

## W H E E L S

for the mind



○ **The AUC's own X Files**

After years of eager anticipation, Mac OS X is finally here. We poll Australia's academic community members to see what they think of Apple's latest baby

○ **Writing the right way**

Multimedia has turned the art of academic writing into an interactive and engaging experience, thanks to a new AUCF-funded multimedia package that's been successfully commercialised by developers at AUC member the University of Wollongong

○ **Monash Mac lovers raise their hands**

Our AUC member profile this issue looks at Melbourne's Monash University, which joined the AUC eighteen months ago and has rapidly begun taking advantage of its many benefits

○ **International networking raises AUC's profile**

AUC Chair Stephen Young has been pushing the AUC's cause on two continents, liaising with a new organisation for Mac lovers in Swiss universities and rubbing shoulders with the crème de la crème of American academia

# 2001: A Student Odyssey

After years as a forum for professional development within academia, the Apple University Consortium is extending its reach further into its 31 university members with a number of initiatives designed to grow the ranks of student Macintosh developers in Australia



# PRODUCT Round

# UP



## RAM CARD READERS TO GO

Digital cameras, MP3 players, digital video cameras and other devices are increasingly relying on Flash RAM-based cards to store their content, but getting that content into your PC is often less than intuitive. Enter Microtech International's ZiO! family of card readers, which plug into any USB port to allow access to data on MultiMedia, SmartMedia, and CompactFlash cards including IBM's Microdrive. This makes them an ideal companion for traveling multimedia producers or anyone else who often needs to pull the data off of their digital cameras onto their PowerBooks or iBooks. ZiO! card readers cost \$141.90. For more information, see [www.microtechint.com/zio](http://www.microtechint.com/zio).



## WEB CAM WITH AN AFTERBURNER

ADS Technologies' PYRO WebCam hooks up to your Mac's FireWire port to provide a high-speed conduit for transfer of live videoconferencing or Web broadcasting data. Whether you're broadcasting lectures for students, monitoring a remote data collection point or conferencing with a fellow researcher on the other side of the world, this camera delivers a crisp, clear, non-compressed video signal supporting 640x480 resolution at 30 frames per second.

It is based around a 0.25-inch Sony CCD progressive-scan sensor with 330,000 pixels resolution and plugs into any FireWire-enabled Mac (OS 9.x) or Windows 98/2000 PC with a FireWire port to spare. Bundled software includes ArcSoft Video Impression and Photo Fantasy, as well as Teveo, Microsoft NetMeeting and Media Player 7 in the windows version. The PYRO WebCam retails for \$434.10. For more information, see [www.adstech.com/products/pyro\\_webcam.html](http://www.adstech.com/products/pyro_webcam.html).



## SHARE YOUR INTERNET CONNECTION

Farallon's NetLINE Broadband Gateway allows anybody connected to a local area network to share a single cable or DSL Internet connection, which makes it ideal for home, small office or educational sites that want to share a broadband connection without having to manage additional IP addresses.

The gateway includes support for NAT, DHCP client and server, VPN passthrough, Web-based configuration and password protection, and retails for \$512.60.

For more information, see [www.farallon.com/products/netline/broadband\\_gateway.html](http://www.farallon.com/products/netline/broadband_gateway.html).



## CD-RW FOR EVERYBODY

Much to-do has been made over Apple's recent introduction of CD-RW drives into its desktop range, but millions of existing Mac users have few options for using rewritable CDs. LaCie's PocketDrive CD-RW solves this problem by providing \$1099 4x4x24 and \$1249 8x4x24 PocketDrives that connect to virtually any modern Macintosh or Windows system using either high-speed FireWire or slower USB connectors.

For more information, contact LaCie Australia on (02) 9669 6900 or see [www.lacie.com/scripts/mobility/pocketcdrw.cfm](http://www.lacie.com/scripts/mobility/pocketcdrw.cfm).



## TAKE TO THE AIR

Wireless networking has become all the rage as standards-based products have come to offer 11Mbps network connectivity from notebook and desktop PCs at affordable prices. Deployment of a local wireless network allows students and lecturers to roam into the network simply by bringing their notebooks into range (between 140 and

400 metres), which makes it ideal in research laboratories, lecture theatres or other areas where Internet and intranet connectivity can be a real help.

Wireless networks require two main components to function: PC Card or PCI adapters in each linked desktop or notebook Macintosh, and a base station that provides a gateway between the wireless client systems and the network. Farallon provides a complete solution designed for Macintosh systems, with its SkyLINE PC card complementing the SkyLINE 11Mb Wireless PC Card and RangeLAN-DS Access Point from parent company Proxim. All are 802.11b compatible (for interoperability with Apple's AirPort base station and others), support Mac OS 8.1 to 9.x and offer 40-bit encryption for increased data security.

The SkyLINE PC Card costs \$488.40, the PC Card retails for \$215.00 and the RangeLAN-DS Access Point costs \$2901.80. For more information, see [www.farallon.com/products/wireless](http://www.farallon.com/products/wireless).

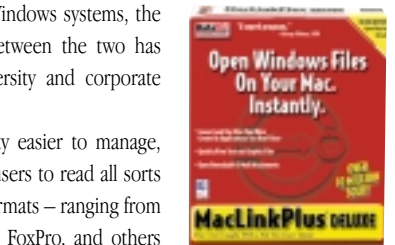


## NEGOTIATE PEACE BETWEEN WINDOWS AND MAC USERS

Whether you prefer MacOS or Windows systems, the fact remains that coexistence between the two has become essential in most university and corporate environments.

Designed to make this duality easier to manage, MacLinkPlus Deluxe allows Mac users to read all sorts of Windows and Macintosh file formats – ranging from current versions of Word, Excel, FoxPro, and others back to classics such as WordStar, Ami Pro, Symphony, and dBase.

It also handles major compression and e-mail encoding formats, including StuffIt 5.5, and can maintain a list of your regular contacts so you don't have to remember what applications each of them uses. It will even sniff out the correct format of files that have been incorrectly labeled or which have lost their identifying information while being e-mailed.



