

MIND

Wheels for the

RAGE

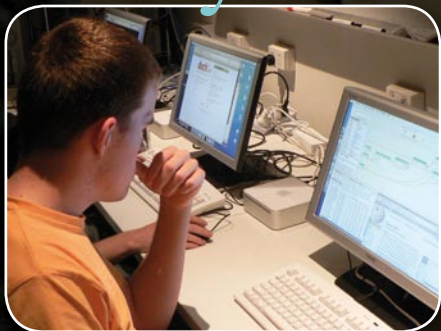
AGAINST THE MACHINE



PLAYING FOR THE WORLD



enough for **MAC** everyone



WIN AN IPOD SHUFFLE



WA Screen Academy goes miniature



FREE COPY



YOUR FINGER ON THE BUTTON

Just when you thought options for new input devices had been exhausted, Logitech comes along and offers a completely new way for Mac users to speed their use of Photoshop, Illustrator, InDesign, or myriad other software tools. Logitech's NuLOOQ navigator is a circular handheld device whose buttons and circular dial allow easy access to up to 72 of your favourite application commands. This might range from adjusting kerning in one application to adjusting the volume in iTunes; buttons are fully customisable, or you can download optimised 'tool dial sets' from Logitech's Web page to cater for a number of particular user types.

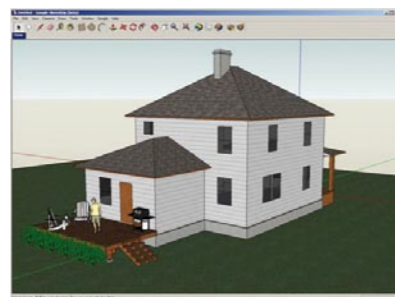
The NuLOOQ isn't sold in Australia yet, but you can buy it online for retail prices starting at \$US79.99. You'll have to pretend to be American to learn more about this unique Mac tool by visiting www.logitech.com/index.cfm?countryid=19&languageid=1.



A NEW VOICE FOR MAC OS X

The explosion in podcasting use has opened up new methods for distributing music, but AssistiveWare has taken the concept a step further with the combination of VisioVoice and InfoVox iVox, which provide new methods for visually impaired users to interact with Mac OS X. VisioVoice not only provides the usual magnifiers and large interface elements, but also includes the ability to convert text, Word, HTML, PDF and RTF files into audio files or iTunes tracks ready for download to an iPod. The bundled iVox provides a number of voices that can be used with Speech Manager compatible applications including TextEdit, Preview, Acrobat Reader, Proloquo and AppleWorks.

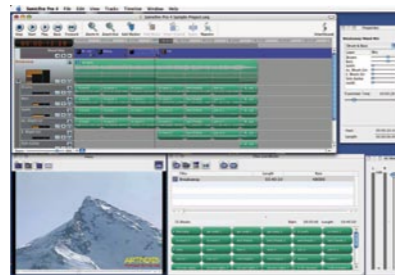
Visit www.assistiveware.com or contact Spectronics on (07) 3808 6833.



WHEN DETAILS ARE SKETCHY

It may be only a small part of Google's plans for world domination, but SketchUp has proved itself to be an elegant tool for developing 3D models of all kinds. Recently released in a Mac version, SketchUp lets you choose 3D components from a library of pre-drawn components, try different combinations of textures, colours and shadows. Once you're finished, you can link your creations into the real world using Google Earth 4, or publish them into the global 3D Warehouse for others to use. The free version stops there, but the \$US495 commercially licensed SketchUp Pro goes much further with features like CAD and renderer integration, real-time shadows, specialised tools for modelling organic shapes and camera placement, scripting add-ons and large-format printing.

Visit <http://sketchup.google.com> to download the free version and learn more.



VIDEO SCORES, THE WAY YOU WANT THEM

Pulling together that video and need a jazzy jingle in a flash? If you don't know your way around GarageBand and don't have the time to fuss with Logic Pro, you may want to look into SmartSound Sonicfire Pro 4, a sound scoring program that can whip up novel music using combinations of royalty-free music. Load your video track, then try out different combinations of music until you like what you hear. New in this version are multi-layered audio to provide highly granular control of music elements, as well as a new Mood Mapping feature that tailors the music to suit the type of action in the video. Prices range from \$US199 to \$US799 for five different versions.

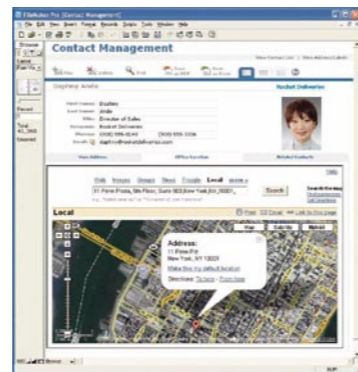
Visit www.smartsound.com or contact Smart Digital Australia on 1300 365 015 (east coast) or Edit Solutions on (08) 9228 2150 (Perth).



VIDEO TO THE CORE

Billed as the first Core Image and Video application for Mac OS X 10.4 'Tiger', Stone Design's Videator was designed to drop advanced video effects into the laps of even relative newbies. The Core Image and Core Video-aware application provides 100 native effects and filters for DV video, nine custom Core Image Unit plugins, linking of effects and objects to produce novel effects combinations, integration with Stone's popular iMaginator as well as iPhoto and iTunes, MIDI and music support, and easy production of podcasts. And, at \$US49, it won't break the bank.

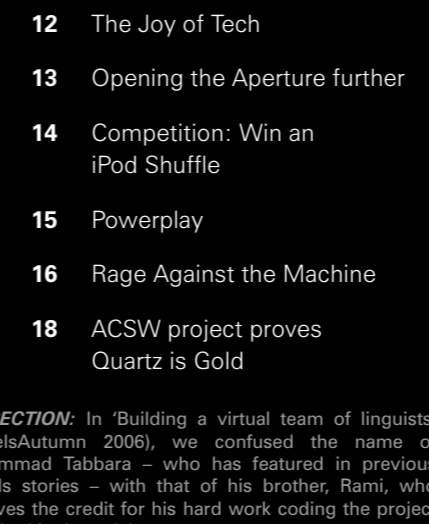
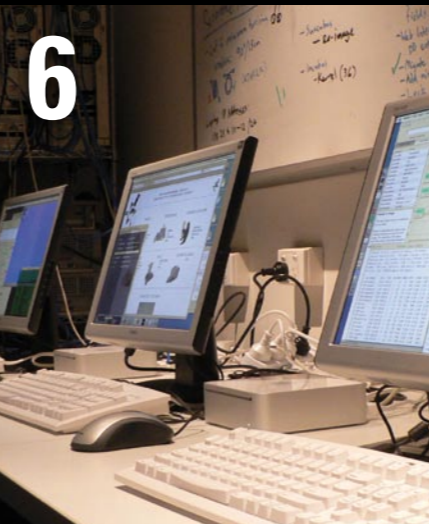
Visit www.stone.com/Videator for more information and to download the demo.



FILEMAKER TAKES THE WEB ONBOARD

If you're big on FileMaker, you'll want to look into the latest version, 8.5, which in its Universal Binary format offers significant speed boosts and a host of new features. Foremost among those features is Web Viewer, a new layout object that uses data in the FileMaker form to feed a Web query and show the results; this is invaluable in, for example, showing the address of a company or plotting research data using an online mapping service. In an improvement from the previous version, these views can be displayed side by side with other views. There's also better control over layout object names, a new online Learning Center, and a host of other improvements that should make this update appealing for FileMaker users.

Visit www.filemaker.com.au for more information.



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CORRECTION: In 'Building a virtual team of linguists' (WheelsAutumn 2006), we confused the name of Mohammad Tabbara - who has featured in previous Wheels stories - with that of his brother, Rami, who deserves the credit for his hard work coding the project described in the article.

