaver and related tools, and niche applications like Alias Maya and Toon Boom Studio.

The choice of the Mac desktops rather than traditional editing suites was dictated by quality, cost and scalability, says James Verdon, program coordinator for the Film & Television program and a lecturer in postgraduate multimedia design.

"We had an Avid setup here but it trips over itself," he explains. "We have found the whole functionality of the Mac, and its high levels of productivity, have really been paramount to the way we operate – and that's across all the disciplines within the Faculty of Design.

"Obviously, there are also financial imperatives: even if the Mac can do 90 percent of what the industry is doing, we can get 10 of these boxes rather than one Avid Media Composer – so we're going to do that because we can generate more work. We can implement a system where every student gets more hands-on hours while still becoming relevant. And, with OS X maturing, we can install and run a set of standard applications as an environment and give students things that are really relevant to their careers."

While the Power Mac G5 desktops have proved adept at handling students' video



Photos:

Left: James Verdon shows off Swinburne's HD-equipped editing suite
Above: Stephen Huxley (left), Warren Hack (right) and James Verdon (middle)

projects, the faculty faces another challenge as it works to fully HD-enable the laboratory. Namely, HD video is tremendously large and handling it is a significant drain on processor resources: two hours of HD video can easily consume 50GB or more of disk space. Rendering the 1920x1080 pixel frames requires considerable number-crunching power, while shuttling files between workstation and central server puts immense strain on traditional network backbones.

Configuring a network to support fast transfer of HD video to a single workstation may be possible, but multiply that by 25 and you've got a significant technical problem. Swinburne is in the process of rolling out Category 6 cabling throughout the laboratory, and plans to run Fibre Channel communications that are hoped to move multiple gigabytes per second of aggregate information to the lab's desktops.

On the back end, Swinburne runs HP servers – the university standard – backed by a massive RAID storage system that's accessed by the laboratory desktops. Novell NetWare, Swinburne's standard network operating system, provides student access to individual storage areas, but these are so small as to be out of the question for storing any amount of HD video.

The exact storage capacity required to enable high-volume HD editing is still becoming clear, but a fast and redundant design, required for quick and easy student access,

has been driving the force, says Warren Hack, technical officer for student support at the Faculty of Design and the man responsible for figuring out how to manage and deliver a growing volume of student HD projects.

"Once we start adding faster switching technologies into the network fabric, we run into extensive configuration changes and that's a fair jump in terms of funding," says Warren. "Particularly with students that are just learning, you can't expect them not to make mistakes, so you need to provide them with a redundant environment that allows them to do that."

Likely compromises include installing several local RAID arrays to provide HD-appropriate storage shared between just a few machines. That way, a common scratch drive could be used to support rendering and other activities, while still giving students their own HD video repositories with enough space to be usable.

In step with industry

As one of a handful of similar programs in Australia, Swinburne's film and television venture has already become a breeding ground for the broadcast video and film specialists of tomorrow. Partnerships with other Swinburne schools, such as Business and Life Sciences, provide necessary complementary skills, and a broad variety of other joint venture agreements give students access to complementary expertise that will allow them to pursue specialties

such as cinematography, sound production, animation and the like.

As the program matures, so too will the technology the students can access. HD video cameras, of course, will begin appearing in larger numbers as their price comes down. Also on the wish list for the future are more esoteric tools such as 23" Apple Cinema Displays – a luxury for most current computer users but a necessity when dealing with 1920x1024-pixel HD video that simply cannot be displayed at true size on conventional monitors. "You always want more screen real estate," says Verdon.

By respecting the past while looking towards the future, the planning and technical teams are set to give students the grounding in video production they can use now, and the understanding of HD technologies they will need in the near future.

"The Faculty has been digitally focussed for many years, and we are always careful to balance budgets against technology requirements," says Stephen. "What we're after is creativity and productivity, and we can't afford to be non-productive. We're being very proactive underneath; it's considered investment because we need to make sure the product students are getting is something that would be commensurate with what they will get in the industry. You're only cutting edge for three months, but we feel we have made an astute decision for now and into the future.