MacLinkPlus Deluxe can be downloaded online for \$US99.95 (\$205) or a shrinkwrap version is available from CoNeXus for \$328.40. For more information, see [www.dataviz.com/products/maclinkplus](http://www.dataviz.com/products/maclinkplus).



## DV-ISE YOUR NOTEBOOK

The combination of digital video camera and notebook computer offers the unique ability to record video, then instantly download and manipulate it on site. To do this, however, you need a way to provide FireWire connectivity on your notebook. ADS Technologies' PYRO 1394 DV for Notebooks does just this, using a CardBus with four-pin and six-pin 1394 ports to give PowerBook and iBook users instant FireWire connectivity. Using two or more cards can also allow creation of a LAN running at twice Ethernet speeds. Bundled software includes Ulead VideoStudio 4.0 for the PC and Digital Origin Edit DV Unplugged for the Mac. The PYRO 1394 DV for Notebooks retails for \$321.20. For more information, see [www.adstech.com/products/pyrocardbus\\_more.html](http://www.adstech.com/products/pyrocardbus_more.html).

All products on this page, except for the LaCie PocketDrive, are available from CoNeXus Australia. Contact them at [www.conexus.com.au](http://www.conexus.com.au), (02) 9975 2799 or (03) 9328 1277.

# editorial

FROM THE EDITOR'S DESKTOP



Finally it's here. With OS 'X' now released, it's time for all Universities to turn their attention to the impact and opportunities that this new operating system will bring.

In this edition of *Wheels*, we surveyed the membership about OS 'X's release and overwhelmingly the response is positive – perhaps best summarised by Professor Simon Kaplan at the University of Queensland. Professor Kaplan believes that OS X will enable IT schools to create an environment for students that can span from early beginnings with the GUI interface through to more complex Unix learning environments. A full round up of responses can be found on page 10.

In this edition, we also highlight the AUC's new focus on students with 5 places being made available to students at the next AUC conference and \$86,000 being allocated to send


31 students to the next Apple Worldwide Developers Conference. The AUC has also allocated \$20,000 from its seeding grant programme for students.

Our technology feature article this edition discusses iDVD and iTunes, two beautiful pieces of software that once again differentiate the Macintosh as a value for money multimedia production platform. For audio and film production students I'm sure the new PowerMac733 with DVD Super Drive will be a real winner.

I hope that you enjoy this edition of *Wheels for the Mind*.

Peter Sharpe,  
Editor  
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### AUC MEMBER UNIVERSITIES

#### AUSTRALIA

Australian National University  
Central Queensland University  
Charles Sturt University  
Curtin University  
Deakin University  
Edith Cowan University  
Flinders University of SA  
Griffith University  
James Cook University  
La Trobe University

Macquarie University  
Monash University  
Murdoch University  
RMIT University  
Southern Cross University  
Swinburne University of Technology  
University of Adelaide  
University of Melbourne  
University of Newcastle  
University of New England

University of New South Wales  
University of Queensland  
University of South Australia  
University of Southern Queensland  
University of Sydney  
University of Tasmania  
University of Technology, Sydney  
University of Western Australia  
University of Western Sydney  
University of Wollongong  
Victoria University of Technology

#### NEW ZEALAND

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

#### AFFILIATED UNIVERSITIES

Australian Defence Force Academy  
University of Canberra  
Dr Mahalingam College of Engineering  
& Technology, Pollachi, India



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Cover photograph: The AUC's strengthening support for student developers is building affinity for the Mac platform that will continue into their professional years. Here, students log on at the James Cook University Library in Townsville. Photographer: Roger Yeldham.

# AUC Sets Direction For 2001

At its recent general meeting, the AUC outlined a number of projects and activities it will undertake during 2001. These include the continuation of the highly successful WWDC Scholarships, AUDF Grants and training.

## WWDC Scholarships

Each year in May, Apple Computer Inc. holds a developer conference in San Jose, California, USA. For the past twelve years, the AUC has awarded scholarships to staff within member universities to attend this conference. Through the generous expansion of Apple's subsidy program last year, the AUC also included students for the very first time – and 15 Australian students made the trip across the Pacific to attend.

In 2001, the AUC will continue to award scholarships to both staff and students of member universities after the success of those attending last year.

To be eligible to obtain a scholarship, you should be a full-time staff or student of an AUC university, have some background in programming (whether on Mac, Unix or Windows systems) and be familiar with some of the latest technologies such as QuickTime and Mac OS X. Applications will be available from the AUC Web site in March.

Each member university submits names and profiles of suitable candidates to the AUC for approval. Scholarships are awarded based on merit, and must be applied for each year. Successful scholarship recipients receive funding to assist in the payment of:

- Return economy airfares from Australia to San Jose
- Transfers from the airport to your hotel and back
- Twin-share accommodation, based on budget rates
- Entry to the World Wide Developers Conference

Upon their return to Australia, scholarship recipients are expected to present the information they have learned back to colleagues at their university, and then to act as a local knowledge resource for those on campus into the future.

## Apple University Development Fund Grants

Changes to the 2001 grant program include the re-allocation of last year's Major Grant category into a new category emphasising Mac OS X development and the porting of applications from other platforms to Mac OS X. This funding will be targeted at specific projects seen as important to Apple and the AUC in the ongoing development of Mac OS X software.

The Pilot Grants have been renamed "Development Grants" and will appeal to a broad variety of development activities on the Macintosh. Funding will remain at a maximum of \$10,000 per grant. The Seeding Grants will continue, with the allocation of funding for a loaner iMac along with Apple Developer Connection student membership and development tools.

Applications for AUDF Grants open in April 2001 and close on 30th June 2001. Visit the AUC web site (<http://auc.uow.edu.au>) for an application form and more information, or turn the page to see a rundown of some of the many innovative projects currently supported by AUDF grants.