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I have always pondered the fact that Technology is probably the only field where there is a relentless drive to make things smaller and larger at the same time.

The newly released clip-on iPods and 24" iMacs are a good example of this. The content required to supply each of these formats has to be tuned for optimum performance on both.

This was the recent aim of the WA Screen Academy in producing 'mobisodes' - a new lucrative market opening up to content providers for the portable screen, iPods and mobile phones in this case. In this edition you will read how John Rapsey's students turned their creative talents to producing eighteen of these and set the mark for others to follow in this fledgling market. It doesn't take much of a leap of the imagination to see how short, small and smart learning 'edusodes' could be applied to pocket screens in Education.

This expanding-yet-contracting phenomena is not just apparent on the surface. Inside the box, new multi-processor architectures are being squeezed into smaller spaces and are having a huge impact on the gaming world. James Bekkema an honours student at Charles Sturt University talks about his development of RAGE, a Java based games engine that takes full advantage of these new developments with the help of an AUC grant.

But size isn't everything and rarely replaces enthusiasm. Read how programming-mad students at UTS get together to develop their excellence, which they are happy to share across Australia's university sector. You'll find these articles and more in this Summer edition - and remember that I'm always eager to hear what your particular university is doing in applying Apple technologies in education.

It's also with pleasure that we can announce the inaugural winner of the iPod crossword competition. Congratulations to Rochelle Whitty from Victoria. There's another iPod to win in this edition and the clues are threaded through this magazine - so get your pencils ready as you read and you might just be the next proud new owner of an iPod.

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AUC UPDATE

To MacWorld and beyond

The AUC's annual MacWorld scholarships have been well received by the academic community, so we're accepting applications for the 2007 MacWorld Conference & Expo.

These competitive scholarships are open to university staff who want to attend the annual event, to be held at San Francisco's Moscone Center from January 8 to 12. This year's expanded expo will extend into new areas of the Moscone Center with 'Digital Lifestyle Experience' areas focused on digital photography, digital video and digital music and sound.

The deadline for applications is the end of October.

Visit the AUC Web site (www.auc.edu.au) for more information on applying.

The world according to X

The fourth annual X World training event, held from 5 to 7 July at University of Technology Sydney, was a big success, with 183 attendees and a full roster of workshops highlighting the strong interest in the event and in Mac OS X 10.4 'Tiger'.

Keynote presentations from Todd Daley of Apple in the US, and Chris Pearson of Comic Life maker Plasq were well received. The third intended speaker, Mike Bartosh, tragically passed away in an accident in Japan before the event; the AUC has donated \$US1000 to a scholarship fund set up in his name.

The AUC was pleased to note that 46 percent of X World attendees were attending for the first time, providing greater exposure for AUC contacts and new opportunities for networking amongst attendees. These opportunities were explored extensively both throughout the event, and at special events such as the conference dinner at Nicks Bar & Grill at the King Street Wharf.

Based on feedback from attendees, the event is growing increasingly popular, with many suggesting a longer conference and even more workshops. The AUC is taking this feedback into consideration in planning X World 2007, and look forward to seeing you there!

Putting tech in your hands

The AUC has long provided evaluation units of the latest Apple technologies, and we are expanding those programs with the three latest equipment offers:

- The Classroom-In-A-Box (CIAB), which includes more than a dozen Apple notebooks and associated networking gear to support a temporary classroom anywhere, has proved so popular that we are setting up a second CIAB. This will allow more universities to take advantage of this unique offer to support temporary classroom learning across Australia.
- The AUC HD editing suite, which provides a Sony HD camera and large hard disk as well as a video-capable notebook, has been upgraded to include a 17-inch MacBook Pro as well as the latest Universal Binary version of Final Cut Pro Studio.
- For those interested in podcasting and videocasting, we have a number of 30G video iPods available for loan to AUC students and staff. These are not the units announced in September but are the previous model, yet offer more than enough capabilities to tantalise those interested in getting serious about podcasting.

Creative Training

Creative types will want to consider dropping into Griffith University's Southbank, Brisbane campus on December 5 and 6, when the AUC will host the inaugural CreateWorld training and professional development course. Intended for those interested in graphical arts, photography, podcasting, illustration and the like, the 2-day event will include extensive hands-on training to help you make the most of your Mac.

Get new itunes card for weekend

HONE YOUR SKILLS

The AUC continues to expand its training and educational program, with a roster that is increasing according to demand and key focus areas. In the November-December timeframe, the AUC will offer courses in development tools including:

- REALbasic, a cross-platform development environment that recently shipped in a new Universal Binary version for Mac users (see www.realsoftware.com). REALbasic applications can be compiled without modification for Windows, Mac OS X and Linux users, providing great opportunities for developers wanting to reach a broad spread of academic users.
- Ruby on Rails (www.rubyonrails.org), the open-source Web application framework that allows easy development of hosted online applications.
- WebObjects, a robust application development training course, dates to be determined.

Visit www.auc.edu.au for more information as it's available.

The AUC will also offer a number of training programs for staff at member universities. These include:

- Podcasting & Streaming Internet Media
- Mac OS X for Windows Administrators
- Mac OS X Server Command Line Install & Configuration

These courses will run from October through to late November in Brisbane, Sydney, Melbourne, Adelaide & Perth. Each university has two subsidised places available per course and can send extras at standard cost if required. The AUC is also offering a financial subsidy to assist subsidised attendees from regional universities with airfares and accommodation. Visit <http://www.auc.edu.au/training/q42006/> for more information and to register.

The UTS
Programmers'
Society wants
to give its
members access
to its Mac
resources from
anywhere, as
David Braue
finds out.



ENOUGH MAC FOR EVERYONE

What do you do when you and your mates can't get access to the latest computing technology? Start your own club, of course, as the founders of the University of Technology Sydney Programmers' Society (UTSPS) did more than a decade ago.

Faced with the frustration of being unable to access relatively new technologies at a university where computing science was still struggling to establish itself as a discipline, the first cohort of UTSPS members formed a collective of like-minded individuals at the university in the early 1990s.

Their goal: to share development tips, collaborate on projects, and offer a development centre of excellence on which other university figures can – and do – regularly call. "It's a good way to stay in touch with various students and what's going on technologically," says PR officer Andrew Halliday.

"We have a lot of academics coming to us looking for help on research projects, and the society provides a network by which people who are programming can talk to other people in industry and other subjects."

The society, which now counts nearly 200 active members, operates from a room at UTS populated with 14 Macs of various configurations, ranging from old workstations to the latest additions – 3 Intel-based Mac minis, half funded by a grant from Apple Computer Australia.

As a programming society, the UTSPS's dedication to Macs is a bit unusual in a large, technical university where Linux is often favoured among hardcore development types. Yet while the group was dominated by long-time Debian Linux fans in its early years, Halliday says the past few years have seen Macs quickly take over as the favourite of the society's members.

"We have a lot of people who are interested in not just programming actual software, but in systems development as well," he explains. "We decided to go down this road because a lot of people had decided to switch to Macs after Apple brought out more interesting hardware and software in the last few years."

That "more interesting" equipment is now supporting a radical plan for UTSPS, which wants to open its computing resources to

more people by offering remote access to its network. Such access will allow members to get online at any time to compile, test and post their projects on a dedicated Mac Web server.

The plan has garnered considerable interest, and is one of many areas being worked on by a group of programmers so dedicated to their work that they sent, using AUC scholarship funding, a representative to Apple's Worldwide Developers Conference every year from 2002 to 2005. Each year, those student representatives made good use of their time overseas, says Halliday, and brought back extensive knowledge to share with their peers.

Other projects range from internal competitions like the Robocode virtual robot battle, to collaboratively creating complex new algorithms to solve particular problems.

