

MIND



Wheels for the

Placing the Displaced



iPHONE 3GS



INCUBATING Innovation on the Apple Isle



Eight Legs, High-def Eyes



WIN AN IPOD NANO

FREE COPY



Get Windows without getting virtual

If you want to run some Windows apps but don't need the complexity and expense of buying a virtual machine system and a full copy of Windows, consider CrossOver 8 – a Mac OS X port of the open-source WINE Windows emulation system that runs a range of Windows apps directly on your Mac desktop. The \$US40 (\$A50) Standard version supports office 2003/2007, Photoshop CS2 and other applications, while the \$US70 (\$A85) Pro version includes the games-optimised CrossOver Games and more. www.codeweavers.com/products.



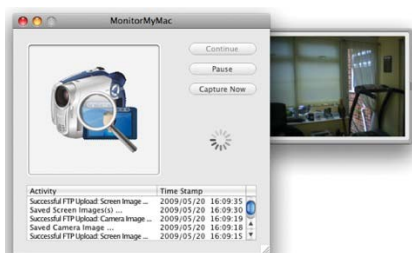
Even up the score

Musicians may already be aware of MakeMusic's Finale music notation and transcription software, and its 2010 incarnation adds a host of new features including better percussion notation, rehearsal mark creation, and chord entry; support for VST and AU effects and instrument plug-ins; the addition of 350 printable worksheets for music teaching; inclusion of over 350 sounds from Garrigan Personal Orchestra and a host of other new sounds and features. Finale 2010 costs \$A809 but academic pricing is available. www.intelliware.com.au.



500GB, no mains necessary

Design limitations have long restricted how much hard drive storage you could bring with you; want more than 320GB and you'd need an AC adapter to power the bigger drives. The LaCie Little Disk, however, packs 500GB into a USB bus-powered hard drive with a retractable power/data cable and a two-year warranty. USB Boost technology claims 33% faster data transfer, and file-syncing and backup software are included. www.lacie.com.au.



Catch thieves and snoops red-moused

Suspect your flatmate has been stuffing up your World of Warcraft campaign while you're in classes? Concerned that your Mac may go missing while you're away for the weekend? MonitorMyMac waits for particular system events – for example, movement of the mouse or exit from screensaver – and emails you snapshots of whatever's in front of it, be it friend or foe, thief or goldfish. £25 (\$A52) from www.monitormymac.co.uk.



More filters than you can shake a camera at

If you're big into photography, you probably already know about Tiffen, maker of physical filters that clip in front of your camera lens to provide special effects. Now Tiffen has gone digital with dfx 2, a collection of 110 highly tweakable and combinable filters for Photoshop, Final Cut Pro, Avid Xpress and Adobe After Effects. From subtle colour and tonal adjustments to customisable filters in nine categories, Tiffen lets you do just about anything you could do with a physical filter. Free 15-day trial or buy it for \$US99.95 (\$A125) from www.tiffen.com/dfx_v2_home.html.



ACDSee takes on iPhoto

It's still only in beta, but ACDSee Pro for Mac is being designed as a head-on rival to iPhoto by bringing the hugely popular Windows photo management application onto the Mac. Instead of importing them to a single library, ACDSee works with your images wherever they are on disk, facilitating categories, ratings, tagging, and so on. Try it out, offer your feedback to shape the final version. Free download from www.acdsee.com/offers/proformac/.

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Wheels for the Mind is published by the Apple University Consortium, PO Box U194, Wollongong NSW 2500.

Apple University Consortium: www.auc.edu.au register online for a free subscription.

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Production: Allegro Graphics **Design:** Meehan Design

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EDITORIAL



Hello and welcome to the Winter edition of *Wheels for the Mind*. My name is David Yammouni and I am currently the interim editor of *Wheels*. I truly hope you enjoy reading this issue, and please feel free to send me feedback and let me know what you think.

I'd like to start off by thanking Stephen Johnston for having been the editor for *Wheels* over the past few years. Stephen has made really wonderful changes to the publication and helped shape it into what it is today. Stephen, we certainly wish you the very best for the future and thank you for all your help and excellent efforts.

We have a great issue packed full of stories of up-and-coming developers and researchers, all of them using Apple gear to produce really interesting and innovative stuff. Take Renata Pronk, for instance: Renata received an Honours Scholarship from the AUC, supporting a project that has seen her doing fascinating research testing octopuses' visual acuity through the use of high definition video. Check out the full story on page 8.

We also caught up with some of the World Wide Developer Conference (WWDC) grant recipients to hear about their thoughts and expectations leading up to the big event. And it was big; after all, what would WWDC be without the release of new gear? The launch of the exciting new iPhone 3GS capped off a half-year in which we've seen updates to nearly all of the Apple product line.

Later on in this issue, Carrie Clarke (formerly Osborne) delves into useful apps for the iPhone, particularly for the student fraternity, while Mark McMahon tackles life's duality by considering his place in *Second Life*. We have updates from Zac Cohan and Nik Youdale from Macquarie University, who are back from their recent internship with Apple in Cupertino. They have very kindly offered free copies of their software (*Soulver* and *Picturesque*) to all students and staff of AUC member universities; see page 13 for details.

Finally, I would personally like to thank the army of people who make *Wheels for the Mind* come together. There is so much that happens in the background and without the efforts of all these people, *Wheels for the Mind* simply would not happen. You guys and gals know who you are and again, my immense thanks to you for everything you do.

So again, I hope that you enjoy this edition of *Wheels for the Mind* and I look forward to hearing your thoughts and feedback. And, as always, if you're doing work you think would be interesting to fellow readers, don't hesitate to drop me a line.

David Yammouni

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AUC Update

AUC conference cancelled, /dev/world still on

The biennial AUC Academic & Developer Conference, initially scheduled to take place in Canberra from 28-29 September, has been cancelled at the decision of the AUC Executive. However, the /dev/world conference, which was to be held as a component of the Academic & Developer conference, will go ahead as originally planned and on the same dates.

The /dev/world conference complements the AUC full roster of events for 2009, including X World 2009 in July, Create World 2009 in early December, technical training and developer workshops throughout the year. The AUC thanks those who had submitted papers for the conference, and apologises for any inconvenience the cancellation may have caused.

X World marks the spot



The hugely popular X World training event is back, and bigger and better than ever.

To be held from July 8 to 10 at the University of Technology Sydney's Broadway City Campus, X World 2009 will run as a three-day conference featuring keynote presentations, hands-on workshops, lecture presentations and social events with a target of up to 200 attendees. The conference is being held specifically for higher-education technical staff who support and manage Mac OS X installations.

See www.auc.edu.au/X+World+2009 for more information.

Student Developer Scholarships announced

The AUC's Student Developer Scholarship program supports student developers who have a talent for, and demonstrated experience in, programming on Mac OS X. Competition for this year's scholarships was rigorous and intense, and there were lots of great ideas to sort through. In the end, the three recipients of the scholarships – which are valued at nearly \$10,000 over two years – are:

- Andrew Bennett, University of Tasmania
- Nicholas Circosta, Murdoch University
- Jonathon Manning, University of Tasmania

Congratulations to all the winners and thank you to all who applied.

Honours Scholarships open July 13



AUC Honours Scholarships provide \$4000 in an annual stipend to support students currently pursuing honours year research in a Mac-related area, or with the assistance of Mac technologies. We've highlighted some of the innovative research being done with AUC Scholarship funding on pages 6-9 of this issue. If you think your honours project has what it takes, why not consider an application under round 2 of the scholarships, which opens July 13. www.auc.edu.au/Honours+Scholarships.

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 to keep up to date with all the latest.

Innovation Development Grants open August 3

The AUC's Innovation Development Grants are designed to assist AUC community members to develop software and other resources that are relevant to the use of Apple technologies in higher education. The scholarships support individual or collaborative development efforts aimed at producing innovative and productive applications that leverage the iPhone, iPod touch, iPod, Mac, Mac Pro, Xgrid and other Apple innovations within areas such as educational, high performance computing, multimedia, communications, system administration, and more.

Grants are open to staff and students of AUC member universities, and comprise appropriate loan equipment, software, and support of up to \$8000. www.auc.edu.au/Innovation+Grants.

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 Souver calculator applications, both written by NSW-based students Zac Cohan and Nik Youdale. Read pages 13-15 of this issue to find out how to get yours.

Vale Rees Griffiths



It is with great sadness that we note the passing of Rees Griffiths on Saturday evening, 20 June 2009, after a long illness. Rees was the AUC Representative at Macquarie University for many years, and many of you will remember him from his attendance at our regular General Meetings as well as AUC Conferences.

Rees was very enthusiastic about his role at Macquarie University and embraced Apple technology with a passion including creating a 'virtual tour' of Macquarie University using the then newly released iSight camera, iChat and Macquarie's newly installed WiFi network. He will be greatly missed. – *Andrew Jeffrey*

Cocoa Python Workshop scholarships close July 24

The AUC is offering 25 scholarships to the two-day Cocoa-Python workshop to be held, commencing on August 20, at the Clifton Training Centre in Sydney. The workshop is designed to provide a general understanding of Mac OS X development with Python, including the basics of programming Cocoa applications in Python, designing tools and applications using Xcode and Interface Builder, and using Python for Web scripting.

Subsidies for airfares and accommodation are available; applications close July 24. www.auc.edu.au/Cocoa+Python+Workshop.

Something interesting happening within your university's teaching environment? We want to hear about it! Drop us a line at David.Yammouni@Education.monash.edu.au and we'll include the most interesting tidbits in the next issue.

Apple WWDC Here We Come

Apple's Worldwide Developers Conference (WWDC) is always an exciting event for developers, and with the major improvements of iPhone 3.0 looming – along with promises of a new iPhone and who-knew-what other innovations – the prospect of a capacity crowd was all but guaranteed early on.

A later sellout for the event confirmed the interest of developers, several thousand of whom made the annual pilgrimage to the Moscone Convention Center to bask in all things Apple development-related. Among them, as usual, were several dozen staff and students of AUC member universities, recipients of AUC's annual WWDC scholarships that helped them get to and attend the event.