## Academic and Developer Conference

One of the major activities the AUC will undertake in 2001 is the staging of its Academic and Developer Conference in September. To be held at James Cook University in Townsville, the AUC hopes to attract over 300 attendees from around Australia and the Asia Pacific, including delegates from Singapore and India.

There is currently a call for papers for the conference, and the AUC invites presentations from people using Apple technology in a wide variety of disciplines. More information on the conference and the call for papers can be found across the page or by visiting [http://auc.uow.edu.au/conf/conf01/conf\\_main.html](http://auc.uow.edu.au/conf/conf01/conf_main.html).

## Mac OS X Technical Training

In 2001 the AUC will continue with technical training, which will also cover Mac OS X and the migration from Mac OS 9. This will allow member universities to plan the migration process to the new OS and assist them with some of the issues they might have. Training will be targeted towards those who support Mac users on AUC campuses.

More information about the AUC and its many activities for 2001 can be found at the AUC web site, <http://auc.uow.edu.au>.

## AUC Web Site Gets a New Look

The AUC Web site has been operating at <http://auc.uow.edu.au> for some time now, but with the rapid growth in membership numbers and activity it's been given a major redesign that puts more AUC and AUDF-related information at your fingertips.

Broken into several main sections, the new site features a host of information including regularly updated news announcements, information about all past and upcoming AUC conferences, details of and application criteria for the high-demand AUDF grants, and timely updates about major milestones related to AUDF grants, WWDC scholarships and more.

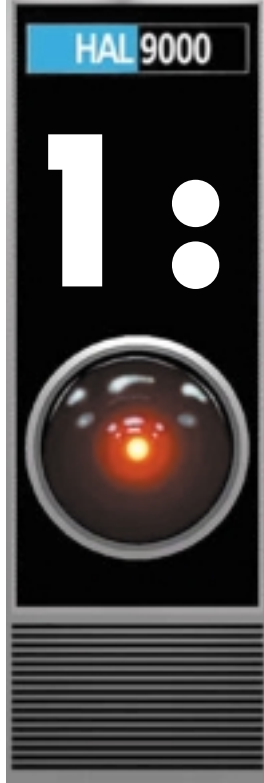
The site also features a comprehensive list of contacts for all matters related to the AUC, AUDF, WWDC and more. You can read the minutes of many administrative and general meetings that will give you even more insight into where the AUC has come and where it's going in the future. Even better – and we may be a little biased here – you can find Adobe Acrobat versions of the current and all past issues of *Wheels for the Mind*. And, of course, you can sign up for your free subscription to *Wheels* right on the site.

"We're excited about the new layout and wealth of information that can now be found on the AUC Web site," says AUC program manager Andrew Jeffrey. "The main aim of the redesign was to provide AUC members and non-members easy access to AUC-related information, making it a source of reference information about AUC-related activities. We are now planning a number of new initiatives around the new site, including development of an AUC mailing list; sections on each member university highlighting their AUC-related successes; a Web-based bulletin board to encourage online sharing of information; and the sharing of AUDF-funded software through the site."





# 2001:



# An AUC ODYSSEY

**More than 300 AUC members and guests from around the Asia-Pacific region will head north to converge on the tropical city of Townsville for this year's AUC Academic and Developer Conference, which will fittingly be called "e-Xplore 2001: A Face-To-Face Odyssey".**

To be held from September 23 to 26 at James Cook University in Townsville, e-Xplore 2001 will focus on the development of the information economy and e-solutions in recent years, particularly as it applies to Apple's long-awaited Mac OS X operating system.

Last year's AUC Academic and Developer Conference at the University of Wollongong was a huge success, and this year the AUC is building on that experience to present what looks to be the biggest and best conference yet.

As in years past, the conference will include a range of keynote speakers, breakout sessions and conference streams covering the spectrum of Apple technologies and uses. Expect presentations from key Apple staff, AUC members and researchers who will share the fruits of their work on AUDF-funded development going on around the country.

While keynote speakers had not yet been confirmed at press time, they will certainly be of the same calibre as last year, when speakers included Peter Lewis and Andrew Tomazos of successful software development house Stairways Software; 23-year IT veteran John O'Donoghue of the University of Wolverhampton, UK's Delta Research Institute; and university developers including the University of Wollongong's Dr Phillip McKerrow, Dr Peter Evans of University of Southern Queensland, and Michael Vallance of Singapore's Temasek Polytechnic.



James Cook University vice-chancellor Bernard Moulden will be amongst the speakers officially opening the conference, which will utilise the ultra-modern lecture theatres of the university's new medical school – opened in February 2001 and offering the latest in educational facilities. There

will be opportunities to tour the university and medical school, as well as the new \$173 million teaching hospital being built across the street from the 10,500-student campus.

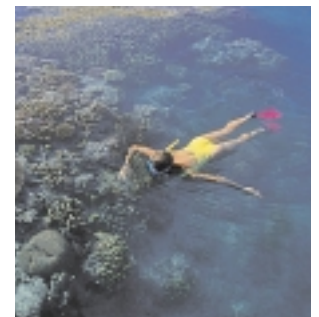
Julie Land, AUDF co-ordinator at James Cook, is thrilled that the university has been given the chance to host the conference, which has never before been held so far away from a capital city. "It will be great for people in a remote university like ourselves, where we very rarely get the calibre of speakers that will come to the conference," Land says. "It will be a good opportunity for people up here who are developing software, and looking to enhance the Mac environment, to talk to people in the conference."

As was the case last year, the 2001 conference will be organised into three major content streams. These include:

- Academic e-Xcellence – discussing how Apple technology is making academics more successful in research and teaching
- The Student e-Xperience – How students learn and experience the world of technology, from their perspective and that of the academics they work with
- Developer e-Xcitement – With a focus on the development possibilities offered by Mac OS X's Unix roots, this stream will focus on the ways developers are taking advantage of the many exciting possibilities that it presents

In addition to offering the usual broad assortment of interesting and informative sessions, the conference will provide many opportunities for attendees to soak up the unique ambiance of Far North Queensland's largest city. The welcome cocktail party, for example, will be held at the Reef HQ aquarium and research centre, which counts amongst its exhibits one of the world's only living reef exhibits. Those attending the party will get the chance to talk to on-hand staff members, and to get experience handling the many marine creatures in Reef HQ's touch pools.