"It just really depends on what people feel like doing," says Halliday. "The whole idea is to give students, in particular, resources so they can play and be creative without having to worry about bringing down a Uni server. It also gives them access to people that are knowledgeable and can give them inspiration and assistance when they screw up."

UTS gets Logic-al

For all the music skills and resources found in the average university today, there is often scant little knowledge on how to use the technology to its fullest.

At the University of Technology Sydney (UTS), recognition of this fact has led a small group of instructors to introduce Australia-first training in Apple Logic Pro, offering audio professionals an unrivalled opportunity to gain or refine their skills in a manufacturer-approved training course.

Logic Pro training has been thin on the ground in Australia, with the few training courses available typically run as part of other audio education streams. Last year, this relative paucity led trainers within the UTS Faculty of Humanities and Social Sciences to expand their fledgling audio training school, Sound Base (www.proaudiotraining.com.au), in new directions.

Sound Base was already offering out-of-semester training in DigiDesign ProTools, catering for audio professionals and making better use of expensive university resources that were otherwise sitting idle throughout the semester breaks.

Recognising the growing popularity of Logic Pro 7, Media Centre manager James Hurley approached Apple about establishing a centre for training on the high-end package. Support from the AUC enabled the facility to acquire ten Logic Pro licenses, which were installed on the group's training workstations.

"We have the facilities, so we might as well do this," says Hurley.

"Universities only run 30 weeks a year of coursework, so there's a lot of downtime that needs to be used up. No one can afford this equipment themselves anymore – installing sound studios and video gear and so on is very expensive – so this is a good opportunity for people working in the industry, or people who already have the skills but need the software skills."

The first two courses, run in February and July as three-day seminars, covered a range of topics suitable to intermediate and advanced audio technicians.

Initial response to the course – which required UTS staff to go through Apple's Train the Trainer courses – has been moderate. However, Hurley believes growing interest in Logic Pro, and greater awareness of Sound Base's offerings, will generate more interest over time.

The next Logic Pro training will run after the November exam period, and an advanced Final Cut Pro course is likely to be next on the cards: "We've been getting a few requests per week", says Hurley. "Manufacturer accredited training has been seen as a must-have in the US, but there has been a slower takeup in Australia. Once people have done it, they absolutely see the value of it."



PLAYING FOR THE WORLD

“Although it started out as an experiment, the runaway success of the podcasting project has quickly produced major changes in other ways.”

Queensland Conservatorium students are podcasting their works to nearly a million listeners every month – driving a teaching revolution in the process. David Braue explains.

Feeling performance pressure when it comes to your end-of-term assessments? Spare a thought for the students at the Queensland Conservatorium, where adoption of podcasting and the publishing of live concerts via Apple iTunes has exposed them to an audience of nearly 1 million listeners from around the world every month – and significantly changed their curriculum in the process.

The podcasts are being broadcast live via iTunes at regular intervals, then made available via a Creative Commons license for later download. That means people who miss the live broadcast – which are heard by a relatively small number of people – can nonetheless hear it once it’s published through iTunes.

Music recordings are produced in IMERSD (Intermedia, Music Education

& Research Design), a heavily equipped studio that opened in October 2004 to provide Conservatorium music technology researchers with high-end recording and production technology to drive student learning and collaborations with related film and music partners.

Student recordings are published online via the IMERSD Web site (www29.griffith.edu.au) as well as being offered through a generic RSS feed and the Apple iTunes Music Store. Similar treatment is also being given to visiting guest speakers and performers to the Conservatorium, which is based at Griffith University in Queensland. Because the podcasts are performances of original student recordings, they have been licensed under a Creative Commons license that allows for broad distribution online.

While time zone differences mean much of the global audience is sleeping or at work during the live performances, the posted content has proven extremely popular: the podcast is seeing 850,000 downloads per month, and traffic analysis using Google

Analytics showing “a lot of activity out of Dublin and other particular hotspots,” says Associate Professor Paul Draper, head of music technology and the IMERSD program. “It’s a very active site, and we have been quite pleased with it.”

The facility is completely Apple powered, with 65 Power Macs and other machines spread across the site as well as a pair of Apple Xserves providing Web site and streaming services. The streaming server has been split into two subnets, with one restricting access to internal Griffith users and the other providing access to the whole world.

This structure was an intentional effort to give students an area where they can play and bounce ideas off each other, while also providing a forum for online global publishing when they’re ready. A third area, also under development, will provide a wealth of resources for digital arts researchers.

A NEW CURRICULUM

Although it started out as an experiment, the runaway success of the podcasting project has

quickly produced major changes in other ways.

Most notably, students’ increasing comfort with podcast production has led lecturers to change the forms of assessment used in many of the Conservatorium courses. Instead of assigning ponderous research papers as in the past, lecturers are finding more success generating interest among students who are tasked with producing their own radio-styled broadcasts.

“Generally the reports were about musical and production analysis, and you wouldn’t have called the analysis startling,” a euphemistic Draper explains. “This semester, we asked them to do the analysis as a radio program reviewing a work and talking about the work.”

“The level of engagement in making a radio program is much higher than with a paper; students are really interested,” he continues. “And because everyone has a peer group around them, they will become more competitive after a few iterations and quality will start rising. That’s not the thing we were getting out of written papers, and it makes them aspire to a higher standard that also

highlights the benefits of teamwork.”

The new distribution method has also helped students get comfortable with current digital music market trends, says Draper. Working through the specifics of the Creative Commons licenses has heightened awareness of intellectual property issues online, while the one-click subscription features of the iTunes Music Store has shown students how easy the whole publishing process can be.

“This is less about recording studio items of original works and more about students learning to advertise themselves, their bands and their best work,” says Draper. “It’s definitely plugged into the pedagogy. This kind of literacy produces modern musicians, and they’re very enthusiastic about it.”



Byte sized with a BIG Mac

By David Leigh, WA Screen Academy, Edith Cowan University

...and action!

As yet another project starts to roll, the WA Screen Academy, at the Mount Lawley campus of Perth's Edith Cowan University, goes into miniature mode.



Photography Paul Godfrey

After seven shorts, several corporates, and television lifestyle shows including *Haydaze*, *Ship to Shore*, *Sweat*, *Fast Tracks* and *Foreign Exchange* (and that's just for starters), the latest brainchild of Academy director John Rapsey is 'mobisodes'.

That's right, it's phone zone for Rapsey's next batch of movie morsels. With a team of student writers, producers and directors poised round their iMac G5's – which are exclusively used within the Academy production processes such as script-writing, planning and editing using Final Cut Pro – eighteen bite-sized three minute episodes are being created for the mobile telephone industry.

You might think all that writing and producing has caused Rapsey to finally reach for the Prozac, but not so. "Telecommunications companies are actively seeking content for this up-to-the-minute and lucrative trend," he says. "It's a new market and we want to be ready for it. Writing mobile phone content is like being a part of history; nobody has any idea how the format will work. As there are no examples to follow, I guess we will make up the rules."

The production line pace is continuous throughout the year, with the WA Screen Academy working what are effectively trimesters. As one project is 'wrapped' and sent into the edit suites, another is just finishing pre-production and slides in front of the cameras.

This is where associate director Andrew Lewis, whose list of directing credits includes *Home and Away*, *Streetsmartz*, *Parralax*, *Something in the Air* and *Pacific Drive*, joins them to oversee the shoot. Lewis's producing, directing and writing experience, in documentary and magazine shows for the ABC, adds a wealth of experience to the next stages of the program, the television lifestyle/magazine shows.

Those shows prove to offer some interesting experiences: even though the old TV and cinema adage warns actors to 'never work with children or animals', WA Screen Academy students weren't deterred from doing just that. In a recent pet show, *Paws and Claws*, the ECU TV studios were awash with canine cuddles

– exposing students to the real, sometimes crazy world of screen production.