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AUC SCHOLARSHIPS RECOGNISE

Student

INNOVATION

The AUC's efforts to promote the creative and often unrecognised efforts of students have paid off this year, with the awarding of three inaugural AUC Student Scholarships supporting three promising uni students and paving the way for a possible internship with Apple in the US.

Recipients come from across Australia and are each pursuing different areas of study related to their personal interests. Receipt of the scholarships – which include a 15" PowerBook, iSight camera, .MAC subscription, carry bag, ADC Student Membership, CodeWarrior and Xcode development tools as well as attendance at WWDC and the AUC Conference for the next 2 years -- will support their current efforts and give them valuable exposure to the technologies upon which they will rely in the future.

Wade Tregasakis, a La Trobe University student currently in the fourth year of his five-year combined Computer Science and Electronic Engineering course, hopes his exposure to Apple development expertise will provide new perspectives on his area of interest: peer-to-peer networking, security, and trusted internetworking, particularly across desktop platforms.

Tregasakis, who previously received an AUC Seeding Grant to support his work on building a distributed processing system, will use the scholarship to continue his work in this area. His projects included an International Space Station mission control simulator that distributed content between Linux or Mac OS X servers and more than a dozen client systems, and a more generic framework for distributed computing that builds on his work during the Seeding Grant.

"The social aspect of going to the AUC conference, meeting people, and working with the people in the AUC has significant interest for me," Wade says. "The equipment is great, particularly me being a typical poor student, but my interest is mainly in regards to hooking up with other developers. I've talked with the other recipients of the

scholarship, and one of them is working on a project on which we might collaborate."

Brett Brooks, a PhD student at Central Queensland University in Rockhampton, is equally excited about receiving one of the AUC Student Scholarships. Specialising in the areas of groupware and collaboration, Brooks is focusing on the interfaces of online meetings to improve the natural interaction among large online groups. For example, an intelligent videoconferencing system might monitor sound levels during a multi-participant videoconference, shifting the focus of the user interface to reflect which people are talking at any given time.

Brett is building the collaboration system on top of the open-source Access Grid software. He develops under Mac OS X but builds the applications to run under Linux/Unix platforms as well.

A recipient of WWDC Scholarships in 2000 and 2003, Brett is well acquainted with the value of AUC support. He's eager both to access the new hardware and software that comes with the AUC Student Scholarship, and also to get back to Cupertino this year for WWDC 2005.

"The first year I went, it was completely mind-blowing," he recalls. "I floated around and looked at everything, and that got me heaps more interested in Mac development. The second time, I knew a bit more and was more specific in the areas I chose to go to. The resources this scholarship provides will open a lot more doors; I can't wait."

The third scholarship recipient is Ashley Butterworth, an Honours student in Computer Science at the University of NSW. Ashley has been developing on the Mac since OS 7 was the state-of-the-art, and is currently involved in a variety of projects including Audio Nomad, a sound processing system that recognises the orientation of a person's head and adjusts the sound it produces accordingly. Among other features, Audio Nomad includes a tool for converting Geostationary Positioning Satellite (GPS)



Photos: Above: Brett Brooks;
Below: Ashley Butterworth



signals and compass readings to measure position, pitch and roll.

Ashley's scholarship award is related to another project he's been working on, which involves the creation of a VHDL (Very High Speed IC Hardware Description Language) simulator for Mac OS X. VHDL is used by electronics engineers to design and test the operation of integrated circuits, and Ashley's application will fill a functional gap in existing software by providing what he envisions as a free, easy to use but highly capable simulator.

"I'm a bit of a hardware engineer as well as a developer, and it's a tool that I have really been needing for quite a while," says Ashley, who plans to build the system under Mac OS X on top of open-source GHDL libraries. "Universities use VHDL in many electronics courses, and it will be useful to any hardware engineers that want to do circuit designs for chips. It will be nice to have the latest technology [thanks to the AUC scholarship], and the extra access to things that the AUC offers will provide that little bit more to get better quality with more features that work better."