"This year we're consolidating the changes made last year when we focused on developers as well as academics," says AUC chair Stephen Young. "We're expecting to see a good number of students at this conference, and that will be a first. We're also very pleased that we've been able to take the conference to regional Australia, and also that it was one of our newest members that made the successful bid. They have the facilities and the commitment, and we feel the AUC and James Cook University will be able to partner to deliver the best-yet AUC Academic and Developer Conference."



# AUDF: Works In Progress



*Mac OS X is a major focus of the latest round of AUDF grants*

Access to the Apple University Development Fund (AUDF) is one of the many appealing benefits of membership in the AUC. The last round of AUDF funded projects was announced in September 2000, providing \$150,000 funding to students, lecturers and researchers at many of the 31 AUC member universities around the country.

With a focus on promoting development related to OS X, Java and QuickTime, the grants are intended to provide equipment and funding for projects with a clear purpose and defined deliverables that could be of benefit to the greater AUC community. A total of 82 applications for AUDF funding were received in 2000, out of which the AUDF Review Committee allocated funding for two Major Grants, seven Pilot Grants and eleven Seeding Grants, which target non-Mac developers with a loaner computer, development software and programmer support networks.

"This year was a high water mark for the amount and diversity of applications," says Andrew Jeffrey, AUC program manager with Apple Australia. "One of the most noticeable changes from previous years was the amount of inter-disciplinary collaboration present in the applications. It's clear that innovation, which is one of the main goals of the AUDF grants, is alive and well on Australia's university campuses."

Projects range from multimedia lecture aids to model building tools, from brain-controlled computers to resource allocation and a billing system for streaming media. AUDF-funded equipment was delivered in late 2000, and developers having already begun to file regular progress reports (available at the AUC Web site). Here are updates on several innovative projects currently working their way towards completion:

## **Hon Hwang, University of Technology Sydney Bachelor in Computer Systems Engineering and Diploma of Engineering Practice (Seeding Grant)**

Grasping the mechanics of electromagnetic fields is a hard task for many students, but Hwang is hoping to make the task easier by developing an interactive multimedia application that will

simulate the movement of an electron in a cathode ray tube, which is the basic philosophy behind televisions, computer monitors and most other display units.

Long trained on the Wintel platform, Hwang is currently learning his way around Mac OS 9 and preparing himself to soon begin coding his application, which will allow students to set the strength of steering magnetic plates and watch electrons flow through the tube accordingly. He is building it as a Carbon application that will run in both Mac OS 9 and OS X, and plans to release the open source application to the world at large when it's complete.

"I used to do physics and engineering, and one of the things I found most difficult was imagining these fields," Hwang says. "When I looked at the graphics component of Mac OS X and found out they were using OpenGL, I thought building a simulation would be a good stepping stone to learn more about this. I've done some programming last year on C and Java, but nothing as serious as this."

## **Dr Steven Campbell, James Cook University, Lecturer, College Of Music, Visual Arts and Theatre (Pilot Grant)**

Working in Conjunction with the Mundingburra Special School, Campbell is developing M-SEA (Multi-Sensory Environment Audio), a MIDI Music controller that will allow students to create music by



simply moving their bodies, arms or other body parts. An array of eight motion sensors senses the movement of the body and converts it into signals that drive the MIDI interface. This, in turn, causes the computer to play sounds: a child might, for example, move around the sensor area to trigger a wide variety of barnyard animal noises.

After finally finding a piece of hardware to resolve a problem presented by interference between the sensors, Campbell says the application is progressing nicely and should be done in early 2002 as originally scheduled. And while the original idea hasn't changed much, discovery of new technologies has improved its operating specifications. For example, while Campbell originally expected he would have to put the audio on a CD, integration of an application called MSP has allowed him to use discrete sound files in the application. He envisions the final project will include at least ten sound schemas, including a variety of musical instruments as well as novelties such as the farmyard.

"Now I can have a cow when I want a cow," says Campbell. "This has made it more self-contained. And with the new hardware I would have had to have the sensors spaced two metres apart; now, because there's no interference whatsoever, they could be inches apart. This means you could run the music with your fingers."



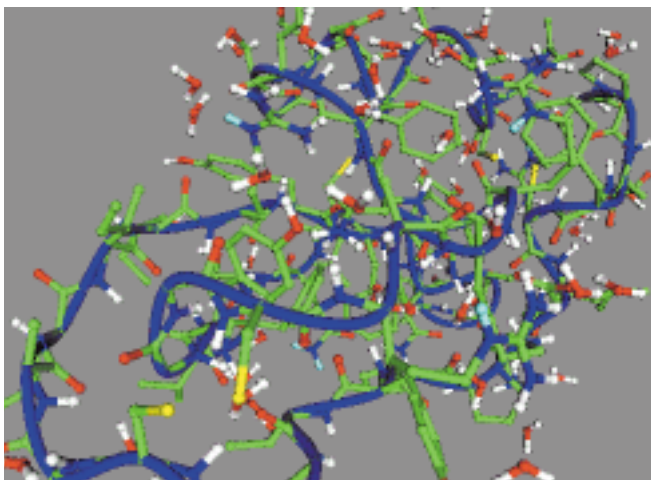
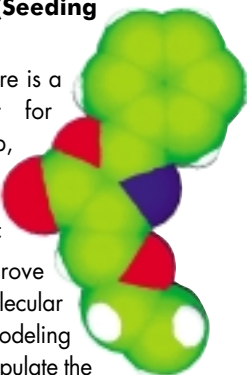
**Ken Chan, Curtin University of Technology Bachelor of Applied Chemistry (Seeding Grant)**

Molecular structure is a complex concept for students to grasp, particularly given

the simplicity of the ball-and-stick designs typically used to illustrate the arrangement of atoms in a molecule. Hoping to improve chemistry students' understanding of molecular concepts, Chan is developing a graphical modeling tool that will allow students to view and manipulate the structure of a variety of molecules.

