

# MIND



**Wheels** for the

## AUDIO IN CONTEXT



## iPhone *dream job*



## iTunes U soars



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AUC  
ANNIVERSARY



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## Be a better Poser than ever

The popular figure-creation app has gotten a major makeover from new owners Smith Micro. Create, manipulate and animate 3D figures and then drop them into 3D scenes. There's a full content management system, a Dependent Parameters tool that manages interactions between objects, better clothing support, better light control, and more. Poser 8 is a \$US249.99 (\$A275) download.

[my.smithmicro.com/mac/poser](http://my.smithmicro.com/mac/poser)



## Learning flows

Whether teaching, training, or just sharing your tips and techniques with others, screencasting – recording a movie of your interactions with your computer desktop – is a valuable way of conveying information. The new Snow Leopard includes rudimentary screencasting features, but Telestream's ScreenFlow Professional Screencasting Studio 2.0 takes it to another level with support for highlighting with 'callouts', titling, video editing, picture-in-picture, and more. \$US99 (\$A110) to buy or download a free trial.

[www.telestream.net/screen-flow](http://www.telestream.net/screen-flow)



## Adobe gets even more elemental

If you're a keen photo manipulator but don't want to bother with the heft of Photoshop, Adobe's Photoshop Elements has always been a good alternative. The new version 8 continues this tradition: Smart Brush simplifies retouching masks; Recompose eliminates unnecessary objects; Photomerge Exposure adjusts exposure across multiple photos. \$159 full/\$115 upgrade via download, \$175/\$125 boxed.

[www.adobe.com/ap/products/photoshopelmac](http://www.adobe.com/ap/products/photoshopelmac)



## Re-Kindle your book romance

It took two years, but Amazon's popular Kindle e-book reader is finally available in Australia. This wirelessly-connected device lets you buy e-books from a selection of more than 280,000 titles and read them on an 'e-ink' screen specially designed for book-like readability. It also supports free books from Project Gutenberg and elsewhere, and other content will come soon. Kindle ships from the US for \$US259 (\$A285).

[tinyurl.com/ycafvud](http://tinyurl.com/ycafvud)



## Get a new landscape Vue

Need a realistic or totally fanciful landscape for your latest design project? Vue 8 is the thing for you. The latest version incorporates 3D terrain sculpting, a 'directional displacement engine', and updated atmospheric technology among other upgrades. There's also a new shader-based OpenGL preview engine, stratified terrain fractals and other tools to make your dirt, water, and trees look better than ever.

[www.e-onsoftware.com](http://www.e-onsoftware.com)



## Database for everybody

Filemaker's entry-level Bento database has had a makeover, with new features including integration with iPhoto, networked data sharing, 128-bit AES encryption, and more. A new grid view improves visibility of all records, table view includes thumbnails, and more. Although it (by design) lacks much of the power of its big brother, Bento 3 stands its ground as a flexible way of managing your data. Bento costs \$79.95 or \$129.95 in a family pack from [store.apple.com.au](http://store.apple.com.au).

[www.filemaker.com/bento](http://www.filemaker.com/bento)

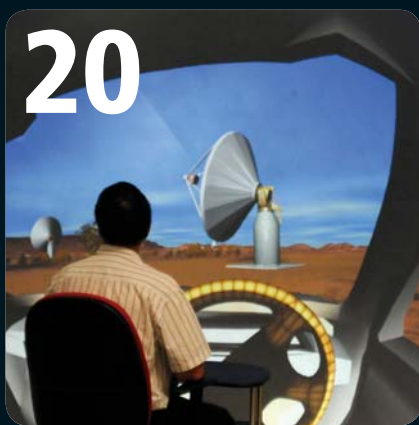
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## AUC MEMBER UNIVERSITIES AUSTRALIA:

- Australian National University
- Central Queensland University
- Charles Sturt University
- Curtin University of Technology
- Deakin University
- Edith Cowan University
- Flinders University of SA
- Griffith University
- James Cook University
- La Trobe University
- Macquarie University
- Monash University
- Murdoch University
- Queensland University of Technology
- RMIT University
- Southern Cross University
- Swinburne University of Technology
- University of Adelaide
- University of Melbourne
- University of Newcastle
- University of New England
- University of New South Wales
- University of Queensland
- University of South Australia
- University of Southern Queensland
- University of Sydney
- University of Tasmania
- University of Technology, Sydney
- University of Western Australia
- University of Western Sydney
- University of Wollongong
- Victoria University

## NEW ZEALAND (Affiliate Members)

- University of Auckland
- University of Canterbury
- Massey University
- University of Otago
- Victoria University of Wellington
- Waikato University

## AFFILIATED UNIVERSITIES

- Australian Defence Force Academy
- University of Canberra
- SAE Byron Bay
- Bond University

# EDITORIAL



Well, well, well! Here we are at the AUC's 25th anniversary, and what a jam-packed issue we have. We've seen this organisation grow from very humble beginnings to a rich, vibrant and highly successful community of developers, support professionals, academics

and students. And along the way, Wheels for the Mind has been reporting on the wonderful successes that the AUC has, in a myriad of ways, helped come to fruition.

In this issue, we reminisce over the early days of the AUC through Greg Porter's eyes (page 8). Greg chaired the AUC for 5 years in the 1990s and gives an interesting perspective of that era. We also hear about the AUC Annual General Meeting (page 5) and how it is an important event on the AUC calendar. Check out the photos from the 25th anniversary dinner (pages 6-9).

We have a fantastic story of one of our successful student developers who has landed the job of a lifetime. Nicholas Circosta (page 12) has accepted a position at Apple in Cupertino and he shares with us his lead up to the eagerly anticipated phone call of his success. Nic, we all wish you the very best for the future with Apple and thank you for everything you've done for the AUC.

Visualisation is taken to dizzying heights by Paul Bourke from UWA (pages 20 & 21). I saw some of Paul's work several years ago, and even then it was remarkable. Macquarie University shows how they engage their students by holding gaming competitions (page 19); this is a great article for those AUCDF Coordinators and AUC Delegates who are thinking of creative ways to get students aware of the AUC. Well done Adam Shah and team.

Daniel Woo takes us through sonic and visual landscapes through the use of augmented audio reality (page 18), as well as sharing his vision of the future through the use of iPhones for navigating university grounds. We also revisit the fantastically successful Jam2Jam project that we reported on in the Autumn 2009 issue (page 13) and how they are providing opportunities for remote communities to engage through music and technology.

We have also made the Developers' Corner (pages 16-17) a regular feature for Wheels, and in this issue we see how many of our students are assisting in the development and running of courses tailored specifically for the AUC. These stories are wonderful examples of how the AUC has engaged with students to deliver courses and content to benefit our member universities.

Finally, we see some of the wonderful content creation that both Australian and New Zealand universities are making for iTunes U (pages 14-15). It is great to see this sort of exposure through this medium as it has both local and global appeal and also raises the profile of these pioneering Australian and NZ institutions.

As this will be our last publication for 2009, I would like to wish you and your loved ones all the very best for the holiday season. We look forward to delivering even more exciting content in 2010.

David Yammouni  
[dyammouni@swin.edu.au](mailto:dyammouni@swin.edu.au)



# AUC Update

## CreateWorld: Mobile Me – Creativity on the Go



It's back, and bigger than ever. It's CreateWorld, the AUC's annual performance, presentation, and professional development event for academic and higher-education staff working in the digital arts disciplines.

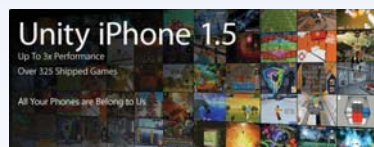
Spread over three days from 30 November

to 2 December at Griffith University's Brisbane South Bank campus, this year's agenda is aligned along themes including Foundations, Perspectives and Points of View; Spaces and Places; Craft; and Playing to Learn, Learning to Play.

Keynotes includes American composer William Duckworth and his media artist wife Nora Farrell, discussing their Sonic Babylon project; industrial designer Andrew Scott, discussing the design history of the iPod. University of Queensland's Dr Robert Davidson will be performing a one-man show, while other speakers include ANZarts Institute executive director Justin Macdonnell and National Gallery of Victoria's Jean-Pierre Chabrol.

The AUC is offering four subsidised places for each member university. For an overview of the dynamic nature of the conference, check out last year's recordings at [createworld2008.edublogs.org](http://createworld2008.edublogs.org). For more information about this year's event, visit [www.auc.edu.au/Create+World+2009](http://www.auc.edu.au/Create+World+2009).

## Games workshop for Mac OS X and iPhone



If you've ever wanted to know how games are built, and potentially produce your own, the AUC's Unity Workshop is a must-attend event.

To be held from 3-5 December at the Clifton Training Centre in Sydney, the Unity Workshop will teach the tools and techniques that go into making a great game. Topics include physics, 3D graphics, animation, and audio. There's also extensive hands-on experience with Unity ([www.unity3d.com](http://www.unity3d.com)), a real-world game development platform that lets developers assemble 3D games and simulations for Mac OS X, Windows, iPhone and Nintendo Wii using a flexible and scriptable drag-and-drop environment.

The workshop is aimed at staff and students studying computing science, computer engineering, information technology, mathematics, creative arts/design or related disciplines and who have an interest in understanding game development, or developing their own games.

Subsidised places are being offered to students and staff at AUC member universities on a competitive basis, with travel and accommodation subsidies available to those from outside Sydney.

Visit [www.auc.edu.au/Unity+Workshop](http://www.auc.edu.au/Unity+Workshop) for more information.

## Free software for AUC members



Through a generous offer by Acqualia Software, AUC members can get free copies of the award-winning Picturesque image editor and Souolver calculator applications, written by Zac Cohan and Nik Youdale.

<http://tinyurl.com/yka9qc6>

## Macworld 2010 scholarships

Apple won't be at the Macworld Conference & Expo in February, but the AUC will. As part of the AUC's ongoing commitment to education, the AUC will be offering a number of student and staff scholarships to the event.

Macworld 2010 will be held from 9 to 13 February. Scholarships are worth \$4500 to be applied towards airfares to San Francisco (additional amounts are available for applicants outside Sydney/Melbourne/Brisbane); up to seven days' accommodation; Macworld conference registration; and up to seven days' travel insurance.