We spoke with several of the scholarship recipients before they left Australian soil, to get a sense of why they were interested in WWDC in the first place and what they hoped to bring back from it. All were first-time WWDC attendees, and all had high hopes for the event. Here's what they had to say:



WWDC scholarship recipients and guests gathered at a dinner hosted by Stephen Young from the University of Melbourne before departing for the United States

Chris Dunstall Charles Sturt University

What do you do: I'm doing technical integration in our Online Learning Environment project, where we're integrating the Java-based learning management system application Sakai with CSU's pedagogy.

What's your involvement with Macs:

I've been using a MacBook Pro at work for the last two years. I'm a Java developer, and compiling and building the Sakai application on the Mac is magnitudes of 10 quicker than on the Windows platform. So I'm a lot more efficient and productive on the Mac.

What interests you most about WWDC: My main interest is looking into other ways of networking and other technologies in Java on the Mac platform. Also, I picked up an iPhone a little while ago and am interested in looking into some iPhone development as a personal project, or potentially at the uni as we're looking into more online technologies for delivering information to students.

James Pamplin University of Newcastle

What do you do: I'm a Web developer. I work on the university's Web team full time, and we're in charge of managing the university's corporate Web site. We have a main Java application that integrates with the university's CMS, and I'm primarily in charge of developing and maintaining that.

What's your involvement with Macs: All our development team is on Macs. They're great for testing because we've got the cross-platform setup, can run virtual machines if we need to, and have all the different browsers we need to support.

What interests you most about WWDC:

A couple of members of our team went last year

and said it was a great experience; it's something I've been wanting to do for quite a while now. It will be great for looking at upcoming technologies, particularly WebKit and mobile technology, which is something we're looking at moving into. Personally and professionally, I think it will be a good opportunity to network with other developers in the community.

Ioanna Ioannou University of Melbourne

What do you do: I'm doing a PhD in Computer Science, in the area of virtual reality using haptic devices. We're making simulators for different surgical procedures so students can practice on them.

What's your involvement with Macs:

The simulation stuff doesn't work properly on Macs because of compiling and driver issues. But my personal laptop is a MacBook, and I'd like to learn more about Mac development so I can give it a go when I graduate.

What interests you most about WWDC: Mainly the technical sessions; I'm not so much into the iPhone stuff because I don't have one, but I'm mainly interested in the different technologies for OS X. I'd like to do some work in image processing, and I'm also looking forward to meeting other people who are interested in similar things.

Hossain Samei Murdoch University

What do you do: I'm working in central IT services, looking after enterprise applications and have been here for almost 16 years.

What's your involvement with Macs: I don't have direct contact with Apples every day; however, in all aspects of my job there is always an element of it which is Mac related as about 25 to 30 percent of our computers are Macs. Lots of people have

now bought iPhones across the university so it's become inevitable. We support Citrix clients on iPhones, for example, and also look after the Exchange mail service. So having some knowledge in this area is a great benefit to us.

What interests you most about WWDC:

My particular interest is iPhone technologies and applications, as well as networking and security areas. And, because it's a major international forum for Apple developers, I'm looking forward to establishing a network with other university colleagues.

David Winder Charles Sturt University

What do you do: Third-year student pursuing a Bachelor of Computer Science (Games Technology)

What's your involvement with Macs:

My programming revolves around the Windows platform but I've owned a Mac for years, and have been expressing more and more interest in using Mac-related technologies. For one of my subjects, everyone in the course is working together on this one game as a real-world project; I said if I got the WWDC scholarship I would learn how to port that project to the Mac environment. It's a great way to learn a lot through doing things rather than just reading up on theory.

What interests you most about WWDC:

I'm open to trying to meet as many people as I can. I'm definitely interested in the iPhone, and also there are supposed to be some new products. This is a major event where everything new is released, and I'm really excited about it. I've heard Snow Leopard is supposed to utilise not only multi-core processors, but graphics processing units. That will be really interesting to see how it weighs on the performance of games run in the Mac environment compared with Windows; if my ported version were to run more efficiently than on Windows, that would be exciting.



With Honours

A major part of the AUC's ongoing scholarship commitments is the AUC Honours Scholarships, which support undergraduate students that have completed their undergraduate qualifications and are currently pursuing an Honours research year that involves the use of Macs and related technologies.

Recipients of the scholarships, which are paid in two equal instalments of \$2000 each, were this year chosen from a competitive field that was ultimately narrowed down to seven contenders. We caught up with several of them to learn what they're working on and how the AUC scholarship support will help them complete their innovative work.

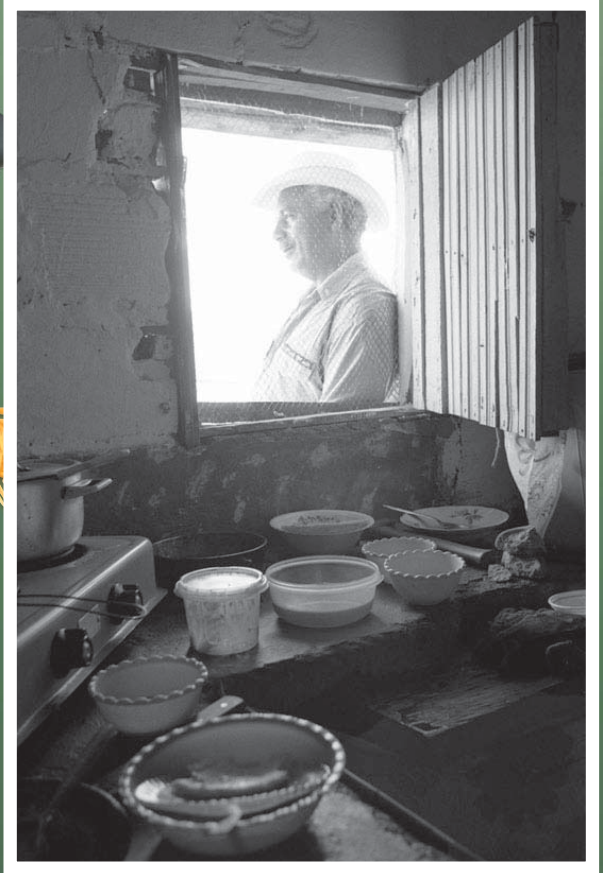
Ingrid Barberis, University of Queensland

Ingrid completed her undergraduate qualifications at La Trobe University in Melbourne and a Master of Teaching degree at University of Melbourne before moving to Queensland to pursue an honours year in Marine Biology.

Ingrid's project revolves around observations of the feeding behaviour of crabs and shrimps and its effect on offshore coral communities. Using strategically placed video cameras on beaches in Brisbane's Moreton Bay and reef-bound Heron Island, she hopes to shed some light on the role of these plentiful and ecologically important animals.

Video will be recorded at night using infrared videocameras, with signals fed remotely into a MacBook Ingrid has purchased with the AUC scholarship funding. iMovie '09 will allow her to quickly review the large volumes of recorded videos to pick out the most significant moments in the recordings.

"A lot is known about fish as grazers in coral reef systems, but little is known about invertebrates," she explains. "I'll be looking at grazing in rocky shores and in crevasses. With the Mac, instead of having to watch the video in real time, I can go through it really quickly to see whether there's something I can use."



Benjamin Ball, University of Technology Sydney

For Benjamin Ball, it's all about context. A longtime photographer, Benjamin's interest in socially aware photojournalism grew out of a year and a half spent living in Colombia and Chile as part of his joint BA in Communications (Journalism) and BA in International Studies.

During his time in South America, Benjamin took a strong interest in the plight of displaced populations in Colombia, traveling and photographing subjects that reflected themes that became palpably real all around him. "Most of the things that happen over there or in Africa, Asia, and most parts of the world can be fairly hard to relate to for somebody here in Australia" he recalls.

Juggling his time between Australia and the homeland of his Colombia-born wife, Benjamin hit upon a focus for his Honours year: to use multimedia techniques to provide video, audio and other forms of context that would enhance the simple act of photography. This context might include audio interviews with local citizens, academics and journalists; ambient sounds and songs; videos; and more.

"My project is producing a template for a way in which the Internet can be used in a creative way that utilises its interactivity to use a photograph as a platform to communicate complex issues" he explains. "The idea is to allow people to explore the photograph and access contextual information that brings the photograph to life in new ways."

Benjamin ultimately envisions a bilingual, digital exhibition combining the various media he will assemble, refine and edit using a combination of Adobe Creative Suite tools, Apple's Aperture and Final Cut Pro, and a variety of related tools. The finished product will include around 50 media-enhanced photographs exploring the problem of forced displacement in Colombia.

The AUC Honours Scholarship will help Benjamin in his media work as well as areas such as travel, development costs, and effort in presenting and marketing the resulting gallery to what he hopes will be an interested online media world. Potential avenues for raising interest include YouTube trailers, partnerships with existing media aggregators, online slide shows, and potentially outlets such as a half-hour radio documentary in English and Spanish.

"My further interest is in how content can be used and produced in several ways" he explains. "Through a variety of media, I'll be looking at ways in which the new interactive forms can potentially remedy some of the old and new ethical issues surrounding photojournalism – such as its general failure to provide the context of a situation; often, complex issues are melted down and represented in a single frame or face."

Christina Yum, University of Sydney



Christina Yum isn't your typical technically minded developer; rather, her focus on the business side of the IT-business divide has led her to focus her research in a rather different direction than many of the other Bachelor of Information Technology graduates in her year. Throughout the course of a large proportion of business subjects, Christina developed an interest in group dynamics, task management and interpersonal collaboration.

Her involvement in a research group called Computer Human Adapted Interaction led her to design an Honours project that will involve a detailed analysis of how people use to-do lists and other iPhone personal organisation tools to manage their everyday activities.