"A lot of people try to abstract reality into formulae and ball-and-stick models, so first-year students often have misconceptions about what molecules are," says Chan. "We're trying to get them to forget everything they've learned, and trying to present them with the most fundamental aspects of what a molecule is. They're very exciting, dynamic things and we're trying to convey that."

Chan's application, built in Java for easy portability between platforms, was developed using the beta version of OS X running on an AUDF-supplied iMac. Five modules are currently at refinement stage, and future plans include expanding the molecule rendering engine to allow more flexibility in the type of molecules displayed.



**Wesley Moore, RMIT University Bachelor in Computer Systems Engineering (Seeding Grant)**

SSH is an open security standard for data encryption, secure private networking and user authentication that has fast become standard kit in a variety of Unix versions. Recognising its potential importance to Macintosh users, Moore's AUDF-funded project initially involved developing a user-friendly port of the SSH toolkit for Mac OS X that includes an easier interface than the arcane commands required by most installations.

However, some time into his project Moore learned of the integration of OpenSSH ([www.openssh.org](http://www.openssh.org)) – a free implementation of SSH maintained by the OpenBSD Project – into Mac OS X, and decided the best approach was not to reinvent the wheel but to focus on the area where he could add value. To this end, he's now focusing on the user front end, developing an application that will save users from having to use the Unix command line with its long, complex commands.



"The command line SSH program doesn't support some of the normal things you get through a GUI, such as bookmarks, histories and so on," says Moore. "And because the SSH built into OS X is managed by the OpenSSH team, their implementation is probably the most secure and up-to-date so I can keep up with it by using their development. But it's a command line thing, and users don't necessarily want to have to use the terminal type text interface. A better solution will be to use the existing SSH client and provide a GUI to it. I'll be programming in Cocoa and Objective C, and have been getting started on learning the language."

**Lisa Davies, University of Technology Sydney Bachelor of Software Engineering with Diploma of General Practice (Seeding Grant)**

Frustrated by her inability to use relevant lab equipment – designed for Wintel systems and only offering parallel port connections – on her home iMac, Davies is undergoing a combined hardware/software project that will provide a new USB-based interface to the kit.

Davies, who has programmed in Java, C, assembler and Pascal, will use adapters to interface the two plug types and handle data timing issues. Targeted at a November completion date, her project will also involve writing open-source Mac drivers. It's now in the research phase as Davies learns the USB protocol and the art of Macintosh programming. "At the moment it seems very hard, and it's going to be a challenge," she admits. "But it will allow me to work at home with the kits we use at uni, instead of having to do all my work at uni."

Details of past grant winners, as well as updates lodged by the current round of recipients, are available at <http://auc.uow.edu.au/audf/audfgrants.html>.



# iTunes and iDVD: Building Your Digital Hub

By Andrew Jeffrey

Held in San Francisco each January, MacWorld has always been a major launching point for Apple, both in terms of new products and strategic directions. In 2001 this was no exception, with attendees welcoming the introduction of new PowerMac G4 computers with higher processor speeds, as well as the incorporation of rewritable CD drives into a range of Apple systems.

The real stars of the show, however, were two new pieces of software that reflect Apple's moves in the direction of the Digital Hub – a conceptual model that has an iMac, PowerBook, G4 or other computer as a central hub that helps users connect, manipulate and share information. During his presentation, Steve Jobs made a point of showing how easy it is for a Mac with USB and Firewire to communicate with nearly every digital device on the market – whether that be a digital camera, scanner, printer, music system or MP3 player.

## DVD production on your desktop

When DVD players first started appearing many people thought it was just another way for movie companies to sell videos. And for the most part, DVDs have proven very popular – especially in the US – where the high picture definition, wide screen, surround sound and extra features have made them a real rival to the standard VHS video market.

Making DVDs, however, has until now been an arcane and extremely expensive process that few could afford. Yet while it would have been impossible to think about making your own DVDs even eighteen months ago, this year it's become a reality thanks to Apple.

Crucial to making your own DVDs is having a new DVD-R drive, currently available only in Apple's top-end G4 tower. Known as the SuperDrive (for those of you that remember, this was also the name of Apple's high-density floppy drive from years ago), the drive allows you to read both CDs and DVDs, and to create your own CDs and now DVDs.



The other part of making your own DVDs is the software. DVDs use a very high compression system called MPEG2, which is so complicated to produce that it normally requires dedicated hardware to compress and encode the video and sound data onto a DVD disc. Creating the framework and laying out the DVD has also been something that only dedicated graphic artists and professional media shops were able to do, since it required expensive and immature software to do. Apple's new iDVD software, takes both issues and makes it as simple as dragging and dropping the right content to the right place.

Just as the ground-breaking iMovie turned any digital camcorder owner into the next Spielberg a year ago, iDVD can turn home users into the next Paramount or MGM studio. Starting with some digital media – for example, your latest iMovie creation – you simply drag and drop the movie onto the iDVD screen, which automatically creates a button. By creating more buttons and folders you can have up to an hour of high-definition digital quality along with a picture slide show.

One of the great features of iDVD is the ability to customise the look and feel of your DVD with themes such as Road Trip, Day at the Beach, and so on – each of which changes the background images, fonts, colours and buttons. Not content with the included themes? No problem – you can spend hours tweaking every button, font style, colour and background image until you have it exactly the way you want it. This easy setup and built-in flexibility makes iDVD the perfect complement to iMovie, and will make it much easier for university departments to create large multimedia presentations, lecturing aids, educational materials and more.

Once you have your DVD the exact way you want it, you can preview it. This brings up a small remote control similar to remotes that come with consumer DVD players and allows you to navigate through your DVD, play movies and view slideshows as it will look when viewed on a TV.