See [www.auc.edu.au/MacWorld+Scholarships](http://www.auc.edu.au/MacWorld+Scholarships) for more information.

## Honours scholarship recipients

After opening up a second round of applications for the AUC's Honours Scholarship, two more scholarships have been awarded.

The new recipients are:

- Paul Coster, University of Melbourne: String Processing on Emerging Parallel Architectures. Research involves developing algorithms to manipulate sets of character strings using parallel desktop processors and the enormous computing resources built into their graphics processing units (GPUs).
- Joshua Swee, University of Adelaide: Exploring Aspect Orientated Approaches to Weaving Business Processes and Rules. Development of a toolset to allow business processes and rules to be modelled and intermixed in modelling languages such as Business Process Modeling Notation (BPMN) and Business Process Execution Language (BPEL).

Paul and Joshua will each receive \$4000, paid in two even amounts midway through each semester. They join the seven Honours Scholarship recipients previously announced: Benjamin Ball (UTS); Ingrid Barberis (U of Q); Matthew D'Orazio, Peter Lyle and Tim Nugent (U of Tasmania); Christina Yum (U of Sydney); and Leon Johnson (Griffith). Congratulations to all the recipients, and we look forward to the results of your hard work.

## Vale Mike Neville



It is with great sorrow that we mark the unexpected passing of Mike Neville, associate director for client services within the Information Technology Services (ITS) division of the University of Western Australia. Mike had a long association with Apple, dating back to the 1990s, when he managed UWA's university-owned campus Mac shop.

Mike went on to manage the IT team at the Faculty of Arts before moving on to the central ITS team. Over those years, he was a fervent supporter of the AUC and provided invaluable input informing the development of Apple Australia's higher education strategy.

All of us at Apple and the AUC send our condolences to his family and friends. He will be missed.

## AUC now tweeting



If you're not already using Twitter, this may be the thing that wins you over. Follow @appleunicons or visit [www.twitter.com/appleunicons](http://www.twitter.com/appleunicons) to keep up to date with all the latest that's happening at the AUC.

Something interesting happening within your university's teaching environment? We want to hear about it! Drop us a line at [Dyammouni@swin.edu.au](mailto:Dyammouni@swin.edu.au) and we'll include the most interesting tidbits in the next issue.

# AUC ANNUAL GENERAL MEETING



From October 1–2, the AUC held its Annual General Meeting in historic Old Parliament House in Canberra. The AGM is an important annual event for the AUC: it is a time for the AUC Executive committee to plan for the year ahead as well as give all the member universities a chance to raise issues about all things AUC. It is also a time for all delegates to meet new members and refresh existing friendships.

Each of the 33 member universities has an AUC contact and an AUC Development Fund (AUCDF) co-ordinator (sometimes the two positions are represented by the one person) and they converge at the AGM to represent their university's concerns. The first day starts with the AUC Executive meeting where the committee discusses reports, current and future budgets, issues relating to Apple, the AGM agenda and many other topics.



One item in particular that stood out for the Executive was the re-addition of several New Zealand universities into the AUC. This is something the AUC has been discussing for some time now and through negotiations with Apple Australia, Renaissance in New Zealand and the AUC, we will soon see the inclusion of several north and south island universities.

AUCDF co-ordinators met to discuss how the many programs, scholarships and courses offered by the AUC are run throughout the year. They also spoke of their own local successes and challenges and shared suggestions on how to engage the ever-elusive student into AUC activities (and staff too!).

After a day of meetings, the delegates met for some drinks before gathering for the Apple update. This particular session was significant as it was led by Tony King, managing director for Apple Australia. Tony spoke of the successes enjoyed by Apple throughout the year and how this has benefitted the AUC. He also spoke of the resurgence of the New Zealand universities in the AUC and how the discussions were under way to make it all happen.



New licensing deals were also announced which offer simplified pricing and bundling options for Mac OS X, as well as iLife and Apple pro apps. This new structure offers institutions an easily managed suite of software with consistent pricing. Finally, Tony announced several affordable options for support after the demise of Tricare. Watch this space for future announcements!

To top off the day, the AUC 25th Anniversary Dinner was held at the Chairman & Yip restaurant. It was a very relaxed evening with excellent food and service and a great night was had by all. The AGM began at 9.00 a.m. on Friday October 2 and all the delegates sat and spent the day discussing many of the issues mentioned above.

The AGM is the major event each year for all university delegates. Executive committee members finish their terms and new members are given the opportunity to join; Apple issues are raised, discussed and, where possible, resolved. The past year is reviewed whilst the year ahead is planned. Overall, it is a very fruitful meeting of minds, all focussed on making the AUC a stronger, richer, vibrant community.



# Silver Anniversary: The AUC at 25

It may seem hard to believe, but it was 25 years ago that the Apple University Consortium first raised its flag as a centre of gravity for research and educational excellence using Mac technologies.

Back then, the original Mac was considered state-of-the-art, a rebellious statement against the perceived faceless, monolithic computing giant that was IBM. And it worked. Through dozens of models and technology upgrades, Apple has grown the Mac into a worldwide icon of user-friendly computing, winning lifelong converts and continuing to push the envelope in terms of interface, design, and overall value for money.

Paired with complementary technologies like the iPod family, iPhone, and a robust range of servers and other systems, Apple offers an end-to-end

computing experience that has remained the focus of the AUC for a quarter century. Bringing together students, staff, systems administrators and other education-related technologists, the AUC's program of training, conference scholarships, grants, equipment loans and more has provided opportunities for participants to broaden their skills.

And there have been some great results: from widely acclaimed commercial software applications to staff distinguishing themselves amongst their peers, and students successfully securing prestigious positions with Apple and in other software companies, the AUC has retained its role as a melting pot of interests that continues to produce fascinating and innovative results.

Most Australian universities are now members of the AUC, with numerous affiliate memberships in New Zealand and a worldwide presence via online distribution of Wheels for the Mind through the AUC Web site ([www.auc.edu.au](http://www.auc.edu.au)).

As well as going from strength to strength in participation terms, the Australian AUC also holds the distinction of being the only AUC program remaining in the world; although affiliates were established in other countries, they have all been disbanded. This is a testament to the continuing interest, support, and devotion of the AUC's many stakeholders, and it is a credit to all who have been involved.

Here, several AUC participants share their thoughts on the AUC's strong track record, and what it has meant to them over the years.

## Photo Gallery: AUC 25th Anniversary Dinner

To mark the 25th anniversary of the founding of the Apple University Consortium in Australia, a bevy of figures from the organisation's past, present and future met up recently at the Chairman & Yip restaurant in Canberra. The food was delicious, wine flowed freely, conversation was warm, and a good time was had by all!



# A Quarter of a Century of the AUC

By Mark McMahon

25 years ago when the Mac first booted into the market with its distinctive chime and 'happy mac' icon, few could have predicted where we would end up today. As Ridley Scott reminded us in that seminal superbowl advertisement, 1984 was not an Orwellian dystopia. The vision was shattered forever by a new wave blonde in red high pants and a white tank top.

1984 did not just herald that cute minimalist box with a nine inch black and white screen and 128k of memory, though. It was also the inception of the Apple University Consortium.

I hadn't heard of the Mac then, but the Apple poster that competed with the picture of Sean Young from Blade Runner on my bedroom wall was a reminder that lust comes in many forms. I was obviously on my way to becoming involved in the AUC, even if I did not realise it at the time.

As a 15 year old I only knew that Apple's GUI made me gooey in an era where the command prompt was king and most homes had to settle for a tape driven game box. I'd hang out at a friend's place just to play with the airbrush in that first version of Photoshop.

Like many, my first useful experience with a Mac happened at university, at a time when the massive growth in desktop computing brought with it a realisation: that technology is simply an enabler, linking people to their creative goals.

## Mac's go to uni

The AUC became the broker of that relationship across universities worldwide. At a flat rate of US\$1,000 per computer, Universities became equipped with affordable, state-of-the-art technology. It gave people like me a vision for my career that went beyond the traditional limits of the classroom.

That vision has grown as I have, with the AUC as a major partner. Beyond subsidised technologies, the AUC offers a range of opportunities that are too numerous to list in detail. One thing is for sure though: many of the people reading that have benefitted from the AUC in one form or another.

Whether it has been the opportunity to attend Apple's World Wide Developers Conference, receiving a grant for Innovation Development or having access to resources such as seeding equipment or the Classroom in a Box, the AUC has worked with university staff and students to progress the field of educational technology.

While in most other countries the AUC has fallen away, in Australia it stands strong as a testament to the meaningful ways in which it has engaged with its membership.

One powerful way that the AUC has connected with its partner universities has been through its conferences. I have attended several and had the opportunity to present work to peers; the feedback I have received from these experiences has helped me immensely in my work and studies.

Over the last few years the AUC has directed its focus on the creative arts. I have been lucky to have attended the last three CreateWorld conferences, and have seen just how powerful technology can be when put in the hands of those who know how to wield it as a creative tool.

So what does the future hold for Apple and the AUC? In Back to the Future 2, Marty McFly jumps to 2015 to a world of hover boards and self-fitting clothes. We are only six years away from that and while Jaws 19 isn't playing in the holomax, the fact that even then "the shark still looks fake" suggests that as much as some things will change, others stay the same. My car now has an MP3 player, but I still have to drive it.

Interface design guru Don Norman once said, 'anyone can predict the future – the hard part is getting it right'. With that in mind, I'll avoid Bill Gates style commentary on how 640KB of RAM should be enough for anyone, and simply marvel over the last 25 years while looking forward in anticipation to the next.

One thing seems certain: the AUC is the organisation it is, not just because of the quality of Apple products or even the opportunities it has provided for people to access those. Ultimately it thrives as a community because of the support of the universities, and the commitment and enthusiasm of the staff and students that constitute them. On that basis, it can only keep moving forward from strength to strength.



## Overseeing the AUC at a time of change

Greg Porter was IT director at the University of Technology Sydney from 1991 to 1999, and chaired the AUC for nearly five of those years – which also happened to span the explosion of the Internet into the global public consciousness.