With these Mobisodes now in post production, a battery of Apple Power Mac G5's, running Mac OS X 10.4 software and powerful 1.8 GHz processors, are put through their paces as the editors take over using Final Cut Pro 5.0.4. Students are able to access dual-CPU Power Mac G5 edit suites when high end effects are required.

The mobisodes are being shot this month and editors will package the mobisodes into downloadable content that can be sold on the net.

In addition to Final Cut Studio 5 the Academy relies heavily on software such as Movie Magic Scheduling, Final Draft, Pro-tools and has access to the full suite of software in the Apple labs within the School of Communications and Contemporary Arts – which can range from 3-D design to stop-frame-animation.

REAL-WORLD PREPARATIONS

In only its second year, the WA Screen Academy is already mixing it with the best of them, providing tie-ins with industry to make the students' experience as real as possible and providing contacts for them when they graduate.

The Screen Academy has developed close working relationships with the West Australian Academy of Performing Arts (WAAPA), Screenwest, Central TAFE, Channel Ten and the ABC. The Academy of course, relies heavily on Apple Mac hardware and software – which gives them an advantage when seeking jobs in industry.

Students are undertaking both undergrad and postgraduate qualifications in screen studies at the Academy and with WAAPA actors, lighting, costume and set facilities at their disposal they can simulate industry professionalism. There are also two fully equipped television studios on the Mt Lawley Campus. The studio at TAFEWA is used for the studio-multicam projects and the Channel 10 studio is used for interior sets for short films.



WA Screen Academy Directors Andrew Lewis (Left) and John Rapsey

Although the aspirations of film students tend to push towards the film industry, cutting their teeth in short films is important because the bulk of employment is in television and related small-screen productions. With growth in the area of digital technology and the affordability of Apple hardware and software, work that was previously done with huge corporate overheads can now be done quicker, slicker and cheaper.

The WA Screen Academy has focused on small screen. It has designed a program to address the primary areas of employment and developed a production slate to provide training and experience in the key program formats. It's no longer the pull of the big screen and with the production of Mobisodes, the lure of the small screen – just got miniscule!

SCREEN SUCCESS FROM INDUSTRY EXPERTISE

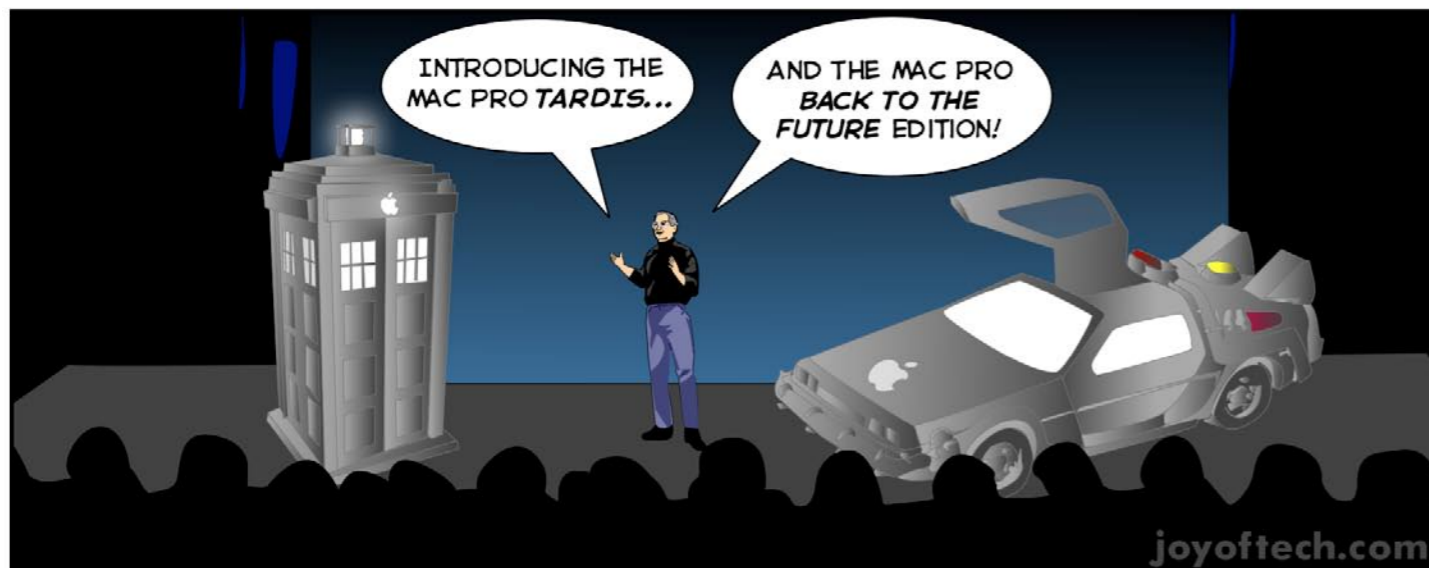
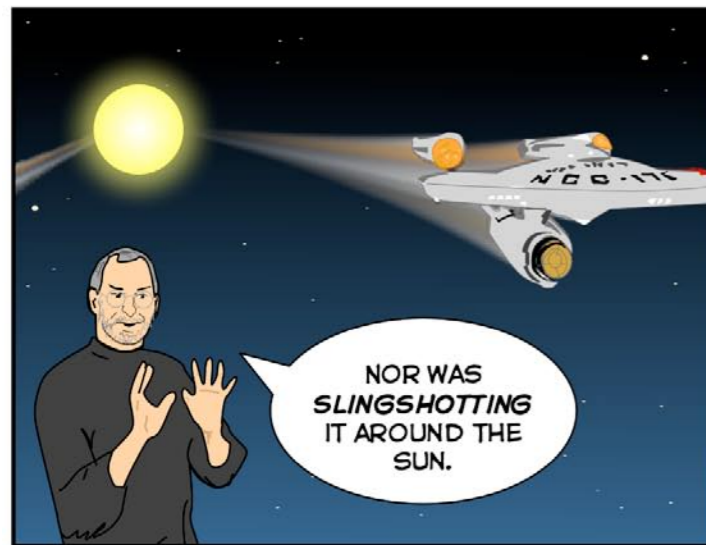
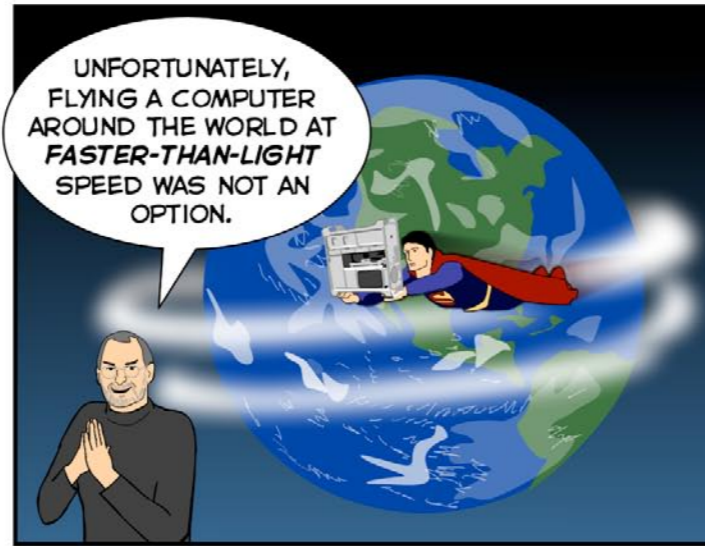
The Screen Academy prides itself on teaching students the craft, technique and art of visually engaging viewers by selecting staff with an eclectic mix of real world credentials.