"I'm looking into a holistic understanding of personal task management and the role of mobile devices" Christina explains. "I'm particularly looking at how mobile use is different from the use of other kinds of tools, and if mobile access promotes any particular aspect of task management. If people are more likely to reflect on their to-dos and organise them; if it changes how people use Web-based services; it can support future development of mobile applications."

Christina's AUC Honours Scholarship will support her work throughout the project, which will involve around a dozen research subjects and regular liaising to track their evolving task management working habits. With careful observation, she expects to develop some clear understandings around mobile usage; the differences between mobile and conventional task management; the role of Web-based task management; and more.

Peter Lyle, University of Tasmania

An abiding interest in user interface design led Peter Lyle, a Bachelor of Computing graduate at the University of Tasmania, to pursue an Honours year project called 'Interaction with screen real estate'.

Throughout the course of the project, Peter is exploring how mobile devices can be used to interact with large and public computer displays. This includes the ways that developers might arrange information so people can select and add specific information. "It is largely a project assessing the usefulness and usability of this scenario," he explains.

Peter attended WWDC 2008 thanks to an AUC scholarship, and has been building on that experience as well as his experience in Mac and iPhone development to rapidly build a prototype application, which he will then test and refine while observing the effect that the user interface has on overall usability. His AUC honours scholarship will relieve pressure to do as many hours of work, instead allowing him to focus on both academic research and attendance at regional human-computer interaction conferences that thrive on issues of human interface design.



(l to r) Matthew D'Orazio, Peter Lyle, and Tim Nugent all secured AUC Honours Scholarships for 2009.

Tim Nugent, University of Tasmania

A recent Bachelor of Computing graduate, Tim Nugent's Honours year project revolves around the idea of strength in numbers – and, by extension, strength in social media.

Reflecting an abiding interest in mobile development, Tim's project will explore the ways in which groups of users can enhance their shared experience of a location or event by staying in continuous communication using handheld mobile devices.

"It's not so much about knowing where people are," he explains, "but the context is knowing what they are doing. Mobile PDA-type device will carry information relevant to the users about where the rest of the group is, what they're seeing, where they are, and where they've been."

Although such an application could potentially utilise features such as the iPhone's camera, for now Tim is focusing on empowering users through textual notes, instead spending his time on exploring new ways of collaboration within a shared experience.

"The iPhone's GPS, wireless, 3G, and Bluetooth capabilities – as well as its large screen and touch interface – make the worrying about the mobile side of things less to worry about, and allows me to focus more on the aspects of the research," he says, adding that the AUC Honours Scholarship will be invaluable in supporting the purchase of a new MacBook Pro as well as the more research and experimental aspects of his project.

Matthew D'Orazio, University of Tasmania

A Bachelor of Computing student with an interest in areas such as games programming, networking and security, Matthew's Honours project is exploring the construction of people-centric applications that help guide people through an unknown environment using photographic and other clues.

Officially known as 'A Web-based system supporting the construction and sharing of egocentric route descriptions', the project will use an iPhone to deliver a series of images intended to help guide a person between two points.

The process is complicated by the ability for even common objects and familiar landmarks to appear different to different observers due to changes in weather, lighting, height of observation, and so on. "They can be just a few degrees off, and all of a sudden the perspective of the landmark has completely changed," he explains. "[Navigation instructions] really need to be from your perspective, and the best way to do that is to use photos."

Matthew will build a prototype application using XCode and the TextMate integrated development environment, then test it with a number of subjects to see how they interact with it before refining it based on their experiences. The AUC Honours Scholarship will cover his time, software, conference attendance and other expenses.

Not featured: Leon Johnson, Griffith University

Eight Legs, High-def Eyes



You've probably heard that the average octopus is as smart as a young child, as evidenced by news stories like that of the octopus that in February flooded a California aquarium after it began tugging on a valve in its tank. But you may not have known that their eyesight – like that of all cephalopods – is of a very high acuity and in some aspects better than ours.

The innate intelligence and vision of octopuses have led many researchers in a broad range of experience to test the capabilities of these curious creatures. However, experiments had delivered ambiguous results, with some researchers anecdotally finding that the closely related cuttlefish generally failed to respond appropriately to visual stimuli presented to them on TV screens.

Curiosity about this apparent discrepancy led Renata Pronk, a behavioural scientist who recently completed her Bachelor of Marine Science (Honours) research from Macquarie University with the help of an AUC Honours Scholarship, to base that research on finding out why. Pronk designed and executed a long series of experiments in a carefully controlled environment

that would address previous methodological flaws to determine if octopuses do in fact have personalities or simply act at random.

"This is something people have been trying with cephalopods [the animal group to which octopuses, cuttlefish, squid and similar animals belong]" she explains. "They've been showing videos of relevant things – food, individuals of the same species and so on – to see whether they're seeing what's on the video and showing an appropriate reaction. In the past, they have gotten responses, but not appropriate responses. This led me to believe that they weren't actually seeing what the video was portraying."

Pronk suspected that conventional CRT screens were fundamentally unsuited to display images to octopuses inside a tank because of their fundamentally flicker-prone design. With human eyes struggling to discern frame rates above 16 frames per second or so, conventional 25fps video is acceptable to most human viewers. However, octopuses have higher flicker fusion rates than people, of up to 60fps. This means their brains can sample their surroundings more

quickly than those of humans. By extension, Pronk reasoned, a 25fps video image that looked perfectly fine to a human might look like a jumbled, flickering mess to an octopus – like what we see when a CRT screen is shot using a videocamera using a different frame rate.

To evaluate whether visual acuity, or the quality of the visual stimuli, were the problems, Pronk teamed up with Associate Professor Rob Harcourt, director of marine science at Macquarie University, and research assistant Dr David Wilson, who would become her supervisors on a project involving dozens of octopuses, a specially designed tank, and several Mac mini-based videos.

To test Pronk's hypothesis, a number of HD videos were recorded at a full 50 frames per second (fps) – twice the rate of normal PAL video. This footage was played back in progressive-scanning mode, in which the video is not interlaced, but the entire frame is redrawn with every pass and on an LCD monitor. Using this approach, the motion of the video was far smoother and would, Pronk hoped, also look smoother to the octopuses.



Kept at the Institute of Marine Science in Sydney, the animals were rotated into Pronk's experiment and placed, one at a time, in a specially designed tank 91cm long, 35cm high and 51 cm wide. A 43cm BenQ computer monitor was placed so as to cover the width of one end of the tank, and attached to a Mac mini playing videos of subjects including a crab (a favourite food of octopuses); another octopus; a jar, which the octopuses had never seen before; and a blank screen, as a control. "It was a really nice setup that allowed us to portray a realistic situation," Pronk explained.

Each octopus was put into the tank and observed while the four videos played on the monitor, with a few minutes' break between each video to isolate the cause-effect relationship of each video. Pronk – hidden out of the way so as to not affect the animals' behaviour – recorded their responses using an HD video camera that had been positioned for a top-down camera view. Those videos were recorded onto Pronk's MacBook in real time, which she also used to remote-control the Mac mini using Remote Desktop.

By the end of the project, Pronk had recorded thousands of videos representing over 100

hours of HD footage. Because it was all in digital format, she could quickly scan through the videos using Final Cut Pro to look for changes in octopus behaviour. And, in the end, her analysis led her to one conclusion: octopuses do indeed have personalities, but they are very short lived.

This was the conclusion after observing that individual octopuses responded differently to each stimulus, and each animal showed consistent behaviour between the video showings over the course of a day. However, when showed the videos two more times over the next ten days their behaviour was not consistent at all. This implied not that their responses were random or that they were totally programmed, but that they changed over time, similar to what in the human world would be referred to as 'moods'.

"Within a day, and between different contexts, they were really consistent" Pronk explains. "They were always bold and aggressive, for example. They might approach the video octopus straight away and try to attack it, but the next time they were shown this they would hold back and wouldn't want to approach it. They just weren't consistent over time at all. This led me

to conclude that they do have personalities, but what I called episodic personalities."

These results not only offered new insight into octopus behaviour, but validated Pronk's belief that the monitor type, refresh rate and type of scan of the videos was a factor in the success of video playback with the octopuses. Also, when presented with stimuli that looked more natural to their eyes than those used in previous experiments, the octopuses reacted in a more scientifically defensible way.

Pronk is now in the process of publishing her results, and credits the AUC's support as a major factor in helping her complete her Honours research. Even as she now works to kick-start her career, she thanks the Mac technologies for helping make the project a reality.

"I was amazed that such a small Mac mini could handle the kind of video we required," she says. "The fact that all the equipment was quite compact helped because I had to move my gear around a lot. It was a really nice setup that worked out really well."

Apple Bytes

It's been a bumper year for Apple fans, with a flurry of announcements bringing updated products across most of the company's product lines that range from speed bumps for its iMacs, MacBook's and xServers to the long-awaited Mac mini update, a totally new member of the iPod family and, most recently, the new iPhone 3GS with updated software (see page 12).

Here are the highlights:



Glimpses of the Snow Leopard

It's not available yet, but Apple showed WWDC attendees enough to whet our appetites for the next major version of Mac OS X. Mac OS X 10.6 – known as 'Snow Leopard' – includes a host of improvements including 64-bit versions of core applications; a rewritten and more responsive Finder; faster Mail, Time Machine, and other applications; the redesigned QuickTime X media player; built-in support for Microsoft Exchange Server 2007; better accessibility features for vision-impaired users; and more.

Core technologies including Grand Central Dispatch, OpenCL, and new system-wide APIs will provide more intuitive and powerful interfaces for developers. There's also a Server version, putting a whole host of new capabilities in the back-end. Adding to Snow Leopard's appeal, Apple also announced that the new version will be available as an upgrade for just \$US29 – a fraction of the retail price. Australian pricing isn't expected until Snow Leopard launches worldwide in September.

Going on another Safari

Web browsing on the Mac got a big boost with the release of Safari 4, the next generation of the ubiquitous Web browser.