At that time, he recalls, the AUC's nearly two dozen members were working hard to assess the impact of this new technology. "That time was particularly a time of innovation in the universities, with so much new technology coming out," he says.

"Universities were really transforming themselves into a much more IT-dependent place; they were looking at all sorts of ways and means of building on it, and utilising the internet and the whole gambit of multimedia for teaching. And Apple were real stimulants in terms of the use of technology for educational purposes."

In a market environment where universities were still running their own Apple shops and universities were wrestling with acquisition issues as much as anything, Porter saw the opportunity to expand the AUC's role within the universities – encouraging the development of universities' Mac expertise with the promotion of the AUC Development Fund scholarships.

This funding, combined with the introduction of AUC developer and academic conferences, provided a centre of gravity for the many different schools of thought on new technologies to be found throughout the AUC member universities.

"Each university came to the AUC with slightly different things they want to get out of it, which made it a bit like herding cats," Porter laughs.

"The conferences allowed academics from different institutions to come together and share ideas. Universities are both competitive and collaborative, but this provided another avenue for sharing educational experiences, and gave the AUC a lot more focus during that time."

Porter also recalls the strong commitment of Apple Australia, which despite the company's well-documented struggle during the late 1990s remained steadfastly committed to the university sector and continued to support the AUC's local initiatives. Apple, like the increasingly Net-aware universities, was going through a period of change but strong support of the AUC helped keep supportive academics and developers onboard.

Porter now works in business consulting, conducting capability reviews for companies through his Sydney firm Greg Porter and Associates. A decade after the end of his tenure, he still fondly remembers his time with the AUC – including the "incredible range of people" he met in meetings across Australia and during trips to Apple headquarters in Cupertino – and maintains many of the friendships that began during that pivotal transition time.

"It was a pretty exciting time all around," he says. "Technology had become much more inherent in the infrastructure, so it was inevitable that things were going to change. We focused the AUC a bit more, and it became a community rather than just a series of channels for Apple to sell more product. By the time I left, I think it was much more coherent and certainly had a much more focused goal. And I built up some terrific relationships at the time, including friendships that have continued on to this day."

## My time with the AUC so far (a series of firsts)

By Carrie Clarke

When I applied for an AUC scholarship three years ago, I was extremely excited about the prospect of going to MacWorld. I was thrilled when I found out that I was successful and immediately started planning my trip - my mind racing through all of the opportunities. There was going to be so much to do: this would be my first conference, first keynote, first trip to the USA and first visit to an Apple store. What I didn't realise at the time was another first: this trip would also act as a catalyst for my involvement with the AUC.

MacWorld 2007 was amazing. The keynote where Steve Jobs announced the iPhone was a special moment in Apple history and it was incredible to be there and watch the crowd's reaction.

The main component of MacWorld was the conference: being a tech, I took the MacIT stream and learnt all about lab management, packaging and OS X server from some very talented speakers who work at places like Disney, MTV & Yale University. Not only were these sessions really informative, but the presenters and attendees also offered some really helpful tips and recommendations which have served me well in my day-to-day job ever since.

Another significant part of MacWorld was the social events. In another first for me, I got to meet a bunch of people in similar jobs at other Aussie universities, at an AUC meet-up in a pub in

## Photo Gallery: AUC 25th Anniversary Dinner





San Francisco. It was great to hear some familiar accents and share our experiences of MacWorld so far. It was here that I met Stephen Johnston (the previous editor of *Wheels for the Mind*) and as a result, I ended up writing an article on my MacWorld experiences from a first-time delegate's point of view in the Autumn 2007 issue.

I enjoyed writing this article so much that I eagerly accepted the offer to write for each issue of *Wheels for the Mind* since; this article will be my tenth. Most of these pieces have been about conferences or events, but the last three have all been about the iPhone. Of course I couldn't have done this without my brilliant iPhone, which has a story of its own.

The day the iPhone was first released in Australia also happened to be the final day of X World 2008 and not long after the Apple flagship store in Sydney opened its doors. This coincidence inspired a few more new experiences for me: my first visit to an Apple store in Australia, my first line-up outside a store to buy something and my first iPhone! Unfortunately it also happened to be one of the coldest days in Sydney that year.

In a change of momentum, X World 2008 was not actually a first for me. I was fortunate enough to attend in 2007 as well. These AUC events were a good mix of presentations, workshops

and interaction. One of the great parts of X World was meeting other people doing similar jobs and sharing experiences - and then being able to put a face to a name when they post messages on the UniMacTech mailing list.

In addition, the opportunity to receive specialised training on integrating Apple technology into higher-ed environments, presented by people with loads of industry experience, has been great. In retrospect, it has helped me a lot in my day-to-day work - including preparing Mac labs for CreateWorld. My technical skills have also been furthered through attending a couple of AUC subsidised Apple training programs in Mac OS X Server, which I have also found to be really useful.

These professional development opportunities have in turn resulted in another first for me: presentations. Once very wary of public speaking, I've now given quite a few presentations to other staff back at my university - sharing highlights from AUC events to managers, sharing technical tips and knowledge with peers and sharing ideas on interesting pedagogical applications of technology with academic staff.

Although it has not been that long since my trip to MacWorld, I have been fortunate enough to participate in many different aspects of the AUC. I'm very grateful for the new experiences and

opportunities that I've had along the way and look forward to more in the future...

Happy 25th anniversary!

### Memorable moments:

MacWorld 2007: Steve Jobs (Apple CEO), "Today Apple is going to reinvent the phone. And here it is..." at this point he teased the crowd with a gag image (white iPod with rotary dial), before going on to unveil the real iPhone to the world for the first time.

X World 2007: Steve Hayman (National Consulting Engineer, Apple USA - based in Canada), offering his insights into the similarities and differences between Canadian and Australian toilets.

X World 2008: Alexandre Bonucci (Lyon Université, France), on implementing change - commented that he found three types of people, people who are always against everything, people who think the university was better in 1968 and people who are ready to accept change.



# Apple Bytes

All the latest out of Cupertino



## iMacs redux: faster, bigger, better, more

Just in time to fill the Christmas shelves, Apple unleashed an array of new products as it revamped its iMac line with larger screens, better specifications and lower prices all around.

The new iMacs replace the previous 20 and 24-inch models with 21.5-inch and 27-inch full 16:9 widescreen models and processors ranging from 3.06GHz Intel Core 2 Duo up to the option of the blisteringly-fast quad-core Intel Core i7.

Depending on the model, there's built-in NVIDIA GeForce 9400M integrated graphics or ATI Radeon HD 4670 or Radeon HD 4850 discrete graphics, and the new systems feature from 4GB to 16GB of 1066MHz DDR3 RAM.

All models in the new lineup feature an LED backlight to minimise power consumption and provide consistently bright, rich images with a 178-degree viewing angle across the 1920x1080 (21.5-inch model) or 2560x1440 (27-inch model) displays. Furthermore, the new models come with the new multi-touch capable Apple Magic Mouse and a reworked wireless Apple Keyboard, as well as an SD Card slot to complement built-in wireless, wired, and FireWire 800 ports.

Not only are the new models turbocharged and buffed, but the increasingly strong Australian dollar has delivered more competitive pricing than ever. The base 21.5-inch model starts at \$1599 with 4GB RAM and 500GB hard drive, with four models ranging up to \$2599 for the quad-core Intel Core i5 model with 27-inch screen, 4GB RAM, and 1TB hard drive. The 2.8GHz quad-core Intel Core i7 processor is a \$290 option, as is a 2GB hard drive.

[www.apple.com.au/imac](http://www.apple.com.au/imac)



## Look ma, no buttons

After three years, Apple's Mighty Mouse is no more. In its place, Apple has introduced Magic Mouse – a dramatically different design that gets rid of buttons altogether and adds Apple's Multi-Touch technology to let users navigate through their documents using finger gestures.

A Bluetooth wireless mouse, the Magic Mouse supports a range of one or multiple-finger gestures that can be programmed for a range of functions including scrolling through a document, navigating through Web pages or collections of photos, and so on. Magic Mouse ships with all new iMacs and is available as a separate purchase for \$99.

[www.apple.com.au/magicmouse](http://www.apple.com.au/magicmouse)



## Mac mini: Faster specs, lower price

Already updated early in the year, Apple also bumped the specs on its Mac mini while dropping prices considerably.

The entry-level model used to cost \$1049 with 1GB of RAM and the high-end model \$1399 with 2GB of RAM, but the new models weigh in much lower. The entry-level Mac mini now costs \$849 with 2GB of RAM and \$1099 will buy you a model with 4GB RAM and a 2.53GHz Intel Core 2 Duo processor.



## MacBook joins the fold

Apple's entry-level MacBook, long known simply as the 'white MacBook' due to its casing, has been brought in line with its higher-end relatives thanks to a major feature bump.

Featuring a polycarbonate unibody design and LED-backlit display as well as a glass Multi-Touch trackpad and a seven-hour battery, the reworked MacBook is being pitched at consumers and students, with favourable exchange rate allowing Apple to slash its price from \$1599 (for the previous model) to \$1299.

Featuring a 2.26GHz Intel Core 2 Duo processor, 2GB RAM, 250GB hard drive, and NVIDIA GeForce 9400M integrated graphics, the MacBook meets Energy Star 5.0 power consumption requirements and has EPEAT Gold status, helping it toe the environmental line set by Apple's MacBook Pro models.



## iTunes 9: Genius incarnate

Apple's September iPod event saw the launch of a major release of iTunes, with iTunes 9 offering a range of features for music lovers and new iPods with improvements including video recording and a boost to performance and storage space.

iTunes 9, available as a free download from [www.itunes.com](http://www.itunes.com), incorporates features such as Home Sharing – to easily transfer songs, movies and TV shows between libraries on a home network – and Genius Mixes, which taps into global listening trends to generate relevant music mixes based on one seed song.

The release of iTunes 9 was accompanied by the release of the iPhone 3.1 operating system, which works with iTunes 9 to enable organisation of iPhone and iPod touch applications onscreen. There are also downloadable ringtones, improved syncing options, a heavily restructured App Store layout that provides better searching and increased visibility for iTunes U and other types of content, and more.

## iPods galore

Also released at the September iPod event, not surprisingly, were updates across the iPod range. The new iPod touch lineup, priced from \$268 for an entry-level model similar to the 2008 model, includes a faster processor and comes with 32GB (\$399) or 64GB (\$549) of storage.