Elaine Sansom, the Screen Academy's production coordinator responsible for pulling it all together, has over 12 years experience working in the television industry in the UK before she came into education on such programmes as big budget independent drama series such as *Hamish MacBeth* and *Soldier Soldier* at the BBC. She later worked as a production manager both in entertainment and music shows, including *Parkinson* and *One Night With Rod Stewart*. "The workflow advantages with Apple software are an added bonus for the video industry," she says, "and it really shows with the students' outcomes."

Her colleague Stefanie Kleinhenz, who describes herself as an "Apple Girl", is an AFTRS graduate and the academic co-ordinator. She has worked in the film and television industry in Australia, the UK and Germany for over 17 years. Having purchased her first Apple laptop in 1995, she has taken it around the world to work on high budget feature films, small to medium budget documentaries, short films, and CD-ROM productions. She has also worked on TV commercials, television mini-series, and telemovies.

Stefanie has carried out many roles in her career, such as writing, directing, producing and just about every stage of production, with credits like *Babe* and a Billy Zane action flick. A great deal of that involved working with Apple technology.





If you're serious about your photography, you're probably already aware of Apple's high-end Aperture image management and workflow application. Recently updated to version 1.5, however, Aperture brings even more robust and powerful capabilities to photographers looking to do much more with their images than iPhoto can manage.

The new version includes seamless integration with iLife '06 and iWork '06, XMP metadata support, and an export API that lets Aperture be integrated with third-party applications and services such as Getty Images, iStockphoto, Pictage, Flickr, PhotoShelter, DigitalFusion, SoundSlides and Connected Flow.

A new open library feature allows photographers to keep images on any media they want, then generate high-resolution previews of each image that can be taken with them and manipulated while on the road.

Metadata is a big focus in the new version, with pre-filled IPTC Metadata Presets simplifying the process of adding metadata to new images. Aperture 1.5 also allows the exporting of RAW images with IPTC data and XMP sidecar files for use in other applications.

There are also a range of new image filters, including a luminance-based Edge Sharpen filter and a Color tool that lets photographers adjust hue, saturation and luminance of specific colour ranges. The Loupe magnifier has been enhanced, and individual combinations of settings can be saved as presets that can be later applied automatically.

Existing Aperture customers can download a software upgrade for free from www.apple.com.au/aperture, or new customers can buy into Aperture's success for \$449 from <http://store.apple.com.au>.



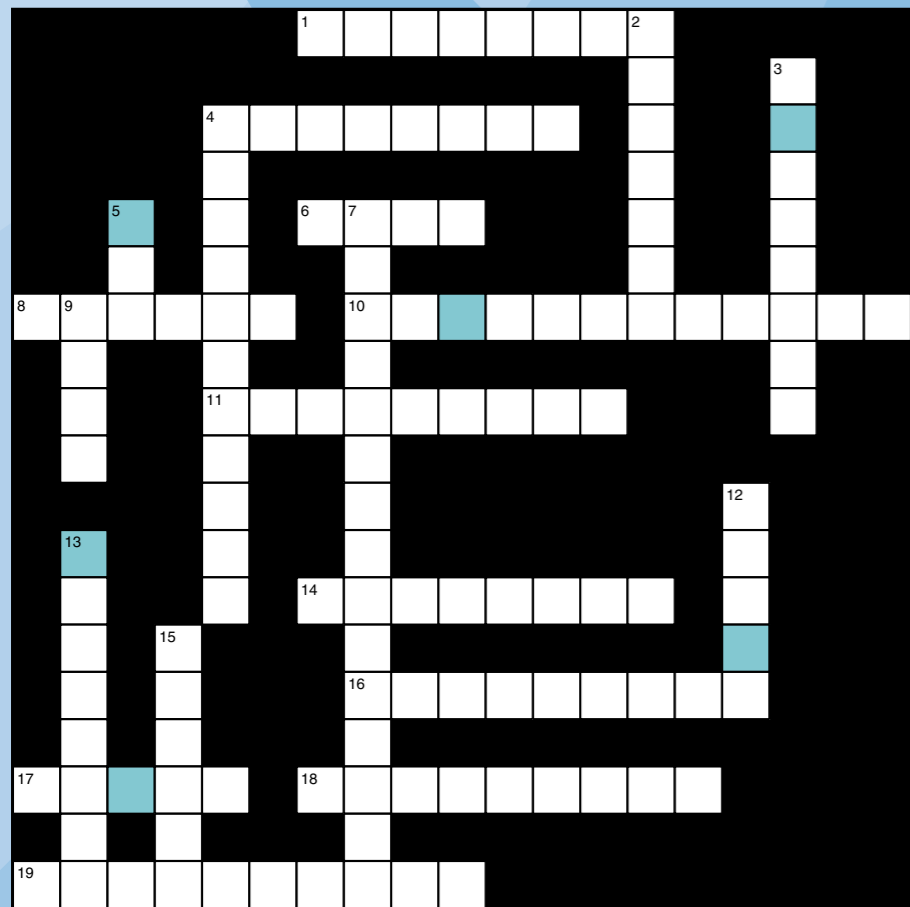
CROSSWORD COMPETITION

WIN an iPod shuffle

For your chance to win, complete the crossword below (you will find the answers throughout the articles); and take the letters from the green boxes and re-arrange them to form a word.

Send this to: crossword@auc.com.au

Competition closes at 5pm on 30th November, 2006



ACROSS

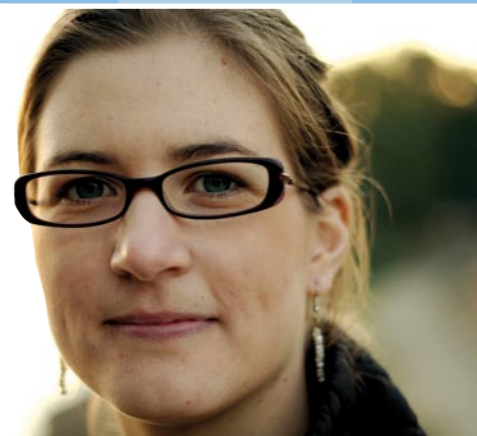
1. Build your own World with Google (Pg 2)
4. James Hurley used this up (Pg 7)
6. This umbrella conference has seven streams (Pg 18)
8. Rapsey's not reaching for this (Pg 10)
10. She worked with Hamish (Pg 11)
11. Queensland Conservatorium has nearly one-million of these (Pg 8)
14. Tony Gray has stopped complaining about this (Pg 18)
16. Much smaller episodes (Pg 11)
17. Stefanie is that kinda girl (Pg 11)
18. UTS has deep foundations in Audio training (Pg 7)
19. This Director thinks smaller is bigger (Pg 10)

DOWN

2. Quartz Editing Windows (Pg 19)
3. Percentage of first time X-World attendees (Pg 4)
4. These fans dominated the UTSPS earlier on (Pg 6)
5. Number of Classroom-in-a-Box now available (Pg 4)
7. This licence moves music freely (Pg 8)
9. Bekkema needs 'anger management' for this project (Pg 16)
12. This Society has nearly 200 members (Pg 6)
13. Training for this is thin on the ground (Pg 7)
15. Griffith Muso's big here - to be sure! (Pg 9)

CONGRATULATIONS

Congratulations to Rochelle Whitty of Victoria for winning an iPod Shuffle by correctly completing the crossword to reveal the answer: DIGITAL. An iPod is on its way.



† sheer, unadulterated power makes you go weak at the knees, make sure you're sitting down before you flip on Apple's latest batch of workstations and servers. Announced at this year's WorldWide Developers Conference in August, the new Mac Pro desktop completes Apple's transition to Intel Architecture servers with a bang – offering a new high-end workstation that doubles the performance of the Power Mac G5 Quad.