Creating the DVD is as simple as clicking the Burn button. This is where the magic of iDVD happens. Not only does it take your movies and pictures and put them on to the DVD, it also compresses them into the MPEG2 format on the fly. This used to take many hours – sometimes as much as 12 hours even with dedicated hardware – but the power of the G4 chip, along with the Velocity Engine, means that this has been reduced to less than 2 hours. The end result is a DVD that can be played back directly on your TV using most consumer DVD players.

iDVD is currently only available with the 733MHz PowerMac G4 (it's also the only one that ships with a DVD-R drive) but as the new SuperDrive becomes more readily available expect to see it appear in more models. Blank DVD discs are about ten times as expensive as blank CDs; Apple are selling them through your local Apple store in boxes of 5 for just over AUD\$100.

For more information, see [www.apple.com/idvd](http://www.apple.com/idvd).







## Your own **MP3** studio

It would be fair to say that MP3 (Moving Picture Experts Group Audio Layer 3), a compression format that shrinks the size of audio files with little sacrifice in sound quality, has taken the computer and music industry by storm. Along with the music swapping programs like Napster (<http://www.napster.com>) the development of broadband and MP3 technology now makes it as easy to play and share music as reading your email.

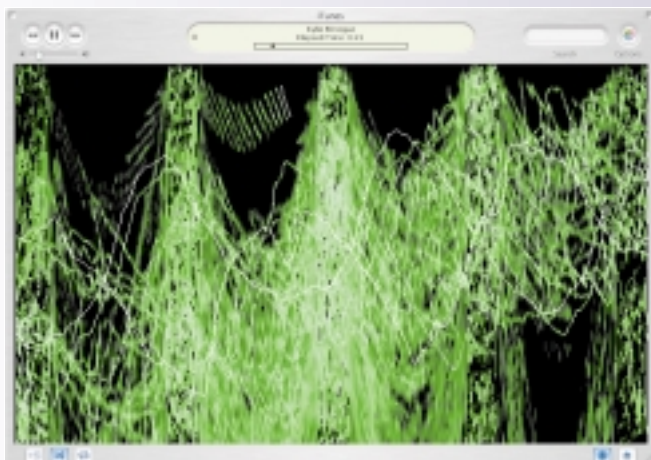
iTunes is Apple's entry into the busy market for MP3 encoders and players, and offers Mac users two main features: the ability to record, play back and catalogue your MP3 files, and also to listen to streaming files over the Internet.

By copying data directly from a standard audio CD, iTunes convert the tracks into MP3 files very quickly. MP3 files are very small (3 to 4MB for a standard pop song), which makes them easy to store on your hard disk. It's simple to build your own favourite music collection – a lifesaver for those many among us who have bought CDs only to listen to one or two of our favourite tracks, then found the other tracks to be less than stellar.

One of iTunes' best features is the ability to analyse the digital content of any song, then search across the Internet to find its title, artist and the name of the CD it appears on, which is an invaluable feature that was not built into the original CD format. This means you can easily see what the track names are, the type of music and who the artist is, which in turn makes it very easy to search your music collection and create custom play lists to suit each mood.

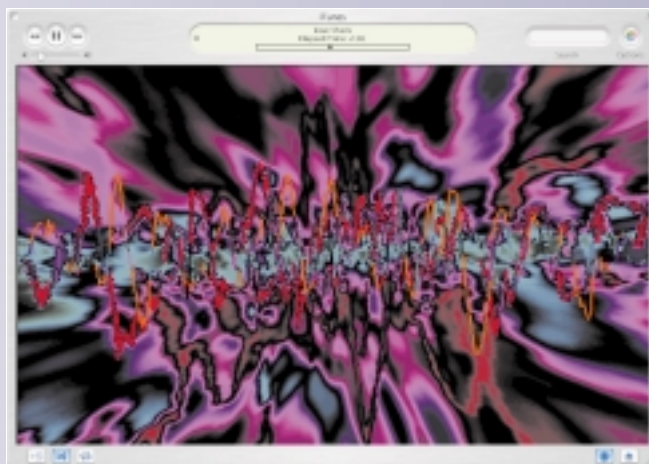
Having your music locally on your hard disk and the ability to store hundreds and thousands of files on today's large hard drives, means now more swapping CD's and always being able to play your favourite music whenever you want.

Now that Apple's new G4 and iMac range have CD-RW drives built in as standard on many models, you can also use iTunes to



record your MP3 files and play lists to standard audio CDs that can be played in any standard CD player. Be careful, though: while CD-Rs are playable in most CD players, only the newest CD players can read music off of re-recordable CD-RWs.

As with most other software MP3 players, iTunes also includes a visualisation mode that uses the waveforms in your music to create strange and interesting on-screen patterns that change, move and flow with the music. iTunes only has one built-in visualiser, but the strange and hypnotic patterns it creates which change and swirl with the music are very entrancing. Like other MP3 players, however, iTunes allows users to create visual plug-ins; many visualisers are under development, so keep your eyes out for new modules that you can use to turn your iMac into a mini disco and party on!



### **Radio Free iMac**

Radio stations in the past were very localised; even if you traveled only one or two hours out of town, you would have to search for stations serving the local area. With the Internet, however, you can now listen to thousands of 'radio' stations from every part of the globe.

Using the Kerbango music finder, iTunes goes out and searches for available radio stations to listen to, classified by type (Rock, Pop, 80's Soul, and more) and you can then choose the station you want to listen to. Most stations are offered in a variety of bandwidth types including 33.6 Kbps modems right up to very high quality broadband connections. iTunes connects to the service, buffers the stream into your computer's memory and starts playback. The quality and variety of some of the stations available is very impressive and you can now listen to real radio stations broadcasting from nearly every country in the world.

Just as support for music production and radio reception is helping iTunes turn today's computer into Digital Hub of the future, so too is the software's ability to let you take your music with you on the road. Portable MP3 players have been around for a couple of years now, but the problem has always been getting the music into the devices. iTunes supports a wide variety of MP3 players including the Rio, Iomega and Nomad, and through the magic of USB it recognises them when you plug them in. You can then transfer music to and from your player by simply dragging and dropping the track titles into or out of your music library. Simple and elegant!