Headlining the new version is Nitro, a highly optimised JavaScript engine that's putting in benchmarks more than 4 times faster than Safari 3. This performance is crucial given the online world's rapid move towards complex AJAX-based, interactive pages. Safari 4 also supports HTML 5 and CSS 3, the much-enhanced page description languages for handling display and interaction with online content.

Speed is only one part of Safari 4's value, however: for example, a new Top Sites feature provides a visual overview of your most frequently visited Web sites for easy indexing. The introduction of Cover Flow features

allows for visual browsing of Web history and bookmarks, while a full history search lets you find that one fantastic web page you visited using keywords.

Safari 4 is the first Web browser to pass the Web Standards Project's Acid3 test, which measures compliance with CSS, JavaScript, XML and SVG Web standards. There's a Full Page Zoom mode that preserves layout and text quality, new Web developer tools, and a Windows-native look for Windows users.

Just three days after its release, Apple reported that the new version had been downloaded 11 million times – suggesting strong interest, or at least strong software updating habits. Check it out yourself and decide by visiting www.apple.com/safari to get your hands on a copy.

Smaller but more talkative

Apple hasn't forgotten that sometimes it's better to think small. The 3G iPod shuffle, introduced in March, is half the size of the previous model and features 4GB of RAM (the equivalent of 1000 songs) and no buttons on the device itself. Instead, the \$129 music player, the size of a stick of gum, is controlled using a three-button control mounted on the headphone cable.

"So how do I know what's playing?" you ask. The answer is simple: the new shuffle talks to you. Well, at least, its VoiceOver feature reads you the names of your song titles, artists, and – for the first time on the iPod shuffle – playlists. All are lovingly synthesised using your computer's built-in speech synthesis capabilities. The system supports 14 different languages and offers up to 10 hours' battery life per charge.



New Macs for everybody

Apple's entire computer lineup has been refreshed within the past few months, ensuring that buyers of new computers not only get the latest iLife '09 and Mac OS X 10.5.7 update, but also that their hardware includes the latest and greatest technologies. Highlights include:



Faster, longer-lasting MacBooks

The MacBook line got a feature bump and a reorganisational change at Apple's WWDC in June, with the release of a pair of 13-inch aluminium unibody MacBook Pro models and a number of price reductions that resulted in a family of six MacBook Pro configurations and a battery that Apple says provides up to 40% longer battery life (topping out at around seven hours). The new models ditched the ExpressCard

slot in favour of a SD card slot, with a FireWire 800 port, improved LED-backlit display, and NVIDIA GeForce 9400M graphics.

Pricing starts at \$1899 for a 13-inch MacBook Pro with 2.26GHz Intel Core 2 Duo, 2GB RAM and 160GB hard drive, up to the 17-inch model with 2.8GHz processor, 4GB RAM, 500GB hard drive, and eight-hour battery, for \$3999. This reshuffle left the white MacBook as the only member of the

MacBook family, packing a 2.13GHz processor, 2GB RAM and 160GB hard drive for \$1599.

Perhaps the biggest change was in the MacBook air, which saw a major price reduction and now ships in two configurations: a 1.86GHz processor, 2GB RAM, and 120GB hard drive for \$2399 or a 2.13GHz processor with 2GB RAM and 128GB solid-state drive for \$2798.



Faster, more spacious iMacs

Apple's March desktop launch saw iMac desktops with faster processors and bigger hard drives. The design is the same, but the four models now range from a 20-inch, 2.66GHz Intel Core 2 Duo based model with 2GB RAM, 320GB hard drive for \$1999 to a 24-inch, 3.06GHz model with 4GB RAM, 1TB hard drive, and NVIDIA GeForce GT130 with 512MB memory for \$3699.



New Mac mini

Amid the nearly deafening cry in the blogosphere for an updated Mac mini, Apple relented and earlier this year finally gave the popular entry-level Mac a significant boost in speed and features. The new models incorporate a 2GHz Intel Core 2 Duo processor, up to 4GB of RAM, bigger hard drives, five USB 2 ports, FireWire 800 and an 8x double-layer SuperDrive.

Also making the cut was NVIDIA GeForce 9400M integrated graphics – the same chip found in Apple's iMac desktop line. Bringing the mini to parity with Apple's other desktops meant boosting graphics performance by up to five times and paving the way for the Mac mini to be a more than adequate games machine – even in the living room, if plugged into a TV. The minis run a 2.0GHz Intel Core 2 Duo and come with 1GB RAM and a 120GB hard drive for \$1049, or 2GB RAM and a 320GB hard drive for \$1399.



Quad-core and 8-core Mac Pros

Apple's Mac Pro also got a boost, with the introduction of Intel's high-performance "Nehalem" family of Intel Xeon processors providing up to twice the performance of previous-generation Mac Pros in an environmentally friendly casing. The new systems include Xeon chips running at up to 2.93GHz with highly-optimised 1066MHz DDR3 ECC memory.

NVIDIA GeForce GT120 graphics with 512MB of memory ensures high graphics performance, with an optional \$699 ATI Radeon HD 4870 graphics card delivering even more graphics grunt. An 18x SuperDrive burns discs at maximum speed, while cable-free hard drive carriers support up to 4TB of internal storage and the optional Mac Pro RAID card supports RAID 0, 1, 5 or 0+1 configurations.

Prices include \$4499 for a quad-core Intel Xeon-based system with 3GB RAM and 640GB hard drive, or \$5899 for the 8-core model with 6GB RAM and 640GB hard drive.



Serving faster than ever

Apple's Xserve server received a major speed bump with 2.26GHz Intel "Nehalem" Xeon processors that have boosted performance up to 89 percent, with an optional 128GB solid-state disk (SSD) boot drive providing 48 times faster random access. Throw in dual Gigabit Ethernet adapters, two PCI Express 2.0 x16 expansion slots, two FireWire 800 and three USB 2.0 ports, and Bonjour-enabled Lights-Out Management processor and Server Monitor software.

Inclusion of the Nehalem Xeon CPUs provides access to cutting-edge features such as Turbo Boost, which dynamically speeds up the cores being used when others aren't needed, and Hyper-Threading, which lets two threads run simultaneously on each processor core. It all adds up to one thing: speed. Configurations include a quad-core Intel Xeon-based model with 3GB RAM, 160GB hard drive and Mac OS X Server unlimited-client edition for \$5899, and an 8-core Intel Xeon with 3GB RAM and 160GB hard drive for \$7099.

Don't forget Apple's education pricing

Apple Australia offers educational pricing for university students on all its iMacs and MacBooks. Save up to \$150 on MacBook, \$200 on iMacs, and \$320 on MacBookAir and MacBook Pros.

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 for details.

iPhone 3GS: coming to a uni near you



The iPhone has already won the hearts of millions worldwide, and Apple's latest iteration of the popular smartphone is only going to strengthen its case.

Launched at WWDC 2009 along with the long-awaited major iPhone 3.0 upgrade, the iPhone 3G S (the 'S' is for speed) provides a faster, more capable platform that resolves many of the ongoing complaints about the iPhone 3G and 2.0 software, setting the bar considerably higher for the entire industry.

Bundled into the new device are a host of improvements including a 3 megapixel camera with discrete autofocus capabilities, digital compass, longer battery life, maximum 32GB capacity, and a faster processor that Apple claims will deliver up to twice the performance of the previous model. There's also support for 7.2Mbps HSDPA networks, ensuring faster overall performance.

Hardware enhancements are only the beginning, however: buried in the iPhone 3.0 are over 100 new features including long-lamented omissions such as cut, copy and paste; MMS capabilities; Spotlight searching of all content on the phone; video recording and editing; a landscape keyboard in more applications; a 'tap to focus' feature in the camera application; and more.

The new iPhone takes advantage of the OpenGL ES 2.0 standard to provide cutting-edge mobile 3D graphics, includes voice control and voice-based accessibility options, and offers even tighter integration with online services such as YouTube and MobileMe. There's even built-in support for the Nike+iPod sensor, letting you put on your compatible runners and start going.

Pricing wasn't available at press time, but major Australian carriers were lining up to offer the new device, including Optus, Telstra, Vodafone and Three (due to launch the iPhone 3G S in July).

Developer friendly

In addition to its new features, the iPhone 3G S and iPhone 3.0 software provide even more power for developers, who have been required to author iPhone 3.0-compatible applications since May.

The new environment provides over 1000 new APIs for developers to use, enabling features such as in-app purchases, a new Maps API and push notifications.

These new features are likely to excite student developers, who have become used to the sight of iPhones across campus and are finding it a compelling platform on which to develop interactive mobile applications.

Broad interest in the iPhone has made iPhone development hugely popular amongst university communities, both online and off. Some schools are now offering dedicated iPhone development classes, and Stanford University's free 'iPhone Application Programming' (CS193P) has gained a great following online after the 10-week course was delivered via vodcast for free through the iTunes Store's iTunes U section.

iPhone student developers are already making something of a splash online: a group of University of Tasmania developers working as Secret Lab, for example, are already offering their Culture game through the App Store (see page 18 for more information on the team and their commendable iPhone efforts).

University of Queensland students were among the first to benefit from the growing interest in iPhone development, with the Designing Mobile Applications (COMP 3000) course offered for the first time this year. The 20 students in the course, offered through the School of Information Technology and Electrical Engineering, are tasked with creating applications on the iPhone and Android operating systems. The course includes guest speakers from the IT and mobile industries, and culminates in a group project where students have to produce and present a new application for assessment.

"I wanted to create a course that lets students explore their abilities and create a finished product by the end of semester," says course coordinator and research assistant Aaron Tan. "A lot of courses are necessary but don't always appeal to the innovative side; this is a course I would like to take if I were still an undergraduate student. We've just finished the first run of the course, and both staff

and students involved can be proud of the final applications that were created." See www.itee.uq.edu.au/~comp3000/ for more information.

U of Q isn't the only local university jumping on the iPhone development bandwagon; six local universities have already signed on to the iPhone Developer University Program. This program gives member universities access to a range of capabilities to support student iPhone development – ranging from the iPhone SDK, access to iPhone Dev Center resources, testing on the iPhone and iPod touch using Xcode's graphical debugger, internal or App Store distribution, and Apple Developer Forums betas.