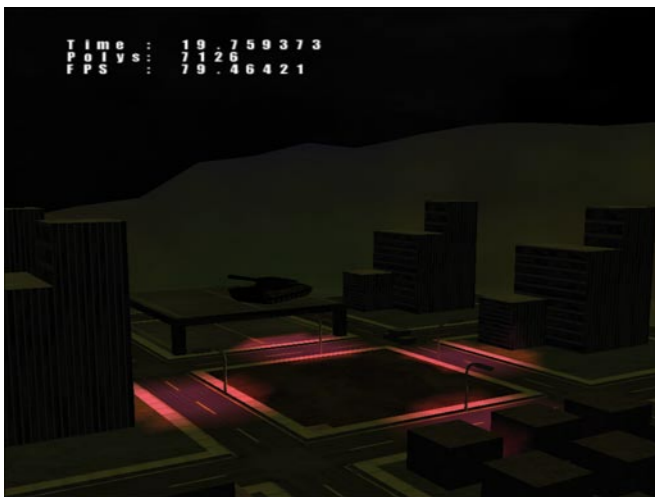
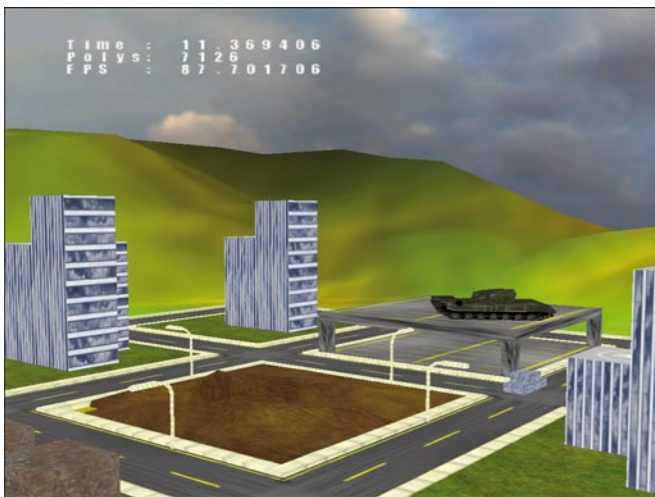
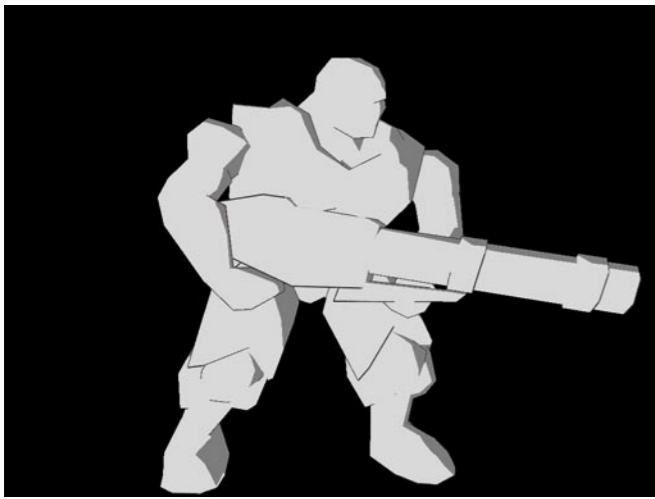
Based on Intel's server-class Intel Xeon 5100 series processor, the Mac Pro includes two of the dual-core chips running at up to 3.0 GHz each, with 4MB of shared L2 cache and independent 1.33GHz front-side busses and 667MHz DDR2 RAM. If you're not technically minded, suffice it to say that this all adds up to one blazing fast machine.

The Mac Pro's innovation extends inside, as well: four drive bays provide cable-free installation of up to four 500GB Serial ATA drives, while the system also includes support for two optical drives, three full-length PCI Express expansion slots and one double-wide PCI Express graphics slot. The unit's front panel includes FireWire 800 and 400 ports as well as two USB 2 ports and five additional ports on the back, which also includes dual Gigabit Ethernet ports, both analogue and optical digital input and outputs, and optional AirPort Extreme and Bluetooth 2.0+EDR wireless.

Complementing that boost in desktop power is Apple's new Xserve, a 64-bit server featuring an unlimited client edition of Mac OS X Server Tiger running on two dual-core Intel Xeon processors running at speeds of up to 3.0GHz. Like the Mac Pro, the new Xserve systems include 4MB of shared L2 cache and a PCI Express bus, but offer space for three 3GB/sec SATA or SAS drives to provide up to 2.25TB of storage in a 1U rack server.

Need we say more? Probably not. But if you'd like to learn more, drop by www.apple.com.au/macpro or www.apple.com.au/xserve and consider how these latest speed demons will make your work easier and faster than ever.





RAGE against the MACHINE

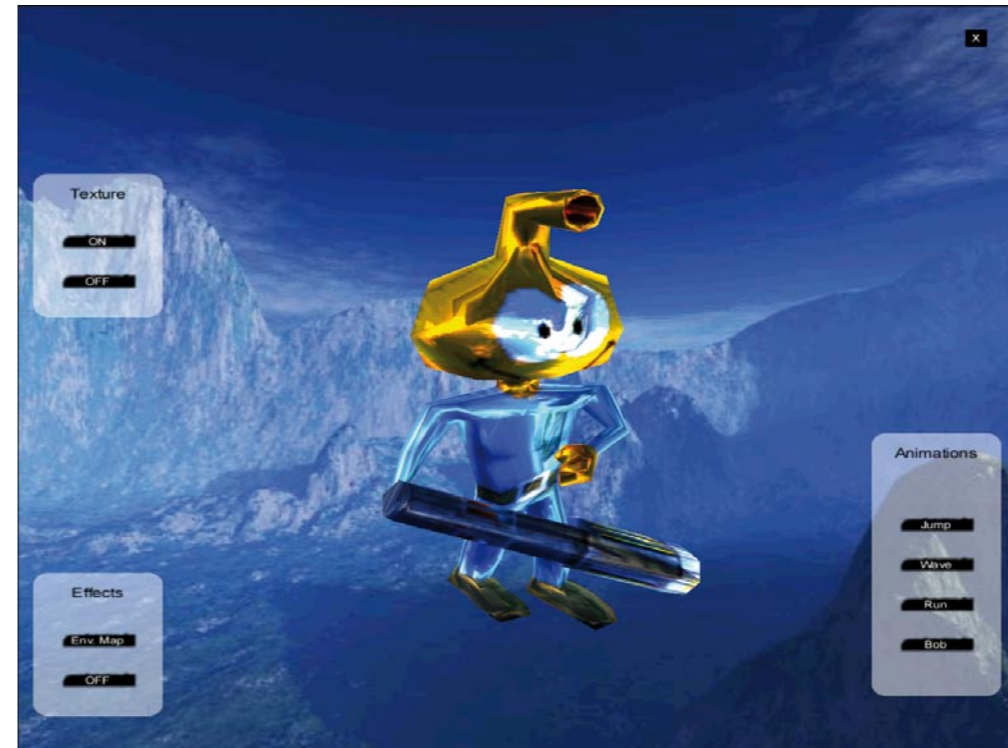
The computer industry's shift to multi-core processors this year has fundamentally rewritten the rules about availability of computer resources. The new rules require software to be developed to operate in a far more parallel manner than was ever done in the past, so that computations can be performed simultaneously and their results reassembled in meaningful ways.

Making this happen takes a new expertise and new mindset on the part of developers. One developer coming to grips with the implications of the new processor architectures is James Bekkema, an honours student in the Bachelor of Computer Science (Games Technology) course at Charles Sturt University.

During his undergraduate studies, Bekkema was part of a team of developers who pursued a project to develop RAGE (Rage of the Game Engine), a Java-based game engine capable of running on Mac OS X, Windows and other operating systems. That project was supported by the AUC, which provided an iBook, dual-processor PowerMac G5, and other resources to help the programmers.