The AUC would like to thank Dr Kevin Suffern, of the University of Technology, Sydney, who will serve as the students' mentor throughout the scholarship program. Dr Suffern has a keen interest in the Macintosh development community, has written various ray tracing software, has written many papers and has presented at conferences internationally. He is looking forward to working with the students to maximise the value they obtain from the two-year scholarships.

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You might sleep on the footpath to get good seats for your favourite band, but never would you expect to see a die-hard geek lining up the night before to get a front row seat to a MacWorld keynote.

Almost worth sleeping out for



Nonetheless, after leaving the 21st Amendment Bar on the first day of MacWorld, that was exactly what I found. There he was: a young Mac user, huddled up in front of the Moscone Centre, PowerBook in hand and a few extra layers covering his body in preparation for what was to be a cold night.

I had seen this type of hysteria at previous Apple events – namely, the World Wide Developers Conference – and read about it on the ‘net. However, I thought that MacWorld, being basically a trade conference, would be void of such fans. Thankfully it was not, as the eager fans add much to the atmosphere of the event.

For my part, I wasn’t prepared to brave the cold night on the streets and instead arrived around 6:30am for the 9:30am keynote. I managed to secure a good place in the well established line and watched a film on my PowerBook whilst waiting to be let into the main hall. Steve Jobs’ keynote was delivered in typical Jobs style, complete with a video conference, a few pokes at Microsoft, a pair of jeans and some cool new Apple hardware and software.

Fronting the eager crowd were the latest in Apple’s product lineup: iWork, iLife 05, iPod Shuffle and the Mac mini. Each product was received well by the crowd, and Steve Jobs managed to recover from a computer crash more competently than his rival Bill Gates had done at CES the previous week. Indeed,

he was able to turn it into a joke, a credit to his skills as a speaker.

The following day (Wednesday) was the start of the MacIT track, and I hit the ground running with my first visit to the MacWorld floor. It was packed full of vendors from around the globe, happy to be besieged by many a Mac user buying all manner of gadget. After lunch I headed to my first MacIT session, run by a well known Australian IT Manager, Steven Doyle, who spoke to a packed room about Workgroup Management for Workgroup Managers.

Steven is an excellent speaker who showed many in the crowd how Apple technology really can lower your TCO, with small numbers of staff managing a large base of computers. Especially interesting was his help-desk system, developed in-house, and this drew quite a bit of interest from the crowd.

After Steven’s talk I attended XSan: Expand your storage and blow your mind. It was interesting to hear about Apple’s continuing improvement in this area, but the session was a little thin on technical details. The following day I spent at two Directory Services classes. Both were informative, in depth and void of some of the Apple Marketing that can creep into other sessions.

Unfortunately by this time I had caught the flu and was starting on my downward spiral of sickness – and this, even though I’d opted

out of sleeping on the cold concrete before the keynote!

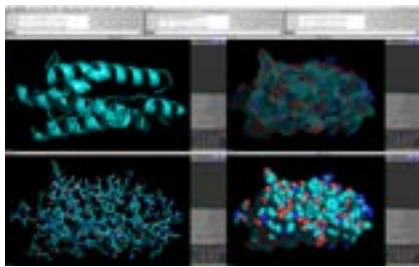
The final day I was quite unwell, but managed to make it to a useful session on Remote Desktop before I finally bit the bullet and saw a doctor at the local hospital. The crowds had slowed somewhat on the last day – or, rather, seemed to have moved to the Apple Store up the street, where lines out the door had become a daily occurrence after the keynote. It was not uncommon to see people leaving the store with up to ten iPods in hand (20 carpieces, 2 ears; go figure: ed.)

So what did I think of MacWorld ‘05? Well, it was OK.

I learned a few things from some of the MacWorld sessions and these will be looked into for implementation in my department. However, as a Senior Systems Administrator in a large multi-platform environment (over 1500 seats), I must confess that I found the MacIT sessions too light on detail and scope.

Having been to WWDC in the past, I found that a more rewarding experience. As a more consumer focused conference, MacWorld certainly had a friendly crowd and a few interesting things to see. It didn’t provide the in-depth resources and knowledge base I found at X-World II or WWDC – but I should point out that for most of the attendees crowding the vendors and stalls, this didn’t seem to matter one whit.

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