The diminutive iPod shuffle, which does away with the screen altogether and is controlled using a switch on the headphone cable, now comes in 2GB (\$79) and 4GB (\$109) capacities and five colours. There's also a \$139 polished stainless steel version with 4GB capacity.

Attracting the most attention, however, was the revamped iPod nano. Available in 9 colours and capacities of 8GB (\$199) or 16GB (\$249), the new nano incorporates features including a video camera, larger 2.2-inch display, and FM radio with Live Pause and track tagging features.



## Snow Leopard unleashed

Apple shipped the much-anticipated Mac OS X 10.6, a.k.a. 'Snow Leopard', on August 28, offering the new operating system as a \$39 upgrade that reworked 90 percent of the operating system's core architecture, boosting reliability and tweaking a range of features.

Among the new operating system's key features are a rewritten Finder; faster Mail, Time Machine and Safari; a redesigned multimedia subsystem in the form of QuickTime X; built-in support for Microsoft Exchange Server 2007; better accessibility support; and a Dock with Exposé integration. Adding to its appeal, Snow Leopard is smaller than Leopard and typically frees up 7GB or more of drive space once installed.

Snow Leopard also benefits developers with the introduction of Grand Central Dispatch, an operating system subsystem that eases development of applications that take advantage of multicore processors, and OpenCL, an open standard that lets applications tap into the massive computing power inherent in modern graphics processing units (GPUs).

We at Wheels will be tracking the adoption of Snow Leopard across member universities; if you're doing development with Snow Leopard's new features, drop us a line to let us know what you've come up with!

In the meantime, start your Snow Leopard journey at [www.apple.com.au/macosx/](http://www.apple.com.au/macosx/).

## More than 2 billion served

The iTunes App Store just keeps getting bigger, with downloads passing 2 billion late in September. At that point, there were more than 85,000 apps available through the store and over 125,000 developers registered for Apple's iPhone Developer Program. Apple recently upped the tally to over 100,000 apps.

## Professional apps get a boost

Apple's latest updates haven't all been about hardware, however: Apple's pro-level video and audio tools also got a refresh earlier in the year.

Final Cut Studio incorporates revamped versions of Final Cut Pro, Motion, Soundtrack Pro, Color and Compressor, with more than 100 new features including better workflow and output format support; improved 3D shadows, multitrack audio tools, full-resolution colour support, and more. Final Cut Studio costs \$1499 or \$449 for an upgrade; see [www.apple.com.au/finalcutstudio/](http://www.apple.com.au/finalcutstudio/).



Also updated was Logic Studio, Apple's pro-level audio application. Apple claims over 200 new features ranging from Logic 9's Amp Designer and Pedalboard plug-ins to Flex Time tools that improve manipulation of music tempo and timing. The MainStage 2 live performance application includes new Playback and Loopback plug-ins for backing tracks and real-time loop recording for on-stage performance. Soundtrack Pro 3 and Compressor 3.5 are also included, facilitating handling of videos' audio and content encoding, respectively. Logic Studio costs \$749 or \$299 for upgrades; see [www.apple.com.au/logicstudio/](http://www.apple.com.au/logicstudio/).



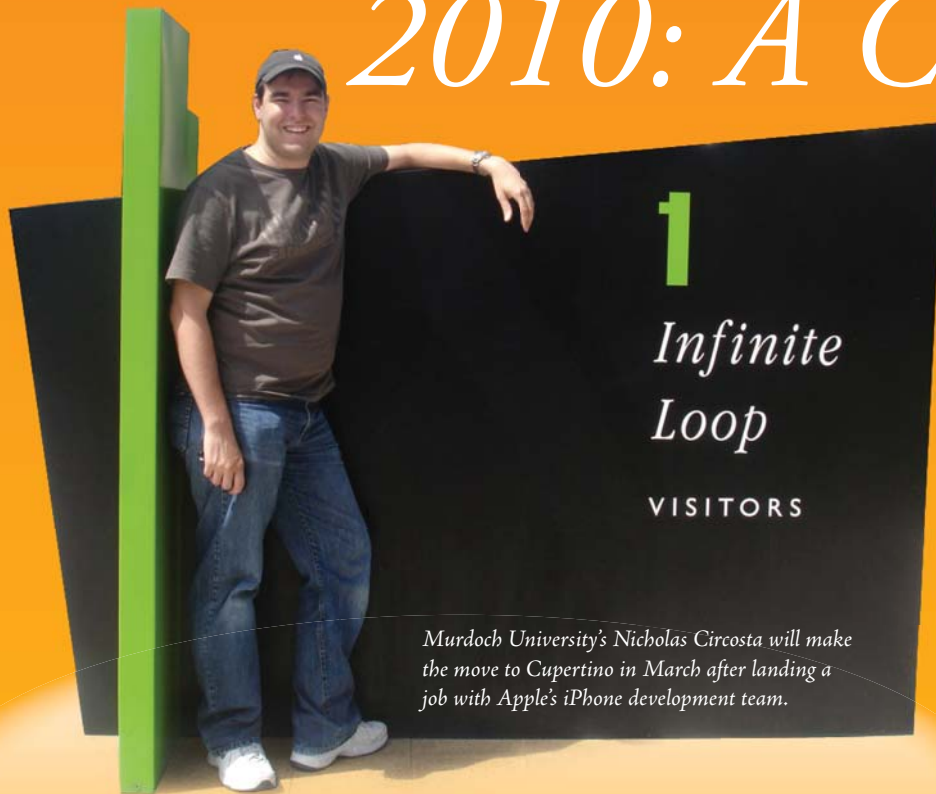
## Don't forget Apple's education pricing

Apple Australia offers educational pricing for university students on all its iMacs and MacBooks. For example, Mac minis and the MacBook drop by \$70; the Mac Mini with Snow Leopard Server \$100; iMacs, MacBook Pros and MacBook Airls by \$150; and Mac Pros by \$400.

Discounts are available to university and TAFE students, teachers, administrators, and staff members as well as parents of current, accepted or applied university students. There's a limit of one discounted desktop and/or notebook per academic year.

See [store.apple.com/au/browse/home/education\\_routing](http://store.apple.com/au/browse/home/education_routing) for details.

# 2010: A Cupertino Odyssey



Murdoch University's Nicholas Circosta will make the move to Cupertino in March after landing a job with Apple's iPhone development team.



Working at Apple may be a dream for most Macphiles, but Murdoch University honours student Nicholas Circosta is getting ready to live the dream after he was recently hired at Apple's Cupertino headquarters.

The opportunity came as something of a surprise after Nicholas attended Apple's WorldWide Developers Conference (WWDC) in June thanks to his AUC Student Developer Scholarship. Through a series of fortuitous encounters, Nicholas received a call with an invitation to visit the team at Apple.

The interview process involved a series of detailed but friendly interviews. "I didn't think I'd gotten it," Nicholas laughs after recalling the farewell handshake in Cupertino and his 24-hour trip home.

A few days later, however, Nicholas was delighted to receive a call offering him the position, which he describes as "a dream", and is excited to hit the ground running upon his arrival in California in March.

Until then, he'll be working to wrap up his Computer Science Honours project, which is supported by an AUC Student Developer Scholarship. That project is based around an application, called iClass, that he developed to facilitate the use of iPhones in classroom settings.

Using iClass, teachers can deliver quizzes, voting, chatting and more features for students. "I like to think of it as the be-all and end-all of using iPod touches in the classroom," he laughs. "It allows remote management so the teacher can see

what the students are doing, and while it's not a commercial product it's a prototype to help me get my data for the project."

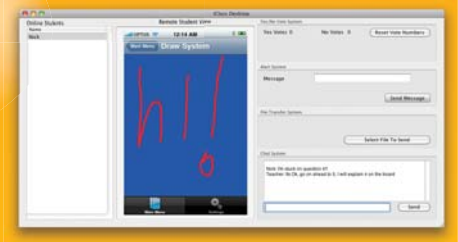
Nicholas is currently working with a local high school to test the application in a real-world setting, and has had strong interest that he says could potentially lead to bigger and better things for iClass.

In the meantime, he's wrapping up the current research and researching the best places to eat in Cupertino as he prepares to make his trans-Pacific move.

It's the ideal ending to a journey for which Nicholas credits University of Wollongong academic and longtime AUC advocate Daniel Saffioti, who first introduced him to the iPhone as an imported unit in the days before the App Store had even been launched.

Nicholas fell in love straight away: "ever since Daniel told me you could program the iPhone, I've been doing it," he says. More recently, he's shared that love with others: from 30 September to 2 October he led the AUC's iPhone/iPod Touch SDK Workshop, a well-attended course at which he walked keen developers through the devices' application environment.

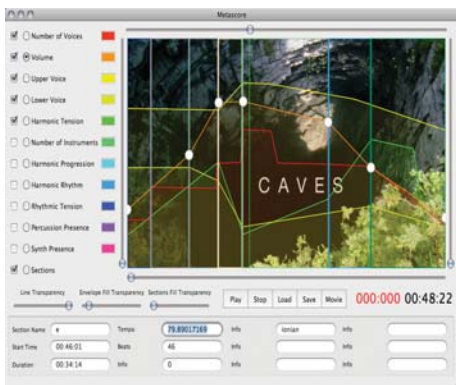
After moving to mobile development, he hasn't looked back: "I had done Mac programming before, but when I started playing with the iPhone, I could see it was the future and it clicked that it was what I wanted to do with my life. Now, to get a job that lets me do that for a living, is absolutely cool."



iClass, Nicholas' Honours-year project, provides quiz, voting, chatting, drawing, and other features to link teachers and students in the classroom.

# Spreading Jam2Jam around the world

The Jam2Jam team has recently increased its profile in Hong Kong after the Hong Kong Institute of Education bought 100 MacBooks to encourage teachers to use Jam2Jam.



The One Laptop Per Child project is tapping Jam2Jam for a rollout to Aboriginal communities.



From little things, big things grow, goes the saying, and Jam2Jam is no exception. From the time it was featured in *Wheels* at the beginning of the year, the Queensland University of Technology-backed collaborative music project has gone from strength to strength.