RAGE, led by computer science lecturer Jim Tulip and developed by Bekkema along with Leigh McCulloch and Adrian Hoffman, completed last year with a workable games engine that delivered on its cross-platform promise. Eager to tap into the multi-core capabilities of new Macs released this year, however, Bekkema submitted a new proposal and received AUC support for a follow-up project to optimise the RAGE core on the new platform.

"RAGE was really great for figuring out how a game engine can be developed to work under both Mac OS X and Windows," says Bekkema, "and now this project is looking at how to get the best performance from a game engine with real industry use."



Using new desktop architectures to improve performance has been Bekkema's main focus this year, with his AUC-provided dual-core MacBook Pro offering suitable technology to tweak the RAGE engine. Bekkema also received an AUC Innovation Grant and scholarship to Apple's WorldWide Developers Conference (WWDC) in the US, where he says the exposure to Apple engineers and likeminded developers proved invaluable in his efforts to multi-thread the platform.

Multi-threaded development requires developers to step back and take a higher-level view of the way the various project elements interact. This, says Bekkema, isn't always the most intuitive approach for developers, who tend to have a more problem solving-focused mentality when it comes to this type of programming.

"The onus used to be on hardware developers like Intel and IBM to release faster and faster chips so programmers wouldn't have to do anything," he explains. "It was basically a free lunch, and developers would just continue to work with [technology] as new games came out. That is no longer the case: now the onus is on the programmer to use techniques like multi-threading to improve performance."

The project, which comprises Bekkema's honours work, will see him implementing four different models for multi-threaded games processing. For example, a game could include more realistic artificial intelligence (AI) for enemies by using a dedicated processor thread for those calculations

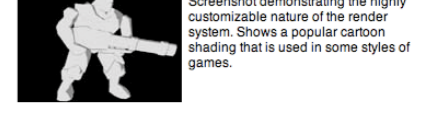
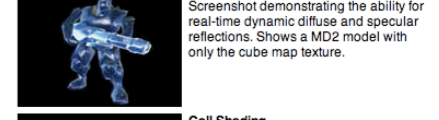
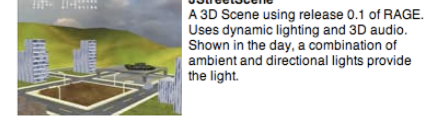
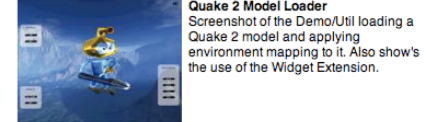
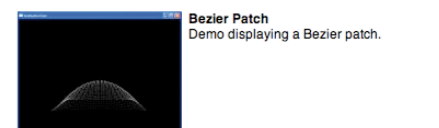
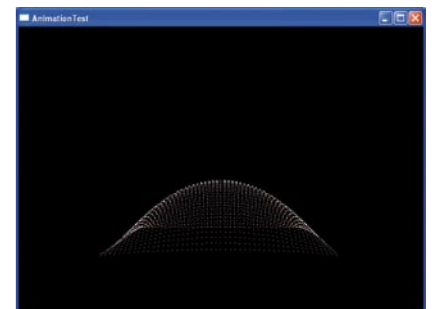
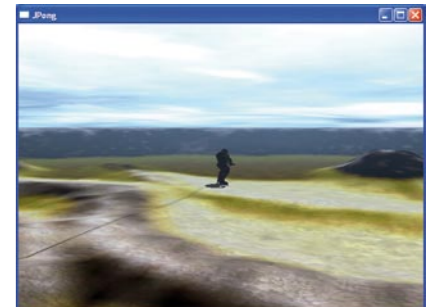
while other threads ensured the game's physics and other calculations continued to be handled smoothly.

The four models try different approaches to splitting up RAGE's calculations across those multiple threads, and comparisons of the relative speed of each approach will provide invaluable guidance as to the best way forward for multi-threaded games.

In multi-threaded applications, the ideal result is for performance to scale linearly with the number of threads – but this is a theoretical ideal that can never be reached. Nonetheless, Bekkema says the new engine is already running more than 30 percent faster on the multi-core platform, and he's not done yet.

"I'm hoping we can see it faster in the real world," he says, "but when we start implementing proper physics models and bringing in other components, it may end up that the speed is actually less. This all hasn't been done properly in the industry yet, but I hope my work will give people an idea of what they should focus on to get maximum performance."

Once his work is done at the end of the year, Bekkema plans to open-source his code so that other developers can learn from his experiences and integrate his techniques into their own development projects. And, as multi-threaded programming continues to become the norm, Bekkema's work will play a small but important role in the full transition to multi-core computing.





In January 2006, the School of Computing at the University of Tasmania hosted the annual Australasian Computer Science Week conference (ACSW06).

ACSW is actually an 'umbrella' conference for a series of conferences on computer science, user interfaces, databases, network security, and related topics of interest to academics and researchers.

My team was responsible for the technical side of the conference, including the conference web site and registration system, presentation systems, conference network, and internet café.

During ACSW06 there were, at times, 7 streams running in parallel. (Scheduling this many streams is in itself an art, and I've decided to stop complaining about the schedule

at WWDC as a result!). With so many streams running in parallel during the conference, I wanted an effective information system for displaying the schedule of upcoming events.

If you've attended WWDC in recent years, you will have noticed the large suite of 30" Cinema displays used by Apple for this purpose. There are individual displays outside each venue, detailing what's on now and what's coming up, while banks of displays in the main foyer give an overview of all sessions for the current day.

ALL IN THE PRESENTATION

I've always been impressed by this Apple system, and knew we could do something similar. The 30" Cinema displays would be out of the question, but as ACSW would be less than one tenth the size of WWDC, I figured

our newly acquired 17" iMac G5s would probably be suitable 'now/next' displays if positioned at the door of each venue.

The WWDC displays are fairly static; there is usually a scrolling ticker along the bottom highlighting late changes, but the bulk of the display is stationary, announcing what is currently on in a venue, or what is on next. I wanted something similar to this, although the smaller display space of the 17" iMac would preclude displaying too much information if it was to be readable from a distance.

The question was: what would be the best way to create and display this information? My first thought was to create static slides in something like PowerPoint or Photoshop, but any last-minute schedule changes would require a lot of work – particularly if

a venue change affected a large number of events.

Furthermore, this type of system would preclude the display of dynamic information, such as the current date and time. A better solution would be something based on textual data, with the display being generated 'live' from this.

It turned out Apple had a solution at hand, and it had been sitting on my machine since mid 2005: Quartz Composer, a part of the Xcode development environment that was released with Mac OS X v10.4.

Apple describes Quartz Composer as "a development tool provided with Mac OS X v10.4 for processing and rendering graphical data", but that description doesn't do it justice. Quartz Composer is a visual programming environment that provides real-time rendering

of text and graphics, arbitrary transformations of rendered elements in 3D space, and multilayer compositing.