Membership allows instructors and professors to create a development team with up to 200 students. See developer.apple.com/iphone/program/university.html for more information about the program, and be sure to drop by the AUC Web site (www.auc.edu.au) to stay apprised of iPhone-related training and other opportunities.

Also, keep in mind that we at Wheels would love to hear about your own development with the iPhone: if you're working on something exciting and iPhone-related, be it a new application or iPhone development courses, drop us a line via ajeffrey@auc.edu.au.

iPhone update: 1 billion served, and more to come

On April 24, Apple marked the occasion of its 1 billionth App Store download by gifting a big prize to 13-year-old US student Connor Mulcahey. Mulcahey downloaded the free Bump application and ended up getting a \$US10,000 iTunes gift card, iPod touch, Time Capsule and MacBook Pro for his troubles.

The success was a big boost for the iPhone, which has just been upgraded with iPhone 3.0 software that includes long-awaited features such as in-application purchases, push notifications, copy and paste, Spotlight searching, MMS support, and more.



First Uni, now the world

Student developers wondering where their software interest may take them may need to look no further than Macquarie University student Zac Cohan and UNSW student Nik Youdale, whose Picturesque photo-editing software has gone from strength to strength as the two enjoy growing recognition and global success that can be difficult for most developers to achieve.

Picturesque came about in 2006, when the pair decided they wanted a way to apply common graphical effects to images without having to resort to the complexity of Adobe Photoshop. They put their heads together and came up with an application that allowed users to load an image and easily apply reflections, vignetting, translucence and other effects that were particularly suitable for quickly rendering content online.

It wasn't their first jointly-developed application – that honour goes to Soulver, a natural-language calculator they built in high school after being frustrated with the “absurd” designs of conventional calculator applications. Soulver taught them heaps about the value of a great interface, and paved the way for the more ambitious collaboration behind Picturesque.

That development process was supported by AUC grants and covered in *Wheels* back in 2007 – but the business that became Acqualia Software has had some significant growth since then thanks to a long run of good fortune.

After winning an Apple Design Award and being named Best Student Project at WWDC 2007, Picturesque gained a high-profile spot on Apple's Web site; the resulting flood of downloads crashed Acqualia's Web servers. More than 25,000 people eventually downloaded the application, which represented a massive jump compared with the previous installed base of just 3000 or so when *Wheels* last spoke with Zac and Nik two years ago.

More recently, Picturesque got a major boost in global profile after a review of version 2.0.3 by prestigious US Mac magazine *Macworld* gave it 4.5 mice out of five in a writeup peppered with superlatives and concluding that “if a picture is worth a thousand words, Acqualia's Picturesque is a thesaurus...For bloggers or home users who simply want to get their pictures ‘out of the box’ without a learning curve, Picturesque is about as good as it gets.”

Money can't buy that kind of exposure, but inclusion in this year's popular MacHeist project probably didn't hurt. That project raised over \$US850,000 for charity this year alone by selling a bundle of applications – including Picturesque and over a dozen others – to users for just \$US39 (\$A49). Participating in MacHeist required the developers take a lower per-license fee than they would normally have received, but the heightened profile for Picturesque will have more than paid back the concession. So, too, will the potential revenues as MacHeist customers pay to upgrade to future versions of Picturesque.

The MacHeist gig came about after Zac and Nik met MacHeist founders John Casasanta and Phillip Ryu during an AUC scholarship-funded trip to Apple's WorldWide Developers Conference 2006; that contact continued, and eventually led to Acqualia's participation in the 2009 MacHeist deal.

Word of mouth and relationships like this have been able to raise Picturesque's profile in ways that could never have been possible through conventional advertising.

“Our philosophy is that if we make great products, the products will generate their own interest,” Zac explains. “We tried advertising in the past but it was hard to quantify and didn't feel like we were getting a return. And we're not really interested in marketing: we have so little time for our work anyway that we just want to sit down and code.”

Picturesque's success has reached the level many developers would be desperate to enjoy, but Zac and Nik aren't even done with university yet. Well, Zac is done – he recently graduated with degrees in Russian and International Studies, and continues casual studies in areas such as philosophy while Nik toils away in this, the third year of his joint Engineering-Computer Science degree.

Continuing studies, however, didn't stop the pair from recently spending three months in Cupertino, California after receiving internships with Apple that brought them into the heart of the company's development processes. They aren't telling what top-secret innovations they were working on, but the experience was unforgettable for both of them (see their reports on the opposite page).

The skills they picked up in Cupertino, as well as their own curiosity and love of development, have painted a clear path to the future for the dynamic duo. They also ran recent well-received iPhone development workshops for the AUC in Sydney, Melbourne, Perth and Auckland, sharing secrets and meeting a broad range of like-minded developers.

Yet with so many obligations, the two admit that finding time to code can be the biggest challenge: they have committed every Friday to development, and are looking forward to escaping overseas so as to have weeks of uninterrupted coding.

“We're a bit volcanic in that we won't do any heavy development for a while, then just sit down for intense periods of work” says Nik. “We need lots of solid time together to get a lot done. But we've got a whole list of things to do, and we have very high standards. In the end, we write software for ourselves and this keeps us up all night because we want to get things done.”

As thanks for the ongoing support of AUC members, Zac and Nik are offering free licenses for Soulver and Picturesque to staff and students of Australian universities through the end of 2009. Visit www.auc.edu.au for details.

The view from 1 infinite LOOP

Zac and Nik recently had the privilege of joining Apple's intern program to get some upfront and personal experience with the way Apple Inc. works. Their three months as code monkeys in Cupertino were exciting, rewarding, and eye-opening - in ways both expected and unexpected.

NIK

In December 2008 Zac and I set off on an exciting adventure: we were off to work for Apple as interns for the summer uni break.

After at least six phone interviews with various managers and engineers at Apple over the preceding months, I was offered a position on the iPhone Application Frameworks team. This was all I knew; I wasn't told anything else due to the level of secrecy employed by Apple in almost all products. I was nonetheless very excited about this fantastic opportunity.

We arrived to find the apartment supplied by Apple waiting for us, a welcoming basket of food sitting on the table. It was great to be able to come home straight off the plane without having the worry about finding a place to rent, furnishing it, etc. All of this was provided for us by Apple.

My first day was quite an exciting one. Having slept in a little too long, and slightly underestimated the time it would take to walk the 0.75 miles (thank you Google Maps) to Apple campus in the morning, Zac and I sprinted to Apple (we covered what normally takes 15 minutes to walk in 5 minutes) and arrived panting to new employee orientation, which was our agenda for the rest of the morning.

At lunchtime I walked out of the conference room and was warmly welcomed by not just my manager, but by the entire eight man team! Lunch was on the house at Café Macs, a charming café inside the campus that serves tons of food every day to keep the engineers fed and watered. The choice of food was overwhelming at first - from burgers, Mexican, curry, and pasta to salads, sushi

and pizza. The food was great. It exceeded my expectations by a long shot. Eating lunch every day in the beautiful Californian sun was something both Zac and I very much enjoyed.

Lunch on my first day was my first opportunity to meet the team I would be working with for the next 3 months. I was bursting with questions, and could not help myself asking a few questions to which I received very political "no comment" answers. It dawned on me immediately how serious Apple takes the confidentiality and secrecy of its upcoming products. This was, of course, because I was yet to sign the Non-Disclosure Agreement - condemning me to a life of misery should I reveal any secrets to anyone not in the loop.

I learned over lunch that I would be working on the media apps team, a team under the Application Frameworks group. This team is responsible for applications and frameworks relating to media content, such as photos, music and video; think of the iPod app on iPhone.

I was very excited about the prospect of working in this group and couldn't wait to get started.

My first task involved unit testing a media framework. It was largely untested and required a suite of tests to ensure its continued functioning and stability. Unit tests are one of those programming evils that not many people like, and to be completely honest it was a bit of let down to find out this was my first task. Not all hope was lost, however, as I was told the unit tests were just a starter, an entree, and that my "dessert" would come later. I figured this was not so bad then, and in hindsight I value the work I did on the unit tests quite highly as they actually contributed to the quality and stability of an essential product. The positive feedback I received from the team was also very encouraging. Also, the Christmas holidays were only two weeks away. I figured I would survive.

Unfortunately I can't go into too much detail on the particular things I worked on, as they relate to yet unreleased products. My descriptions may therefore seem a little vague. Suffice it to say that the unit tests I wrote contributed to a major application used by millions of people. My unit tests enhanced the team's ability to find bugs, and quickly validate code changes before committing their work. This phase of my work also acted as a way for me to familiarise myself with the framework that I would be working with for the rest of my term in my "dessert" project.

It wasn't long (actually it only seemed like a few days) before the Christmas break came along. Traditionally, Apple essentially shuts down for 2 weeks over the Christmas/New Year break - although I'm sure there were still a number of engineers spending a few sleepless nights on campus before Macworld Expo the following week!

This was the first time I'd spent Christmas abroad away from my family, a time I enjoy very much every year. This year was going to be a different Christmas, however - one without family.

I rendezvoused with my girlfriend in San Francisco, and we spent the two weeks exploring a bit of America - including SF, New York and a very cold few days in Boston (-13°C!).

The time for fun and traveling ended much too soon, however, and I had to say goodbye to my girlfriend and hello again to full time work. A new year, and a fresh start. I had completed most of my assigned unit testing based tasks; now was the time to think about what I wanted to do for my project. The spec for this was simple: Design and build a cool demo app of X framework.

This was a great opportunity for me to play around with some of the new features of iPhone OS 3.0, and build an app based on these frameworks. It was also the most enjoyable part of my internship, and encouraged me to try and build a quality app from the ground up. It wasn't easy, however. I was building an app which relied on a framework being implemented concurrently - i.e. some parts of the API were non-functional for a lot of the time.

whatever we want, whenever we want and we are our own bosses - we make all the decisions. Nothing needs to be approved through a long chain of management and designers.