Most recently Jam2Jam has done everything; from a major MacBook investment in Hong Kong, a multinational conference about collaborative music education, potential commercial collaborations, outreach in Aboriginal communities, and a new music creation tool for films that has caught the attention of filmmakers around the world.

A product of the QUT-based Australasian Cooperative Research Centre for Interaction Design (ACID), Jam2Jam funnels gestural data from virtual musical instruments over the Internet, allowing users to play collaboratively with people located on the other side of the globe. It's built with Impromptu, uses Mac OS X's Core Audio technologies and generative technologies to overcome issues of latency and timing, as well as tapping into the power of ACID staffer Andrew Sorensen's Impromptu programming language.

From initial explorations through a two-month installation at Sydney's Powerhouse Museum, Jam2Jam has grown into a worldwide phenomenon. At the JamSkolan '09 symposium

([www.savetodisc.net/jamskolan09](http://www.savetodisc.net/jamskolan09)) recently held in Brisbane, QUT researchers welcomed representatives from as far afield as the Universities of Illinois and Massachusetts in the US; Cambridge University in the UK; the Malmö Academy of Music at Sweden's Lund University; and, most recently, the Hong Kong Institute of Education (HKIE).

The Hong Kong deal came about as Dr Steve Dillon, Network Jamming project leader within ACID, reached out to the regional education body in an effort that saw Associate Dean and Professor Samuel Leong obtain 100 Apple MacBooks to encourage HKIE teachers to use Jam2Jam as well as GarageBand and other core Apple tools.

But HKIE isn't the only place where laptops are set to benefit from Jam2Jam: the team is working with the One Laptop Per Child project to build a version of Jam2Jam suitable for inclusion on 100,000 low-cost 'gifted' laptops set to be distributed in Indigenous communities across Australia.

"Part of the idea is this notion of cultural fluidity, and being ethical about how we relate to the communities we work with," Dillon explains. "People end up doing surprising things with the tools, particularly in Indigenous communities [such as FNQ's Lockhart River community, where Jam2Jam has been previously trialed in a partnership with HitNet, the Health Information Technology Network]."

However, Jam2Jam isn't the only product from the ACID effort: more recently, the team devised MetaScore, a music creation tool that uses Sorensen's toolset to automatically generate music to accompany movies based on parameters that users draw onto the video as it plays. MetaScore has already caught the eye of one Hong Kong film archiving organisation, which is considering its potential use in adding music to silent films.

The ACID team has also been invited to contribute to a number of music-creation publications, has been investigating possible applications for the apps' use by disabled children through a partnership with the Endeavour Foundation, and is exploring other options for permanent installations in libraries and other public facilities.

Yet as well as catching up with the projects' progress so far, JamSkolan '09 also pressed attendees to address a very real question: with ACID's funding set to expire in 2010, where should the project be directed next? Commercialisation is one option, as are potentially prolonging the research projects through other means or simply transferring the technology into communities that are interested in using it.

"The project won't stop," says Dillon, "just the current funding for it. The user response has been absolutely fantastic."

[www.explodingart.com/networkjamming](http://www.explodingart.com/networkjamming)

# iTunes U: Teach locally, share globally

For the past year, Melbourne's Swinburne University of Technology has been taking its expertise to the world thanks to Apple's iTunes U, a service offering more than 200,000 video and audio clips from nearly 200 member universities around the world.

With more than 10,000 downloads per week of Swinburne staff and student-generated content, iTunes U was already providing an easy channel for the university to share its expertise with the world. But after the launch of iTunes 9 – which increased iTunes U's profile with a number of feature changes – downloads of Swinburne's content more than doubled, and are now averaging around 24,000 downloads per week.

That's a massive boost in exposure for the university, which is using iTunes U as one part of an increasingly diverse arsenal of marketing tools to help differentiate itself in the increasingly competitive global education market.

"There have been some really good success stories to come out of iTunes U for us," says Lisa Germany, academic co-ordinator of digital learning at Swinburne. "One piece of student

work was featured by Apple in the Fine Arts category of iTunes U, and got downloaded 400 times that week. People are using it as a promotional tool to get their work out there, and to get people to contact them."

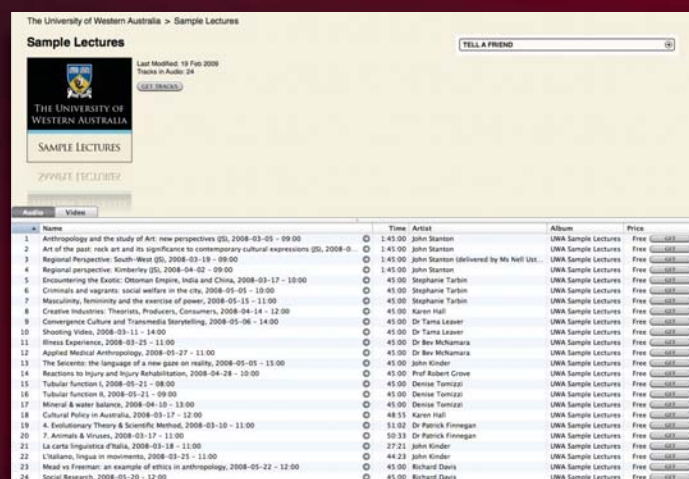
That kind of exposure reflects the increasingly tangible value of iTunes U to the participating universities, whose numbers in Australia and New Zealand expanded recently with the addition of Melbourne's RMIT and La Trobe Universities. The two join ANU; Swinburne; the Universities of Melbourne, WA and NSW; and New Zealand's University of Otago to bring the number of Australasian institutions participating in iTunes U to eight.

Visitors to the universities' mini-sites can choose from a panoply of topics. ANU's professor Ross Garnaut, for one, asks "Must climate change end the platinum age?" and Mark Morris explores representations of Japan in the new Korean cinema; Melbourne University's professor Julian Peto explores cancer vaccine development and professor Mara Olekalns explores strategies for better negotiating. UWA's John Stanton explores ancient rock art and Stephanie Tarbin explores the culture of criminals, vagrants, and social welfare in the city.

Many projects are becoming integrated with the curriculum: in one Swinburne effort, for example, four multimedia students were tasked with a six-month project to produce short films that were posted on the site.

The list of uses for iTunes U content goes on and on – and, judging by the numbers the first local participants have put in, the service is helping get the message out there. "It has been seen as a way departments can tell their story to a larger audience," says Mike Harte, director of Information Technology Services with the University of Otago, which has had over 100,000 downloads of its more than 200 iTunes U items since it launched 15 months ago.

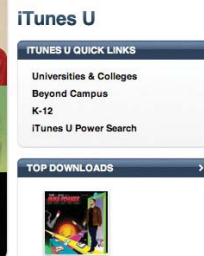
"Having the University of Otago banner appear beside the likes of Oxford, MIT and Yale on the iTunes U main page is the type of advertising we could not buy," he adds. "The comments we receive suggests it has a positive impact on awareness of the university and the great things we are doing. We know of one student from the US who decided to investigate Otago for her postgrad study based on finding our iTunes site. Alumni appreciate being able to keep in contact with the university as well."



Institutions like UWA are loading a diverse array of content to highlight their lecturers' expertise and teaching styles to prospective students.



A computer animation of the 1969 lunar landing put Swinburne University of Technology in front of a global audience during the 40th anniversary celebrations in July.



## Content strategies

For many academics whose exposure to the world has been limited to the inside of dusty academic journals, the opportunity to share research in full multimedia style has presented both new opportunities – and new challenges.

“It can be very difficult for academics to get their message out,” says Mick Foley, an associate professor within La Trobe University’s Department of Biochemistry. “That’s primarily because we’re not very good at making it understandable to people; most of us have a hard enough time keeping our Web pages up to date,” he laughs.

Foley’s research into shark antibodies was posted on iTunes U after he was quoted in a documentary made by the ABC’s 7:30 Report late last year. But it wasn’t he that posted it; rather, he says, the university’s marketing staff saw the site as a way to capitalise on interest generated by the show.

“It was a bit of news to me that we were involved in iTunes U, since not an awful lot of people out there have a firm grasp of what it is, Foley says. “But it got taken up by a lot of places; I had people emailing me articles in Norwegian.”

As many universities have quickly found out, Apple’s decision to increase the focus on iTunes U within iTunes 9 has significantly increased the presence of the university-generated content on

the global education scene. This increases the pressure not only to keep content fresh – most universities report trying to post a handful of new videos per week – but also to better align iTunes U activities with the rest of the university’s marketing strategy.

As a result of this expansion, many universities are working with marketing units to partially or completely hand over responsibility for iTunes U content. This includes the implementation of far more rigorous policies for updating iTunes U content and managing responses to enquiries it generates.

At Swinburne, for example, Germany says the marketing department is working out branding and style guidelines to ensure consistent messaging. “It has really prompted us to start thinking about a more co-ordinated approach to rich media, and we’ve pulled marketing, Web design and other staff into our conversations,” she explains.

“When you’ve got different people doing different things all over the place, none of it is a consistent style. We’re now trying to tie all that into the new Swinburne branding, and make sure it matches the Swinburne style guide. The idea really is to have a completely co-ordinated approach so everybody has the same messages and uses the same style.”

Content and marketing may help universities on iTunes U, but relevance doesn’t hurt either; Germany recalls a spike in traffic after an animation of the moon landing – produced by Swinburne’s Centre for Astrophysics – was featured on Apple’s iTunes U page during the week of the 40th anniversary of the moon landing back in July. “Apple seems to have a theme each week,” she explains. “If you can integrate into that theme, you have a better chance of making it.”

With its first year past and an increasingly enthusiastic body of universities participating, the future of iTunes U would seem to be well established. Reflecting this momentum, Apple Australia recently expanded the local scope of iTunes U by launching a local version of K-12 on iTunes U, a subset of iTunes U that was launched in the US last year as a way for primary and secondary students to join the exchange of information.

The Australian effort initially draws on students from government schools across Western Australia, Catholic schools across the country, and WA’s Presbyterian Ladies’ College and Scotch College. However, if the success of iTunes U is any indication, the K-12 effort could soon see equally heady growth. In an education market with an increasingly global focus, iTunes U is both setting expectations, and helping set the pace of innovation.