Download iTunes for free from Apple's web site at <http://www.apple.com/itunes>, and make sure you have version 1.1 or later which fixes some bugs and adds support for non-Apple CD-RW drives. Mac owners downloaded over 750,000 copies of iTunes in its first two months of release, helping it become one of the most popular MP3 players on the Internet.

# To The Power of



Having involved developers in every stage of the evolution of Mac OS X over the past few years, there are very few details about the operating system of which Mac enthusiasts would still be unaware. The Aqua user interface is well-understood and liked; Darwin, the command line-driven Unix core, has won the hearts of die-hard techies and promised an uncompromising server performance; Quartz, the PDF-based graphics rendering engine, promises sharper content than ever; and embedded OpenGL and QuickTime offer fluid 3D and video capabilities.

Because beta versions of OS X have been widely circulated for some time, many Australian universities have gotten the chance to take it for a drive. By and large, the response has been positive; hundreds of researchers and students from all walks of life are now building applications to take advantage of the new operating system's capabilities. Here's what a few AUC members think of the biggest thing to happen to the Mac since it was born seventeen years ago.



**Professor Simon Kaplan, University of Queensland**  
**Head of School of Computer Science and Electrical Engineering**

"Just being able to expose students to Aqua is a benefit: 95% of people imagine that an interface has to look like what Bill Gates decrees, and they have no idea that's not true. A lot of what we have to do is break down the assumption that things always have to work a certain way. This lets us present a fundamentally different way of thinking about how the components on the desktop work and think together.

OS X, especially in an IT school, will enable us to create an environment for students that spans from their early beginnings with the GUI, and lets them gradually unpeel the system as a whole to learn more in depth how things work in complex environments. We run a new multimedia degree called Information Environments, and we will be shifting to OS X as soon as we can get it running. It's very difficult to teach low-level stuff in Windows as compared with Unix; Unix is just a much cleaner model in many ways."

**Wesley Moore, RMIT University**  
**Bachelor of Computer Science and Computer Systems**  
**Engineering and AUDF recipient**

"There were really only a limited number of SSH [encryption services] programs developed for the Mac before. With the

introduction of the Mac OS X public beta, there's an implementation of SSH managed by the OpenSSH team that's probably the most secure and up-to-date available. This lets me keep up with SSH by using their development; I can focus on providing an easier interface into it for users that don't necessarily want to use the terminal text interface."

**Ken Chan, Curtin University of Technology**  
**Bachelor of Applied Chemistry**

"We're doing most of our beta testing [see story on page 6] on Mac OS X, and as this is a project designed for first-year students at an introductory level, we've had to keep the tone very usable and engaging. We find that everything in Java looks so much more beautiful in Mac OS X, and development of OS X is a dream. The Unix nativity is really good, and stability is unparalleled. Coupled with a G4, it's very good."

**Dr Michael Kölling, Monash University**  
**Lecturer, School of Network Computing**

"I really like it, and have changed to the beta as my main system. The main thing for me is the Unix back-end, because I'm also a Unix user of many years. I still do Java development on Unix because I've done it for years, but bringing that together [with Mac OS] has made me very impressed. I value the stability that goes with it, and the large amount of tools available in the system when you install it; now you just type 'emacs' and it's there. It really seems to be working perfectly for me."



**Stephen Young, University of Melbourne**  
**AUC Chair**

"With the focus on OS X and the completely new opportunities it provides, Apple and the AUC will regain relevance with the computer science and scientific and engineering communities within universities. Today, scientists have either got two computers on their desk – perhaps a Sun Microsystems workstation and a Mac or Windows PC – or they have a PC running Linux and Windows and have to decide at boot time whether they're doing

science or communications. With OS X, that scientist will be able to have on his or her desk a workstation that's an absolutely respectable number crunching system and provides the communications capabilities as well."



# Academic Writing Never Looked So Good

By David Braue



The AUDF-funded academic writing tutorial developed by (from left) Thomson, Meek and Woodward-Kron has been picked up by the prestigious National Centre for English Language Teaching and Research

A team of developers and academics at the University of Wollongong has completed three years of AUDF-funded production with the commercial launch of an innovative CD-ROM that uses interactive multimedia to teach students the secrets of good academic writing.

Entitled *Academic Writing: A Language Based Approach*, the CD-ROM was designed as a teaching aid for Wollongong's newly developed English Language Studies major, aimed at non-English speakers. At its heart is the full text of around a dozen real student essays, covering a broad range of subject areas including history, creative arts, philosophy, engineering, management, language, and law.

Each essay has been thoroughly annotated to illustrate its most effective components, as well as to cover issues such as style and flow that contribute to making the essays truly representative models of solid academic writing. As well as allowing students to read the full text of the essay and annotations, the package also provides three levels of detail – a "Big Picture" section discussing the whole text, "Middle Ground" analysing paragraph structure, and "Up Close" which reveals the details of effective sentence structure.

"Many times when students go to write an essay they don't really know what they're supposed to do," says Elizabeth Thomson, lecturer in the Modern Languages Program within the University of Wollongong's Faculty of Arts. "Everyone's always talking about English and what's in it, and there's been a lot of research – but there's the question of translating that research into a useful teaching tool."

"We've taken a very thoroughly researched model of language, used it as our theoretical underpinning, and have built from it a teaching resource with tasks and activities for students that can also be a wonderful lecturing tool, resource for teachers or student

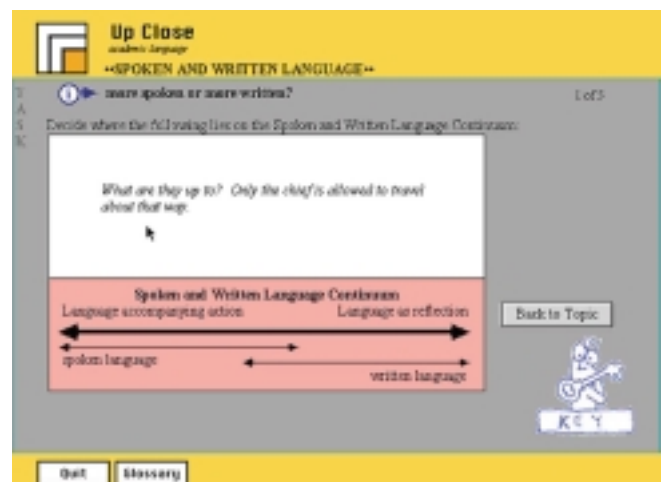
self-study package. The computer environment allowed us not only to have a teaching resources, but also to have a database sitting there that we can add to as it takes on a life of its own."