Much too soon, my final day at Apple arrived.

Having completed my project work already, I didn't have a whole lot more to do, but my team kept me busy up until the last minute with a couple of small tasks. I had a very nice farewell lunch with my manager and the team at the brewhouse called BJ's, and had one of my first legal beers in the US having just turned 21 a couple of days earlier.

Apple had organised for us, 10 minutes walking distance from 1 Infinite Loop.

After receiving our security badges and completing a couple of days of initial orientation, we met our teams and manager, and began to work on our assigned tasks.

For me, working in a company was a totally new experience. For the first time I had an office in a large company. I had a manager to whom I would have to report my progress, and I was part of a talented team of engineers and designers. It was an exciting time to be part of the group, as iWork '09 had just been completed and

was announced shortly after our arrival, at Macworld Expo 2009.

It was a little challenging at first to navigate around the huge code base that makes up an iWork application, but I soon found my footing and quickly got up to speed on the internal processes Apple uses to manage projects and generally get stuff done. From then on I had my work cut out for me, and over the next 3 months I worked on a number of different tasks, but primarily on an internship project that required me to come up with and implement new ideas to improve the iWork suite.

There were a lot of benefits to working at Apple: a great working environment, cutting edge technology, and a great employee discount on Apple products, just to name a few. But one of the other greatest aspects of life at Apple was the Café, where Nik and I had lunch nearly every day. There was a huge variety of high quality food, from great pizzas, pastas and risotto, to burgers, salads, burritos and sushi. Even in the middle of winter, it was very pleasant to bask in the California sunshine in the centre of Infinite Loop during our lunch break.

At the end of the internship I was required to give a report to the executive responsible for productivity applications at Apple. The report went great, and both my manager and the executive were impressed with what I had produced.

I'm now sitting on the plane heading back to Sydney. It was sad to hand in my badge on my final day and say goodbye to Apple for the present. For now I'm heading back to university to continue my education, but we'll see what happens in the future. For any students interested in pursuing a career at Apple, I couldn't recommend the internship experience more highly. It's a great way to spend a summer break, and experience the culture and lifestyle of one of the greatest companies in the world.

Being a software engineer had its benefits. On my first day I was issued with a very special sticker. This sticker gave me enough credit at Café Macs every night to buy 2 hand made, wood fired pizzas. The pizzas at Café Macs were some of the best pizzas I'd ever tasted, and they soon became our staple diet on most weeknights, although we still cooked every so often.

At the conclusion of this project, I was asked to present my work to my chain of command (my boss, his boss and his boss' boss) - including Scott Forstall, senior vice president of iPhone software with Apple. This was quite an exciting time, as I now had the opportunity to meet a high ranking executive, whom I had only ever seen before from a distance on stage at various keynotes. Even though I felt quite anxious at first, I enjoyed the opportunity to showcase my work to management, and revel in a short, casual chat.

Working in a company was also a totally new experience for me. I'd never in my life had a boss that told me what to do, and when to do it by. Accepting that I am working for someone, doing whatever they tell me to do took quite some adjustment, although it wasn't as bad as I originally expected. Yes, I was told what to do, but I had a fair bit of freedom in the matter as well. Even so, I still prefer working in a small team, such as I do with Zac and our Acqualia apps. There we have the freedom to work on

Later that day, I was instructed to turn over my badge to my manager, and was subsequently escorted out of the building and that was that. My Apple experience was over.

On the whole I very much enjoyed the Apple experience. It gave me a chance to live life in "the mother ship", and to see how the company works. Working as an engineer on the inside gave me tremendous insight into how things work, and the development cycles. Also of great benefit was the experience of working in a massive corporation - being a little fish in a pond of 35000. Above all, it was just great to see that there are still an amazing number of people at Apple with passion, talent and craftsmanship powering this awesome company through the recession, and into the future.

ZAC

Last October Apple approached Nik and me with an offer to do an internship at Cupertino over our summer break. Naturally we leapt at the opportunity and began a series of phone interviews with different teams to find one that fitted our interests and skills. After a number of conversations it was settled. I would work in the iWork team, the group that produces Keynote, Numbers & Pages, while Nik would work in the

Developing the AUC's developers

Today's students are tomorrow's software developers. In recognition of this fact, the AUC has for years put an emphasis on fostering the development skills of students at its member universities. In the past few years, this commitment has become even more solid thanks to a steadily expanding roster of topic-specific training that has helped hundreds of developers get up to speed with some of the most important technologies in the Mac and iPhone universe.

The past two years have seen a range of AUC courses on topics ranging from Cocoa and Ruby to REALbasic, Objective C, iPhone Web App development, Xcode, and more. In most cases, the workshops sold out: the iPhone/iPod Touch Web Apps Workshop, for example, saw 100 applications for just 60 available places, with 18 different universities represented.

The next session will cover Cocoa-Python in a two-day seminar to be held on August 20-21 at the Clifton Training Centre in Sydney.

That session will provide a general understanding of Mac OS X development with Python, including the basics of programming Cocoa applications in Python, designing tools and applications using Xcode and Interface Builder, and using Python for Web scripting (25 scholarships are available to AUC members; see page 4 for details).

The AUC's developer courses are organised by Daniel Saffioti, a lecturer at the University of Wollongong whose interest in development led him to kick off the programs with the support of the AUC.

Recognising the broad range of interests within the community, Daniel has worked with staff and students of AUC universities to design and deliver professional-grade courses that are relevant and valuable for members at novice, intermediate and expert levels. He also assists in the running of /dev/world, the AUC's developer conference, which will be held in Canberra in late September.

Strong attendance reflects both the success of the courses, and the latent interest in emerging technologies throughout Australian universities, Daniel says. "As new technologies emerge, we try to find people who want to help others understand them," he explains. "I have my own ideas, but the key to success with these programs is to find people who have a genuine interest in sharing knowledge, and a passion for teaching."

Past presenters have come from a wide range of disciplines and experience: James Bekkema from Charles Sturt University, Nik Youdale and Zac Cohan of Macquarie University and UNSW (read more about their successes on pages 13-15), Daniel Woo of UNSW, Paris Buttfield-Addison of the University of Tasmania, Robert Stainsby from the Australian Institute of Family Studies, Gareth Townsend from Melbourne Cocoa Heads, and more.

Future workshop topics will expand the scope of the program, with sessions already planned in areas like Xgrid and the Unity game engine already well advanced. Another iPhone development course is also in the works, after strongly positive feedback from AUC community (see 'A strong reception' opposite).

Daniel is eager to hear from members of the community who have interest or expertise in these or other areas and would potentially like to help design and deliver relevant coursework; contact him at dfs@uow.edu.au.

A strong reception for AUC training

Relaxation of Apple's non-disclosure agreement terms earlier this year opened the way for a new level of interaction in the teaching of iPhone capabilities.

One of its results was the AUC's iPhone/iPod touch SDK Workshops (www.auc.edu.au/iPhone+SDK+Workshops). Held in March and April this year, the workshops attracted a full house and covered topics ranging from basic iPhone architecture and application structure to graphics, video and animation techniques.

Feedback for the course was resoundingly positive, as it has been for all of the courses held so far. Here is a selection of the many opinions received about the AUC's courses to date:

"It was well thought out, covered a wide range of important topics to give us a grasp of developing for the iPhone... a fantastic ratio of practical work and theory... Zac and Nik made sure everyone understood and nobody was left behind. Easily the best teachers I have ever had."

"Top notch – a little full but better than being light on. Doing Daniel Woo's course first really helped; it meant that I could jump past the learning curve that some faced, and get straight in."

"I've enjoyed a fruitful two days of JavaScript programming."

"This workshop could easily be separated into two courses, one specifically for the CSS and the other for scripting."

"The level of content was spot on, and moved at a pace that neither bored anyone or left anyone behind. The ability to download the notes and examples was very much appreciated, and the recently delivered textbook was a generous and welcome addition.... The trainers' skills were well above my expectations. Their ability to explain the material, as well as their relaxed and helpful attitudes, were better than many trainers I have ever seen."


"The trainers did an excellent job. Considering there were computer science PhDs present, they were able to answer every question asked. Very impressive. They also set a vibrant mood, and made what we were learning fun, with lots of enthusiasm."


"The workshop was excellent. Gareth definitely knew his stuff."

"Zac and Nik were outstanding; they made what could have been a very dry subject, a very interesting and enjoyable learning experience."

"The practical hands-on component of the course was crucial. Without it, I would have struggled to understand the concepts. A few times, I could not complete the whole task by myself, but after seeking help I got it all working and am able to look back at these code examples in the future."



 **Ruby**
For Mac OS X Developers
Melbourne October 2 - 3 & Sydney October 9 - 10

 **Want to learn how to program in Cocoa?**
AUC Cocoa Workshop '09
February 10 - 13, 2009 - University of New South Wales

 **Want to Learn how to write great iPhone/ iPod touch Web Applications?**
iPhone / iPod Touch Web Apps Workshop
Sydney 24 - 25 July • Melbourne 31 July - 1 August

 **REALbasic**
Workshops
• Clifton Melbourn - 24 - 26 November, 2008 •
• Clifton Sydney - 3 - 5 December, 2008 •

 **Want to learn how to develop in Xcode?**
Xcode Tools Workshop

 **Want to learn how to program in Cocoa?**
AUC Cocoa Workshop '07
July 4 - 6 & July 11 - 13, University of New South Wales

Incubating innovation on the Apple Isle

By Tony Gray

Apple has seen a resurgence in recent years. With its sleek, powerful machines matched by a slick and approachable operating system, and the growth in the use of Macintosh computers on campus is nowhere more visible than in the student community.

An annual survey of student computer use at The University of California at Davis recently found that "Mac ownership had more than tripled, from 7.2 percent in winter 2006 to 23.4 percent in winter 2009"*. The growth of the platform is not just from end-users: increasingly, developers are switching to the Macintosh too.