This claymation video, from SA’s Holy Family Catholic School, is among the student content shared through Apple’s new K-12 on iTunes U section.



Melbourne’s La Trobe University is one of the more recent Australasian additions to iTunes U.

# Developers' Corner



Charles Sturt University's James Bekkema presented on how to build Cocoa applications in Python.



Firemint CEO Rob Murray talked about runaway successes *Flight Control* (above) and *Real Racing*, which have been downloaded millions of times.

## /dev/world 2009 dives deep

The AUC Academic & Developers Conference may not have gone ahead, but /dev/world 2009 still provided a wealth of content for the attendees that gathered at the National Convention Centre in Canberra.

This was the second time that /dev/world has been held, and the event is now destined to become a permanent fixture on the annual AUC calendar, finding a home for developers alongside the AUC's more established X-World and CreateWorld events.

The two-day conference, held on 28 and 29 September, drew nearly 100 attendees from around the country with a program that saw two feature presentations and 20 additional sessions spread across a range of topic areas including tools and technologies, graphics, polish, and iPhone development.

The first feature presentation was by Rob Murray, the CEO of Melbourne-based iPhone success story Firemint. Rob talked about the company's history as a contract developer for other mobile devices, and their move to become a publisher of their own games for the iPhone.

Rob's messages to developers were manifold, but perhaps the two most important points were that success can come from unexpected quarters, and that you should always aim to finish.

As an example of the former, the company's phenomenally successful *Flight Control* game started life as a one-week break from their regular development schedule, and it quickly became a hugely successful product for the company, widely lauded on the internet and in gaming circles and selling more than 1.5 million copies. The company's other big iPhone success story is *Firemint Real Racing* – so successful in fact that Volkswagen recently commissioned the company to produce a free version featuring the Volkswagen 2010 GTi.

The second feature presentation was by Derek Gerstmann ([local.wasp.uwa.edu.au/~derek](http://local.wasp.uwa.edu.au/~derek)), a research fellow from the University of Western Australia who was until recently an Apple employee and who worked on the development and implementation of OpenCL for the company.

Derek's talk – Parallel Programming for Multi-Core Devices – was a technological tour-de-

force, looking at processor trends and how modern GPUs are becoming more flexible at the same time that CPUs are adding more cores and features such as hardware threading. The challenge with such technology is be able to use it effectively, and Derek's talk looked at various approaches that have been under development in recent times to do just that, including Snow Leopard's OpenCL and Grand Central Dispatch.

The 20 session topics ranged from next-generation HTML and CSS on Safari and developing Interface Builder plug-ins to massively parallel computing, the Unity 3D game engine, Quartz Composer and iPhone development. Many of the speakers were regular AUC contributors and we were delighted to have a number of first-time speakers at an AUC event, including David Winder, Chris Neugebauer, Josh Deprez and Carlos Queiroz.

Many of the regular sessions were recorded, and will be available for download from the AUC's web site ([www.auc.edu.au](http://www.auc.edu.au)). – Tony Gray



## Building for the iPhone/iPod touch

Would-be iPhone developers converged on Canberra from 30 September to 2 October to get a detailed look at the foundation, core services, and development strategies involved in building applications for the iPhone and iPod touch.

The three-day course, taught by iPhone expert and soon-to-be Apple employee Nicholas Circosta (see page 12), covered everything from development tools and user interface design to database structures, multi-touch interfaces, graphics and drawing, animation and location services, and the new features in the iPhone SDK 3.0.

"The structure was thought out well, with interesting content throughout," said one attendee. "It kept getting better as the workshop progressed; I was particularly interested in the graphics/animation and multitouch."

"The trainers were a great combination, with Nick the more technical and Brock more the graphics/games type," said another. "It was a good balance allowing for more diverse hands-on exercises."

The AUC provided 25 partially subsidised places to the workshop, for which attendance was strong and the response positive. Given ongoing strong demand, the AUC anticipates more iPhone-related education in the not too distant future.



## Cocoa meets Python

The iPhone event came hot on the heels of the AUC-sponsored Cocoa Python workshops held in Sydney (20-21 August) and Melbourne (3-4 September).

These well-attended events, delivered by Charles Sturt University's James Bekkema, covered the basics of programming Cocoa applications in Python, designing tools and applications using Xcode and Interface Builder, and using Python for Web scripting. Over the course of the two days, attendees worked through the basics and ended up building their own scripts using the concepts they had learnt.

Feedback was strongly positive. "James did a great job of making it seem practical and relevant," said one respondent. "I feel like I understand all the fundamental issues to program in Cocoa-Python and could immediately start working on a project utilising the technology."

"The course had a really good mix of hands-on and instruction," said another. "An extra day would have been well appreciated, in order to focus more on the Python-Cocoa bridge, and developing more applications. But I gained some confidence with my coding because we did so much of it with James walking us through it. He instructed us quite competently, and I would attend another of his courses if given the opportunity."



## Mac, PC, take your corners

Tea vs coffee, AFL vs rugby league, Mac vs PC: some timeless, pointless arguments just refuse to go away. But that doesn't make them any less interesting, as more than 200 University of Wollongong Computer Science and IT students found recently when they gathered to attend the 'Battle of the Operating Systems'.

With the 'Snow Leopard' upgrade to Mac OS X newly on the market and a major Windows update looming, the 17 September event was perfectly timed to focus attention on the two platforms that are driving the growth of desktop computing.

"The event was designed to give students an awareness of cool innovations and emerging technologies along with the tools needed to help their degrees," said Daniel Saffioti, a lecturer in the UoW School of Computer Science and Software Engineering who helped organise the evening event. His goal was to highlight the state-of-the-art and various opportunities that are available for student developers.

The turnout was the largest for such an event, with prizes on offer and engaging presentations from Steve Duda and Joshua Atkins (for Microsoft) as well as Saffioti's presentation on Apple's technology stack. The AUC also got a look in as Saffioti highlighted the AUC's WWDC scholarships and other staff and student development programs.

And which platform came out on top? Surprising few, Macs were the favourite on the night.



# NEW VIEWS OF REALITY

The field of context-sensitive information has gained momentum recently, with so-called 'augmented reality' iPhone applications such as NearestPlaces and the Layar Reality Browser providing new ways to display geographically relevant information.

For University of New South Wales senior lecturer Dr Daniel Woo, however, explorations in context have led to new ways of representing physical spaces using different types of audio content.

Woo spoke with Wheels in 2007 about his work with Audio Nomad, an "augmented audio reality" setup using a custom-built 12.1-channel audio system mounted on a boat in Sydney Harbour. Using a custom Mac-developed platform and audio mixer built using XCode, Cocoa and Interface Builder, audio commentary covering preservation of The Rocks, Captain Cook and shark attacks was localised to the physical locations to which it related.

Since then, he has been working to extend the concept in new directions.

One result is a podcast, produced along with Michael Clarke, called Sydney's Birthplace Walk ([nomad.web.cse.unsw.edu.au/heritage](http://nomad.web.cse.unsw.edu.au/heritage)). The production is an audio tour of Sydney's historical The Rocks region that combines audio narration and images for display on the iPhone's screen. Around 75 minutes of audio content

narrates a 2.5-hour walk around the area; the content was collated from a variety of historical archives.

Another project that grew out of Woo's sound experiments is an installation art setup that rings a table-based display with the 12.1-channel surround sound. Recently installed in the National Museum of Singapore, the displays show maps of the island and its surrounding waters; viewers could navigate the maps by touch, with broad range of audio recordings tied to specific locations on the maps.

The project, co-created with audio performance artist Nigel Helyer, was built on a partnership with the Marine Mammal Research Laboratory at the National University of Singapore ([www.tmsi.nus.edu.sg](http://www.tmsi.nus.edu.sg)). Working with the NUS team, Helyer recorded a broad range of in-water sounds using underwater hydrophones, paired with above-ground recordings and photographs.

"We had the table set out, speakers in the roof and subwoofers on the floor," says Woo. "People could experience the sounds of Singapore – the clicking of shrimp, the sounds of boats, and much more. Basically, Nigel took a multimedia snapshot of Singapore over a three-month period."

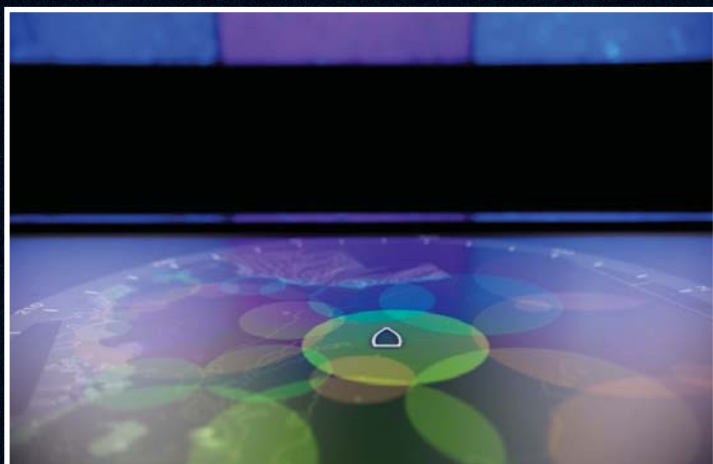
The Singapore project wasn't the only use of the immersive audio technology: Woo and Helyer also collaborated on Echolocated

([marin.translocal.net/ecolocated](http://marin.translocal.net/ecolocated)), a project with M.A.R.I.N. (Media Art Research Interdisciplinary Network, at [marin.cc](http://marin.cc)) in which audio recordings – including spoken notes and audio interpretations of water quality readings generated by a John Drummond-created algorithm – were recorded during a voyage between Germany and Ireland.

"It's our first foray into the whole question of climate change," says Woo. "It's about people being in a place: if you're in a place, what does that mean, and how does that determine your experience with the environment?"

The iPhone, in particular, has excited Woo's interest recently thanks to its built-in GPS and compass capabilities. One project, for example, is building an iPhone-based interactive map to help UNSW students find their classes on campus. Other ideas will soon follow, Woo says: "we now have a device that knows where it is and what direction you're facing."