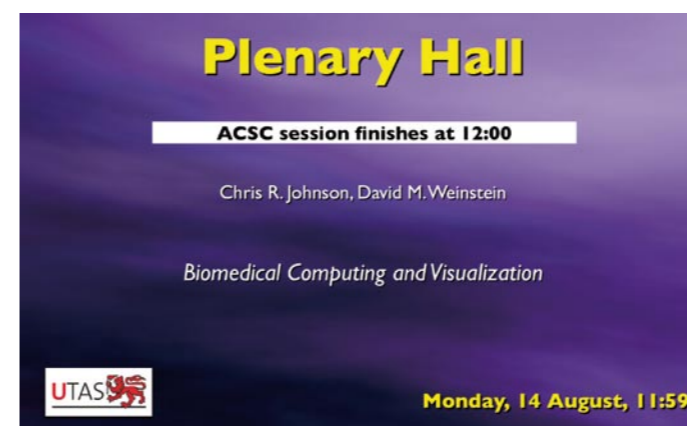
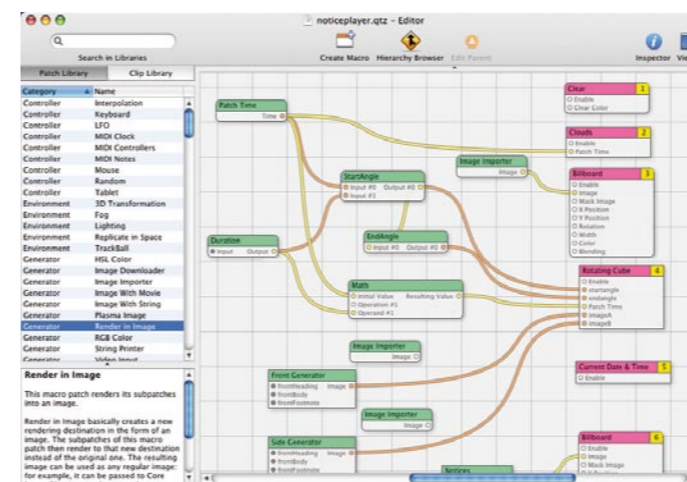
In the hands of a skilled user (and running on appropriate hardware), Quartz Composer can produce output that resembles the sort of graphics commonly seen on network television, and the most interesting aspect of Quartz Composer is that you don't need to write any code to use it.

Quartz Composer generates 'compositions' – small files that contain media elements, timing, and transform instructions. These can be played back in the QuickTime movie player, used

as screen savers or embedded in Cocoa applications as a 'view'. The advantage of this is that textual information can be fed from the Cocoa application into the composition in real time, with the output updating immediately to reflect the change.

EASY AS QUARTZ

Apple provides Cocoa sample code that demonstrates how to play a composition from within a Cocoa application, and how to send data to it – which was exactly what we needed to drive the system with event information (see the 'QuartzComposerPlayer' project in the Developer Examples area).



Our door display system ended up being developed as a Cocoa application, based on the Apple sample code, with a Quartz Composer view, that read the venue data from a simple text file. If the text file is updated (that is, if the modification date stamp was altered), the program re-reads the data and then updates the venue display. This allowed us to update the event data at any time during the conference, and have it instantly reflected on the door displays.

Feedback from conference delegates about our display system was extremely positive, and yet the whole project took one developer less than one

week. Most of this time was spent learning what Quartz Composer was capable of; once this was understood, embedding the composition into a Cocoa application and driving data into it was a fairly simple task.

Like QuickTime, Quartz Composer is an example of a brilliant piece of Apple technology that is easily embedded into other applications and significantly enhances the results that developers can get with minimal effort. Even without Cocoa, you can have fun with Quartz Composer; you may be surprised what you come up with!

Picture 1: The blocks in the main part of the Quartz Composer editing window are known as patches. These are execution units that (mostly) take input, process it, and generate an output. Inputs and outputs can be numeric values, strings, arrays, dictionaries or images. Patch outputs are linked to patch inputs to create data flows.

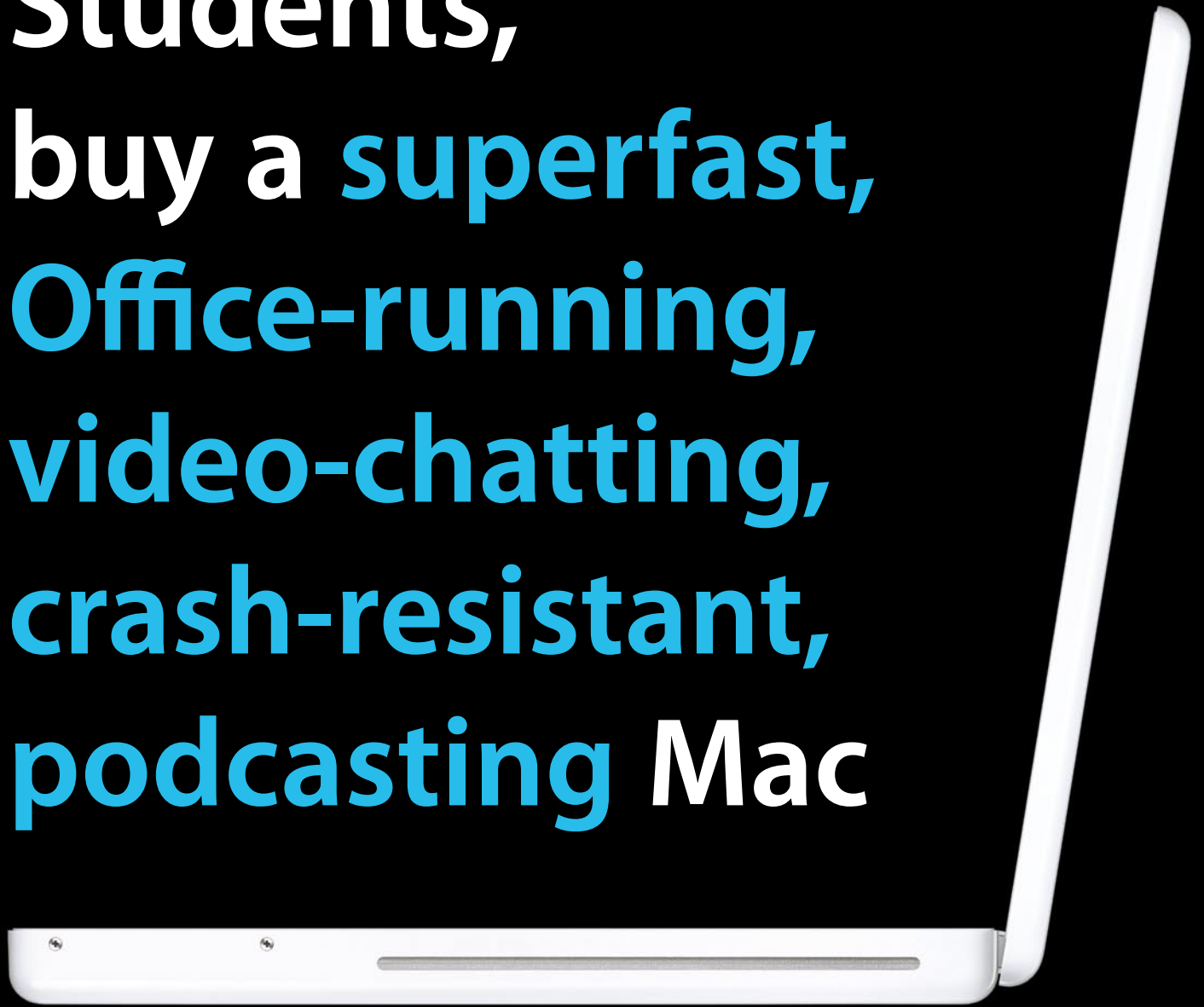
The area on the left-hand side of the window is the patch library. There are collections of patches that generate images, process numeric & string values, and provide control structures (such as iteration). In addition, the library contains a large number of image processing filters from the Core Image subsystem.

Pictures 2 & 3: These images show screenshots of the venue display system in operation. The yellow title at the top is the venue name, which was different on each iMac, one per venue. Under this are three updateable fields: the conference stream information (in this case, the stream was a special event), the speaker/author, and the paper description.

The information for all events is read at startup time from a text file, and sorted into date and time order. At the start of the day, the system displays details of the first event to be held in each venue, and once a session commences, this changes to what is 'now on'. Once an event finishes, the system switches to display the name of the next session in this venue (or the alternative "no more sessions in this venue today"). Finally, the "cloud background" is dynamic - subtly swirling away under the text to add impact to the display.



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