Apple's outstanding suite of development tools, the Unix underpinnings of Mac OS X, and the ability to run Windows either through virtualisation or via Apple's Boot Camp, make the Macintosh an attractive one-stop solution for computer science students.

At the University of Tasmania's School of Computing & Information Systems, a notable concentration of Macintosh users and developers has sprung up – first through friendships and socialising in the School's physical labs, and subsequently as a virtual MacLab, with an IRC chat group, a blog aggregator, and even a MacLab Twitter feed.

Near the centre of this group of students, you'll find Paris Buttfield-Addison, Jon Manning and Andrew Bennett. All have won AUC Student Developer Scholarships, and their love for the platform sees them working in one of the School's Mac Labs most days of the week (nights and weekends included). They presented at the AUC's /dev/world/2008 conference and have also run RealBasic training for the AUC.

During a trip to last year's World Wide Developer Conference, as part of his AUC Student Developer Scholarship, Paris made a number of contacts and was surprised to be approached by Jeff Macpherson – "Dr. Tiki" from the phenomenally successful video podcast 'Tiki Bar TV'. This led to an agreement between the two to produce a video game based on the podcast.

Paris and his long-time friends, under the banner of their already-established company Secret Lab, had already produced the iPhone game "Culture" which launched with the opening of the iTunes App Store. The Tiki Bar tie-in game seemed a



'Day of the Tiki' is based on the successful Tiki Bar TV podcast.



(l to r) Jon Manning, Paris Buttfield-Addison & Andrew Bennett.

natural next-step for Secret Lab. Nearly a year later, 'Day of the Tiki' is well under development, and is planned for release in the Australian winter of 2009.

While Paris, Andrew and Jon are the most active members of the MacLab group in terms of iPhone and Macintosh development, other subsets of the MacLab group are also active in other related areas.

Three members of the group (Alex Berry, Michael Ford, & Chris Neugebauer) recently made it to

the world finals of the ACM International Collegiate Programming Competition in Stockholm. This is an intense 5-hour programming exercise for 100 of the world's best teams, and while the finals are held on Lenovo laptops, the local site practice sessions are all run in the school's Mac Labs, on Leopard.

Then there are Jess Clarke and Jess Lethbridge, known to the MacLab as TheJess2. Jess & Jess are working on porting mobile applications to the iPhone, based on project work they undertook with the CSIRO for another mobile platform.

The MacLab members also contribute significantly to the local student computing society tech talks – often presenting stimulating talks on technologies used in Mac OS X, and how to make the most of them. And as well as their on-campus exploits, the MacLab crew are often found engaging in social activities off-campus, holding gatherings at local restaurants, movie nights, and even ten-pin bowling.

So how has a significant number of strong Macintosh student developers been able to establish itself in one of the countries smaller universities, in the nation's smallest capital city? It certainly requires talented individuals, but it's clear that having the support of your peers makes a huge difference. The core of the UTas MacLab group are capable, engaged, and enthusiastic. These attributes are infectious and bring others into the group - hopefully to become self-sustaining.

The AUC has a number of programs that target students (such as the Honours Scholarships, the Student Developer Scholarships, and the WWDC Student Scholarships). While these are all great programs for students, and they often serve as catalysts for getting local developer activities started, it's the day-to-day support, interaction, and feedback you get from your peers that will make you a better developer.

The real take-home here is that individually you can do good work, but if you build a community around your work with a group of like-minded peers who share your interests you can do great things.

Apple technologies enable individual developers to go far, but the most astonishing results come from developers who foster a community of the smartest and most creative people they can find.

So tell us what's happening at your University! It would be fantastic to see similar groups to the UTas MacLab established at other universities. Maybe they already exist – if so, let us know!

- technews.ucdavis.edu/news2.cfm?id=1752

Paris Buttfield-Addison

When did you first start programming? I was 4! It was a Sony MSX system and it was programmed in BASIC. I wrote "Guess the number" and then a Pong-style game. I first started programming the Macintosh in 1998, when I was in grade 7 (the Performa LC 575).

Academically, what are you studying in addition to Computing? History

What do you enjoy most about developing on the Macintosh? It's less of a pain in the neck than Windows and Linux.

What do you recommend as good resources for learning about Macintosh development? Aaron Hillegass' book "Cocoa Programming for Mac OS X" - it's the best thing out there for beginners. Stephen Kochan's book "Programming in Objective C" is also a good book.

What advice would you give to other students wanting to seriously get into Macintosh development? Relentlessly push yourself to get to learn everything you can, and get every useful resource you can.

Jon Manning

When did you first start programming? I was 7, and programmed the Amiga 1000 in Amiga Basic. My first serious program was a 2D space shooter, and then I wrote a text-based SIM City.

What course are you currently enrolled in? Computing Honours

What do you enjoy most about developing on the Macintosh?

The Cocoa frameworks are awesome. The developer community is warm, vibrant, active, and the Apple documentation second to none.

What do you recommend as good resources for learning about Macintosh development? The Objective C Programming Language PDF from Apple, CocoaDev Central (one of the best tutorial sites on the web), and @scottstevenson on Twitter, who offers daily Cocoa tips.

What advice would you give to other students wanting to seriously get into Macintosh development? Start by scratching your own itch: make things you need to solve your own problems. And get out there: make sure you and your stuff are online and seen by others (Twitter, FaceBook, etc). Finally, remember to spend more time on the design of your application than you do on the code.

Andrew Bennett

When did you first start programming? I was 12, and programmed in QBasic and Visual Basic.

Academically, what are you studying in addition to Computing? Science

What do you enjoy most about developing on the Macintosh? Everything – the APIs, the tools, the appearance – is well-designed and clean, unlike Windows.

What do you recommend as good resources for learning about Macintosh development? Read the Objective C runtime headers!

What advice would you give to other students wanting to seriously get into Macintosh development? Read the Apple Human Interface Guidelines. Stick to the Model-View-Controller paradigm. And just write something, and then write it again and make it better.

Why would I want a Second Life when I don't even have time for my first one?

By Mark McMahon

Like many ravenous consumers of technology there is another 'me' – an alter ego that inhabits the virtual world of Second Life. Unlike most, though, my avatar is not an idealised version of masculinity (or femininity for that matter) but a realistic representation of myself, grey hair and all.

Put it this way: the only rippling six pack you'll find in Chez McMahon, either in real or virtual life, is sitting chilled in my beer fridge, not bump mapped onto my torso.

Maybe I'm too much of a digital immigrant to fully buy into the SL world. I keep asking myself, 'how is it useful?' Perhaps it's just a reaction to the media saturation around the topic. There has certainly been a lot of hype.

We have been told how Second Life has an economy that competes on a global scale, that it is a vibrant community where people have fallen in love, found work and built rich social networks.

The worst excesses of tabloid journalism have also portrayed it as a marriage wrecking banana republic and digital boulevard of broken dreams.

The reality is probably somewhere in the middle. Now that we are well over the initial peak of inflated expectation, we need to take a close look at virtual worlds to see what they really do offer.

One of the big claims of Second Life is its potential as an educational environment but we need to remember that any virtual world is just a shell. It's what we do inside it that gives it value. Classrooms do not teach.

As obvious as that statement sounds, there are many educational spaces in Second Life

that do little beyond what could be better achieved through a different medium. Visit the Virtual Neurological Education Centre and you get to read information, access websites and attend virtual lectures – all of which focus on transmitting information that may be better delivered in other ways.

Better are locations that actually allow us to manipulate objects, try out ideas and see the results. But even then, the objects we manipulate are only as responsive as the quality of the coding that has gone into them. Drive a simulated car in Second Life to see exactly how well realised most scriptable items are.

It's not that simulations need fidelity at every level to be effective learning tools. The Heart Murmur Sim is one example of a small-scale environment that puts the fidelity exactly where it's needed. The sounds of heartbeats are well represented to help diagnosis, even if the patients look like flat canvases spread across the hospital bed.

One of the biggest complaints, and a reasonable one, is that the 3D primitives that make up the world are just that – primitive. Gamers experienced in high-end environments like World of Warcraft understandably balk at the blocky objects with stretched textures that trickle through the narrow data pipe that is the current Internet.

There are alternatives. Sony's PlayStation Home provides a slicker world but you need one of their consoles to use it. Second Life, despite its limitations is free and has an active community that works to extend it beyond its current incarnation.

One example of this is Sloodle, bringing a sense of virtual presence to the courseware management system Moodle. There are others looking at the links between virtual worlds.

All of these highlight one aspect of Second Life that is its greatest strength. There are lots of educational ghost towns in SL and the reason is simple – everyone is at 'Wilder Islands' cavorting on Second Life's premier erotic nude beach.

It's a reminder that it's not the buildings that constitute virtual worlds but the people that inhabit them. The best learning environments provide more than resources – they promote activities and use peer interaction to support the social construction of knowledge.

Despite its current limitations, Second Life is an ideal environment for this. It is not a game, but allows people to create games within it. It is not a learning environment but provides a mechanism for communication and collaboration to test ideas and solving problems within it.

The ultimate success of virtual environments will not be based on their novelty but their utility and we are still working that out. One thing that will not work is simply recreating the same old real world experiences in cyberspace.

Gartner, who identified the notion of the hype cycle, are the same group that has predicted that 80% of Internet users will have a 'second life' by 2011.

It may be Second Life 2.0, or even more likely a metaverse of interoperable environments. In any case it will probably be a world that will look back fondly on this current version as a flawed but curious ancestor.



Credit: Nimue Jewell



Credit: Argus Collingwood



Credit: Tsukiko Blackadder



iPhone apps: one-night stands or long-term relationships?

Carrie Clarke, née Osborne

Students are unique – for many reasons. One thing that really sets them apart is that they never stay in one place for long.

It's hectic: if you're not rushing between lectures, tutes and classes, you're at work, or trying to make time for friends, family, parties, sport and the rest. Occasionally you can be found at home too. And between all of this, endeavouring to take home a degree some day, you're expected to produce assignments and study for exams.