"We can use it to augment the environment with something that comes from a device you can put in your pocket: this will let us deliver that whole sensory experience that the phone comes with as delivered, or developers can go on to enhance it. If you think about it and what we were doing in 2007, we were just waiting for a device that looked and worked like the iPhone."



An auditory representation of Singapore's maritime surrounds led to an interactive installation at the National Museum of Singapore.



An algorithm was used to convert water quality readings, taken over a voyage from Germany to Ireland, into audible geographic representations.

# MACQUARIE GAMING COMP



*Macquarie University's Ujjwal Sharma (left) and AUC co-ordinator Adam Shah recently organised a well-patronised gaming competition for students.*

## MUCS answers the Call of Duty

Need a way to get the attention of large numbers of students? Why not offer them prizes for playing games?

It certainly worked for the Macquarie University Computing Society (MUCS), which recently held an eight-team competition that brought together 32 game-loving students, who blasted their way through several rounds of Call of Duty 4: Modern Warfare to scoop prizes including iPod nanos provided by the AUC.

It was a banner event for MUCS, which seeks to promote IT interest within computing, science and other students. MUCS has previously languished in relative obscurity, working with the AUC to set up competitions in which computer science and other students would lock horns in programming battles.

Those events typically attracted just a handful of participants, but the decision to turn to gaming was seen as a way for students to let their hair down and attract attention from a wider demographic.

"There are people who are interested in programming competitions, but we wanted to steer MUCS a bit more mainstream," says Ujjwal Sharma, who is studying an IT degree and began this year as president of MUCS. "We wanted a more relaxed approach; while we've had barbeques and other events, there's a bit of a pride issue with gamers, who want to prove they're the best."

The idea grew out of a Macquarie unit called Info 111, in which students get hands-on experience with game-related

programming concepts by playing and analysing Call of Duty and a wide variety of other games. When it came time to discuss ideas for the new programming competition, it seemed like a natural idea to explore options in gaming.

A formal set of rules was drawn up, a draw table set up, and the AUC – via AUC co-ordinator Adam Shah, IT planning manager in Macquarie's Faculty of Science – sponsored the event and offered the iPod nanos as prizes.

"I've had a good relationship with MUCS," Shah explains. "We've organised about three events per year together, mainly programming competitions. And whenever I advertise any of the AUC events, we get quite a few responses from students."



# IMMERSIVE ENVIRONMENTS MEET 3D GAMING

In a world where TVs are big and getting bigger, the idea of large screens has become endemic to our way of visualising things. But even the largest plasma screens are old hat for Paul Bourke, an associate professor within the University of Western Australia's WA Supercomputer Program.

Bourke devotes his research focus to work with super high-resolution displays that are used for visualising high-resolution data and all manner of experimental results using technologies such as 3D stereoscopic vision. One of Bourke's major research projects, the iDome, was the focus when Wheels first spoke with him in 2007, but in the intervening years he has continued his work to provide new and innovative methods of displaying data.

One widely used display technology is the unit's tiled high-resolution display, which provides a 6000x5000 pixel interface providing very high-resolution imaging of complex data sets. "When you look at your computer monitor, you're not engaging the full resolution that the human eye is capable of," Bourke explains.

Another is a custom-built stereoscopic system that uses two data projectors, connected to Mac Pros, to project massive and interactive images representing research data. "Many researchers have data sets that are geometrically complicated enough that they can glean information faster by looking at them in 3D," Bourke explains. "Researchers come to me with problems they have, or things they would like to view in better ways, and I develop the tools for them."

**Bringing it all together.** While the stereoscopic and high-resolution visualisation panels serve particular needs, Bourke's attention has more recently turned to ways in which their techniques can be applied to the iDome's immersive environment.

For example, one project allows iDome users to walk through the Australian Square Kilometer Array Pathfinder (ASKAP) project site, with the dome's peripheral projection providing a fully immersive environment that Bourke says makes it ideal for simulations and immersive design.

Another project, being completed in conjunction with UWA digital media lecturer Dr Peter Morse, is looking at ways to visualise the home base of Douglas Mawson's 1911-14 Australasian Antarctic Expedition. Despite the remoteness of the site – Cape Denison is the windiest place on earth at sea level – Morse has been able to capture extensive panoramic still images and 360-degree video.

Working with this raw data and building on the popular Unity game engine, Bourke has helped Morse build an interactive walkthrough of the site, which remains well preserved but is so remote that it is almost never visited.

The project, and its promise to make remote sites accessible in an interactive way, offer great interest for researchers in a variety of fields – but it hasn't been a walk in the park for Bourke and his team. The unique geometry of the iDome requires extensive image processing to ensure that the projected image is correctly shaped and that geometric issues such as perspective are correctly dealt with.

However, extensive work in Unity and Blender, a similar game environment that's available under an open-source license, has produced some methods for automatically generating the correct fisheye projections on the highly-specced Mac Pros used for the projections.

"Many of these things are based on OpenGL," Bourke explains. "It provides you with perspective projection, but that's no use in a dome because you need fisheye projection. However, it turns out that even though Unity is not open source, its internal scripting and development language is powerful enough that there are some techniques we can teach it to recreate the fisheye projections."

This technique is enabling the creation of fully immersive 3D games, which can be played in the iDome by participants building on Bourke's tools.

In the long term, Bourke continues to explore ways the various types of visualisation environments can be brought together more effectively. For example, he's working out methods for increasing the resolution in the iDome using multiple projectors, and ultimately for a way to transfer stereo projection techniques into the iDome – which would create the world's first spherical 3D environment in which multiple viewers could each look in different directions and still get a 3D effect.

"It's not a simple process, and we still have some hurdles to get over – particularly for real-time materials," Bourke laughs. "But it's going to be interesting."

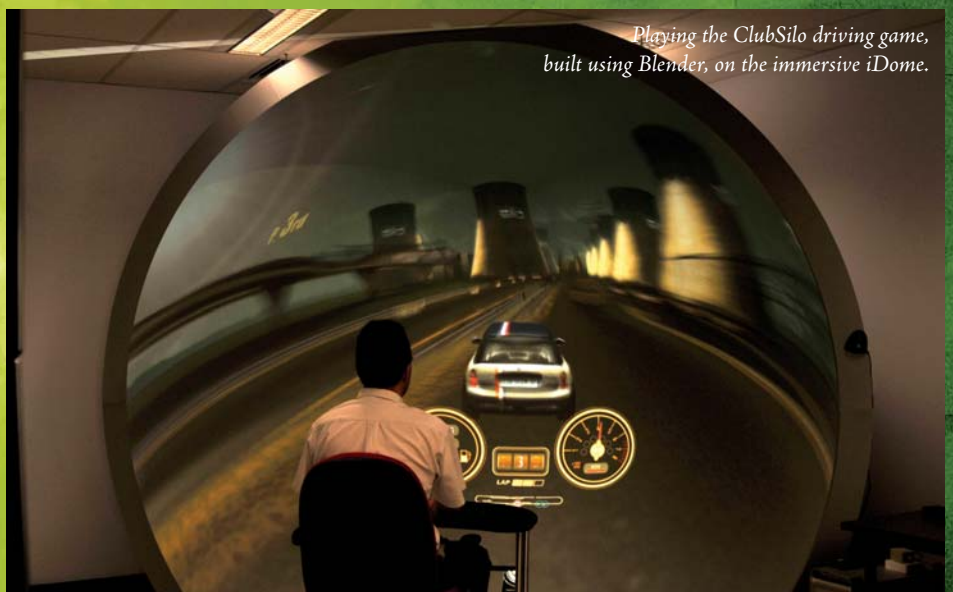
[local.wasp.uwa.edu.au/~pbourke/](http://local.wasp.uwa.edu.au/~pbourke/)



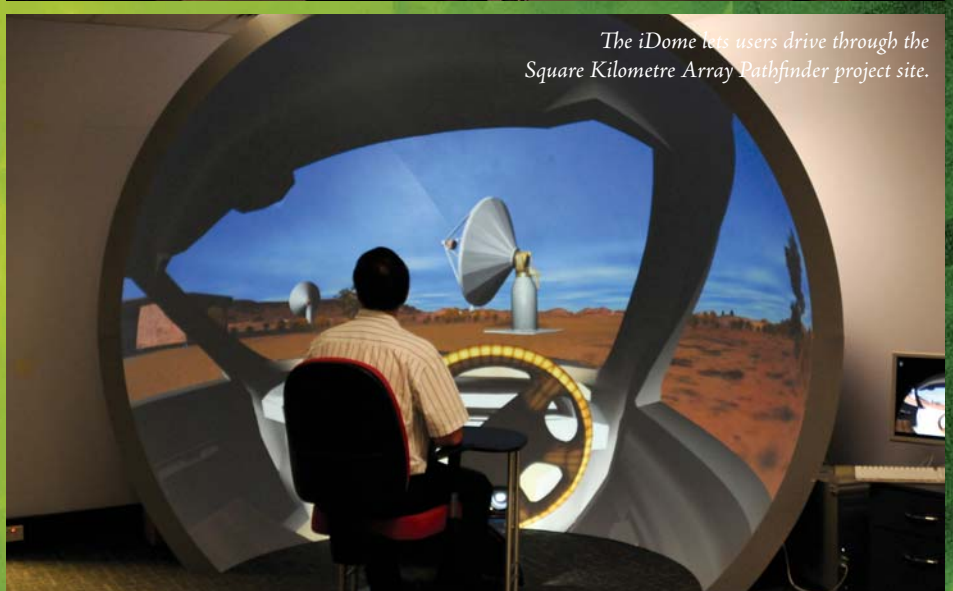
*Mawson's Antarctic huts come to life on the iDome's spherical projection screen.*



*Working within Unity's scripting and development environment has helped Bourke correctly project gaming and immersive environments onto the iDome.*



*Playing the ClubSilo driving game, built using Blender, on the immersive iDome.*

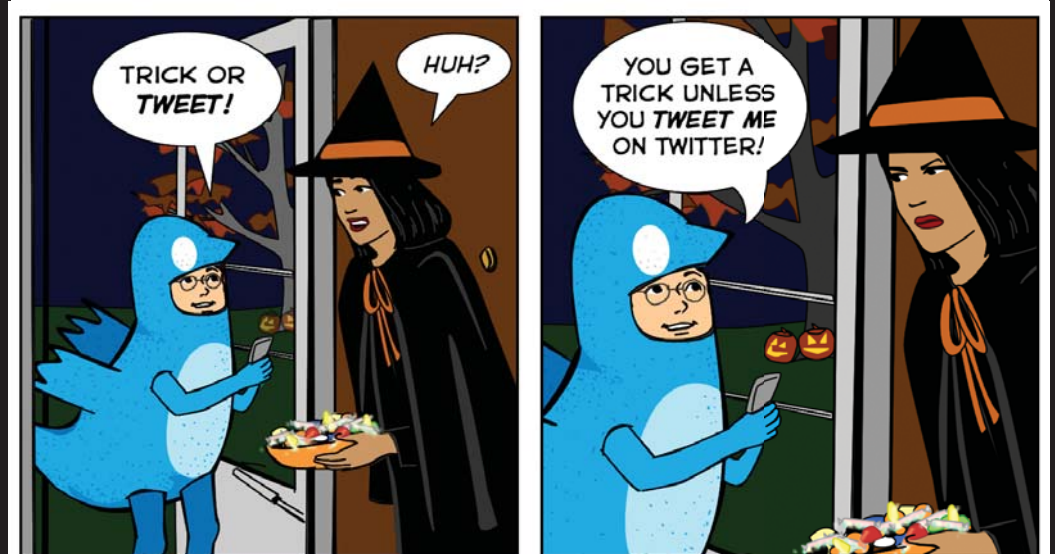
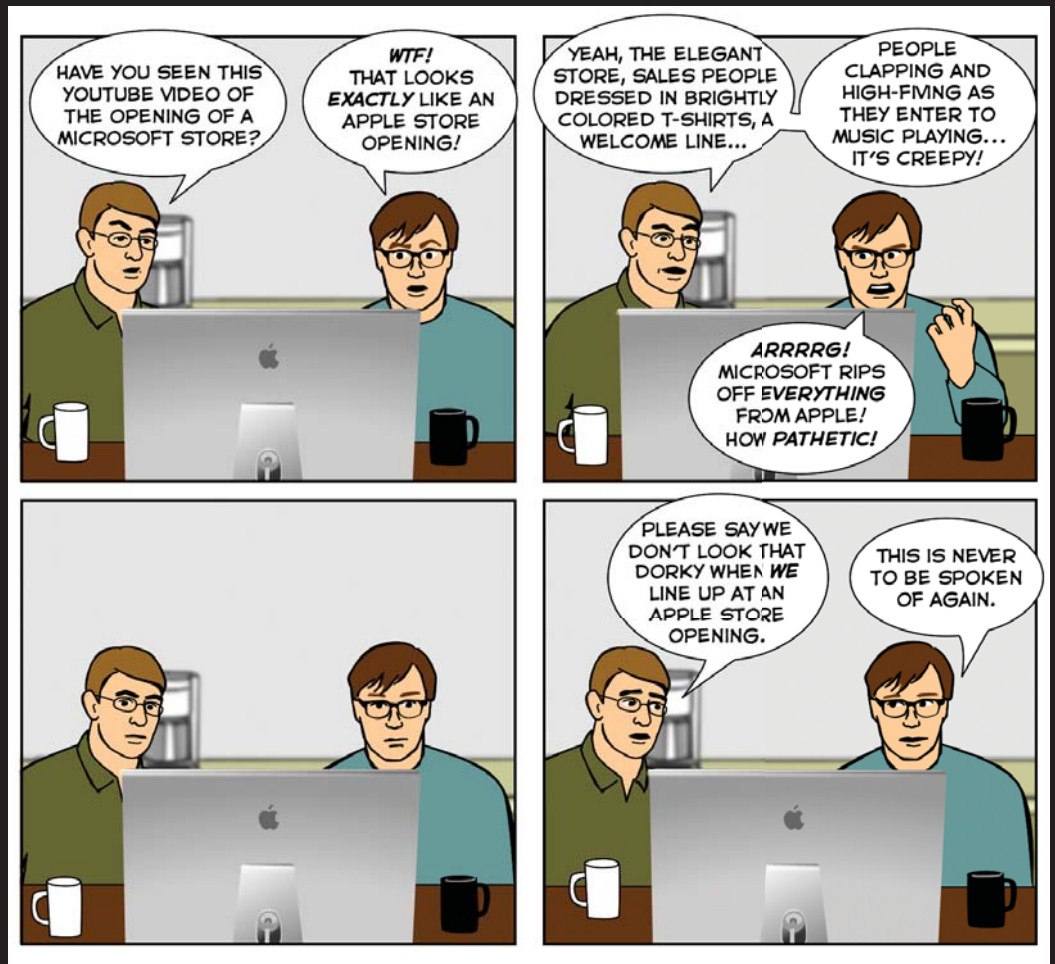


*The iDome lets users drive through the Square Kilometre Array Pathfinder project site.*

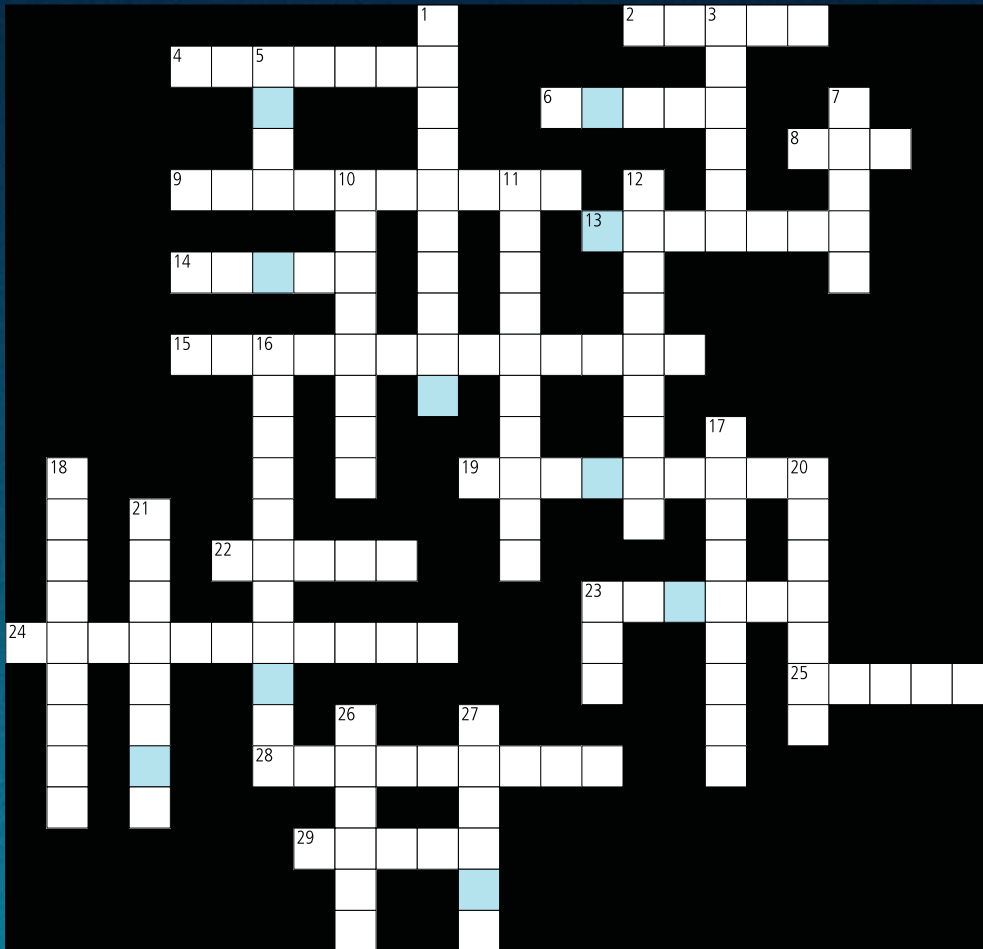
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# CrossWORD Competition



## Across

- 2 Make your own digital stick figures (p2)
- 4 This James taught building Cocoa with Python (p16)
- 6 NZ university on iTunes U (p14)
- 8 Chairman & \_\_\_\_\_ (25th anniversary restaurant) (p6)
- 9 Pointing device with new iMacs (p10)
- 13 iDome requires this type of projection (p20)
- 14 Claimed battery life of new MacBook, in hours (p10)
- 15 Clarke credits the AUC for this first (p9)
- 19 E-book project supported by kindle (p2)
- 22 Other teenage lust object for McMahon (p7)
- 23 Hut seen in virtual reality on iDome (p20)
- 24 iTunes 9 feature spans libraries (p11)
- 25 Games engine covered at workshop (p4)
- 28 Composer at CreateWorld (p4)
- 29 Macworld 2007 stream Clarke took (p8)

## Down

- 1 Game the MUCS students organised (p19)
- 3 WA college recently added to iTunes U (p15)
- 5 Tony who spoke at AUC AGM (p5)
- 7 New iPod nano feature to watch (p11)
- 10 Site for iPhone development course (p17)
- 11 Photoshop Elements feature simplifies masks (p2)
- 12 Kind of deals announced at AGM (p5)
- 16 Joint project with M.A.R.I.N. (p18)
- 17 Automatically writes movie music (p13)
- 18 Jam2Jam built with this (p13)
- 20 ANU climate change lecturer (p14)
- 21 Melbourne developers of Flight Control (p16)
- 23 Winner of Battle of the Operating Systems (p17)
- 26 Circosta's Honours project (p12)
- 27 AUC chair through half of 1990s (p8)



For your chance to win an iPod nano, complete the above crossword (you'll find the answers throughout the articles) and take the letters from the blue boxes then re-arrange them to form a word or phrase. Send this to: [crossword@auc.edu.au](mailto:crossword@auc.edu.au)  
Competition closes at 5pm on Thursday 31st December 2009.

## CONGRATULATIONS

Congratulations to Arun Neelakandan of Macquarie University for winning an iPod nano by correctly completing last issue's crossword to reveal the answer:

**DEVELOP**

An iPod nano is on its way!





# AUC

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<p>Educational Pricing</p> <p>Professional Networking</p>		<p>Technical &amp; Developer Training</p> <p>Seminars &amp; Presentations</p>

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