Taking these nomadic tendencies into account, it is no surprise that many students like to make the most of their time and bring as much as possible with them while they're on the move. It makes sense: getting the work over with during otherwise "dead time" will free up more time for other things. Until recently, this usually involved getting a laptop, but these days, more and more students are using iPhones or iPod touches instead.

Sure, having access to email, music, photos, the Internet and a phone wherever you go is really convenient – but it is the Applications that make the iPhone such a productive educational tool. Armed with the right set of apps, you can easily research, study and stay on track with your assignments while you are roaming around. And of course, it's also essential to throw in a few entertainment and social networking apps for when you are chilling out. The opportunity to have all of these resources at your thumb-tips is why the iPhone is becoming an integral part of the day-to-day lives of many students.

In April this year, just nine months after the App Store opened its doors, the one billionth App was downloaded. And it's easy to see why it didn't take long: there are now over 40,000 apps available to download through the App Store and every day, more apps and updates are unleashed.

Amidst all the excitement, several websites that are solely dedicated to tracking App Store stats and news have emerged – and they have discovered some interesting things about the way we use our apps. According to 148apps.biz, for example, the most popular categories at the moment are games, entertainment, books, utilities and education.

But being popular is not always enough; it appears that the types of apps most downloaded are not necessary what people end up using. A recent study by Pinch Media shows that a lot of the apps (especially free ones) that make an appearance on our home screens only get used for the first day or so before they are cast aside. Interestingly, some apps (eg. weather apps) that rarely feature on the popular download lists, actually end up being the most used.

This is beginning to sound a bit like the singles scene – so much so that this trend has been dubbed by Wired as having one-night stands with apps. However, this may not be for long: apps are evolving quickly and we have already seen a big push from quantity to quality. The novelty is fading for many people, and we are now looking for more meaningful apps that we will use more than just once. As a result, many developers are now focussing on integrating rich content with good entertainment value to deliver a well-rounded experience.

Apps that cleverly integrate the groundbreaking technology in iPhones and iPod Touches – delivering a more interactive experience – are starting to become more widespread. For example, Email 'N Walk uses the built-in camera to show you an image of what is in front of you in the background while you type an email. Another app, Leaf T-Bone, leverages the built-in microphone to allow you to play a your iPhone like a leaf trombone.

With the spotlight on social networking at the moment, we are starting to see community features integrated into apps, and it appears that we will see a lot more of these social characteristics in the future. One aspect of this is location awareness – as more people adopt iPhones, we are sure to see the full potential of these apps that can track where on earth your friends are.

With the new iPhone 3G S and iPhone 3.0 software now available, there are many exciting possibilities for the direction that apps will take in the future. In the meantime, there are some great apps available here and now. Below are three categories that offer heaps of useful apps for students, which are sure to help you engage with all aspects of your academic and social life.

EDUCATION

Study for that exam, keep track of classes, or just learn about something interesting.



STUDENT APPS

Keep track of your homework, classes, projects and tests.

Eg. *myHomework*



STUDY APPS

Prepare for exams with sample questions and info for a variety of disciplines.

Eg. *Exambusters series*

PRODUCTIVITY

Record those brilliant ideas that come to you in strange places. Keep track of expenses, tasks, notes and so on.



TASK APPS:

Stay on top of all the things you have to do; add, edit, and manage tasks.

eg. *Remember the Milk*



BRAINSTORMING APPS:

Very handy for assignments and group work - capture, summarise, organise and develop ideas.

eg. *ibluesky*

SOCIAL NETWORKING

Stay in the loop with friends, classmates, family or random Internet people if you wish. These apps will help you keep in touch with what everyone is up to, their latest photos, upcoming events and more.



FACEBOOK APPS: Check out your newsfeed, notifications, requests, wall, friends and messages.

Eg. *Facebook*



TWITTER APPS: Hook in to Twitter, where you can catch up with friends, stay up to date with the latest news, learn new things and follow interesting people.

Eg. *Tweetie*



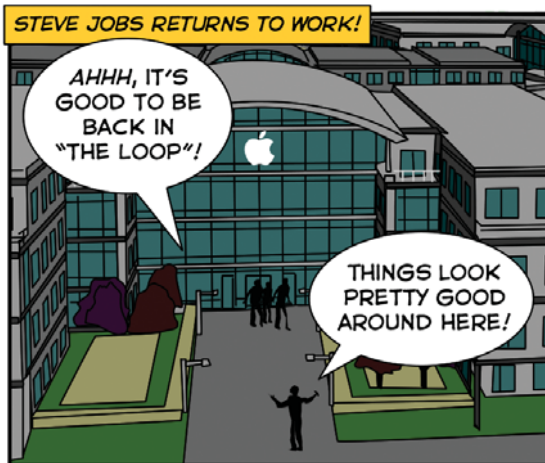
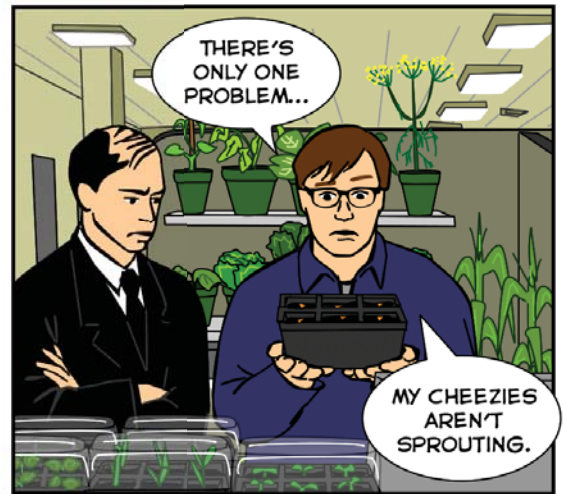
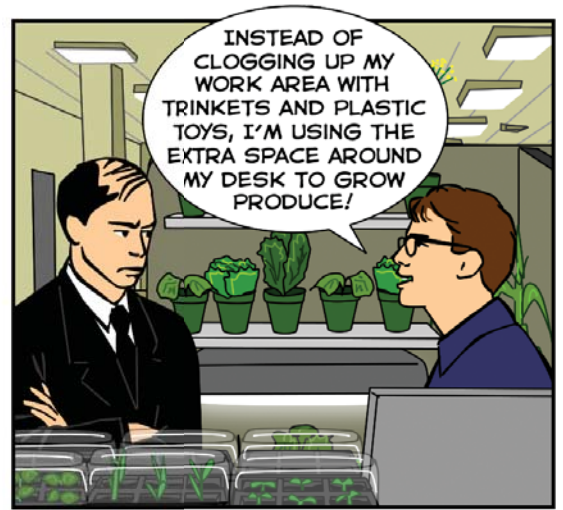
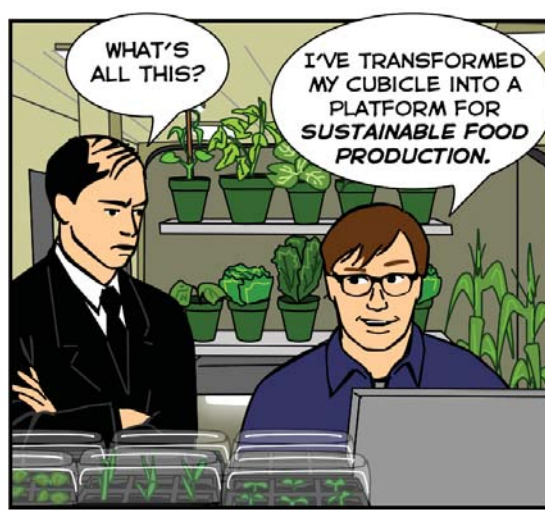
INSTANT MESSAGING APPS: Chat to people using all of your different IM accounts including Skype, MSN, Yahoo, ICQ, AIM, Google Talk and more.

Eg. *NimBuzz*

The Joy of Tech™

by Nitrozac & Snaggy

www.geekculture.com



DON'T WORRY STEVE, YOU'LL ALWAYS BE INSANELY IRREPLACEABLE TO US! WELCOME BACK!

CrossWORD Competition



Across

- 3 CPUs in new Mac Pros (p11)
- 4 Subject of nighttime monitoring (p6)
- 6 David Winder is studying these (p5)
- 9 Safari 4 supports v5 of this feature (p10)
- 11 3G shuffle talks using this feature (p10)
- 12 New iPhoto alternative (p2)
- 16 Focus of Zac's internship project (p15)
- 17 Animal group with high visual acuity (p8)
- 19 Charity project in which Acqualia participated (p13)
- 20 App Pronk used to control mini (p9)
- 21 Ben is photographing displaced people here (p6)
- 24 Example of brainstorming app (p21)
- 25 Presumed problem with octopus research (p8)
- 26 Virtual extension of Moodle (p20)
- 27 Apple eatery serves tons of food every day (p14)

Down

- 1 Other subject Andrew Bennett is studying (p19)
- 2 This development tool powering egocentric project (p7)
- 5 Acqualia's first application (p13)
- 7 LMS that Chris Dunstall works on (p5)
- 8 State uni offering iPhone course (p12)
- 10 MaLab group adapted this video podcast (p18)
- 13 City where three MaLab developers compete (p19)
- 14 Runs Windows without Windows (p2)
- 15 AUC's Twitter address (p4)
- 18 Conference still being held in September (p4)
- 22 What Nik could have after his birthday (p15)
- 23 Subject of next AUC developer session (p16)



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
Competition closes at 5pm on Monday 31st August 2009.

CONGRATULATIONS

Congratulations to JJ Hyslop of Monash University for winning an iPod nano by correctly completing last issue's crossword to reveal the answer:

COPYRIGHT

An iPod nano is on its way!





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	<p>Providing technology support and networking for better educational outcomes</p>	
<p>Educational Pricing</p> <p>Professional Networking</p>		<p>Technical & Developer Training</p> <p>Seminars & Presentations</p>

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