Along with co-collaborators Robyn Woodward-Kron and Jim Meek, Thomson drove the direction of the project and handled the intensive work involved in getting approval for the venture from ethics committees, lecturers and students alike. Without AUDF funding, she says, the project would never have gotten this far.

"The AUDF money got us up and running," she explains, "since we had a number of research grants to produce the content of the CD but no funds whatsoever to get it programmed. Having that money as a vote of confidence in what we were doing, we then had credibility and had the rest paid for by the Vice-Chancellor."

The system was built between 1997 and 2000 by the University of Wollongong's Centre for Educational Development and Interactive Resources, which used Macromedia Authorware to produce the \$70 Macintosh CD-ROM. A Windows version is also in the works for release by mid-year.

More information and an order form for the CD-ROM are available from [www.uow.edu.au/arts/academic\\_writing](http://www.uow.edu.au/arts/academic_writing), and the \$70 package also recently scored a big coup after it was picked up for nationwide distribution by Macquarie University's well-known National Centre for English Language Teaching and Research.





# AUC outs Mac lovers at Australia's largest university

By David Braue



**With nearly 50,000 students spread across six Victorian campuses and sites in Malaysia and South Africa, Monash University is Australia's largest university and one of its most renowned. While its teaching and research covers all manner of areas – and have therefore embraced many forms of computer technology – it is only with Monash's decision to**

**join the AUC at the beginning of 2000 that the Macintosh platform has begun making a resurgence after years of Wintel dominance.**

A recent survey of staff computer users within Monash revealed that around 700 Macintosh systems were being used in various departments across the university, a small number compared with the nearly 12,000 Windows, Linux and Unix-based desktop systems in use. This paucity was largely due to the lack of a formalised discount structure for purchasing Mac systems, something that Faculty of Education IT support officer David Yammouni says was among the key factors that motivated Monash to finally join the AUC in time for the 2000 academic year.

Alan McMeekin, the then-newly appointed executive director of Monash's Information Technology Services (ITS) division, saw the need for an organised means of supporting the university's small but eager Mac-using minority.

"It's important to have a diversity of environments here at Monash to satisfy the particular needs of courses and research interests of academic staff," McMeekin says. "There's a fair number of people that use Macintoshes – enough to justify us becoming participants within the AUC."

After investigating the benefits of AUC membership and deciding to join, Monash ITS eventually chose two preferred Macintosh providers – Desktop Power and Buzzle – and negotiated an acquisitions structure that positioned the Macintosh as a viable purchasing alternative for Monash staff and researchers.

"We were always able to buy PCs at discounted prices and lease them as well, but we weren't able to do that with Macintosh systems," says Yammouni, who now serves as both the university's AUC and

AUDF co-ordinator. "Nobody really understood what our relationship was with Apple. But [by joining the AUC] we were able to arrange leasing arrangements that we'd never ever had before, and we'd never had a preferred supplier for Apple equipment other than the unofficial one we'd had with Desktop Power."

The effect of the new arrangements has been dramatic, Yammouni continues: "That helped to raise the profile of Apple equipment across the university because we advertised that we were now able to officially purchase and lease it. We were actually able to get iMacs at a lower price than the equivalent PCs. The profile of the Macintosh has been raised, and all the people that originally had Macs, and were forced to use Windows boxes, are now coming back to the Mac."

During Monash's first academic year as a member of the AUC, the university secured two AUDF grants (see opposite) and also sent David

Kennedy, an educational designer with Monash's Centre for Learning and Teaching Support, to the Apple WorldWide Developers Conference on a scholarship funded by the AUC.

"It was probably the best form of professional development I've had in years as well as the opportunity to meet interesting and innovative people," says Kennedy, who is working with the AUC to promote the internal [QuickTime group] special interest group that he spearheads.

That group, which has more than 80 members on its regular email list, holds regular meetings with other Melbourne AUC members, all of whom are interested in leveraging QuickTime and other Apple technologies to greater effect in their core business of content production and technology development.

"One of the difficulties that we face is that we all tend to operate in isolation in our universities," Kennedy explains. "My primary job is to make good educational decisions about the most appropriate uses of technology. But there are often good ideas, and interesting and innovative ways to use this technology that we don't get to hear about because they're happening somewhere else. Through the aegis of the AUC and the network of people interested in these sorts of things, we've attempted to advertise this as widely as possible, to invite people to attend, and more importantly to contribute their ideas."

After spending last year furiously working to get up to speed with the myriad activities of the AUC and AUDF, Yammouni is keen to make even more of the AUC's resources during this academic year. He is in the process of vetting WWDC student scholarship





candidates, then will turn his attention to staff scholarships, AUDF funding, the university's Macintosh technical support strategy, and issues such as developing a more formal responsibility structure for handling the many facets of participation in the AUC and AUDF.

Within just a year, Yammouni says, AUC membership has given the Macintosh platform a certain recognition that was lacking before, helping unite Monash's internal Mac users and paving the way for a much more regular role for Apple technologies in the activities of Monash staff, researchers and students. And however that change eventuates, he believes the experience of previous AUC members will continue to provide a valuable resource that will benefit the entire Monash community.

"One of my passions in life is that I actually like working with Apple equipment," says Yammouni. "While [getting up to speed with the AUC] has been a learning curve, it's been absolutely invaluable dealing with all the other AUC members: they've been fantastic in helping me understand what it is we're supposed to do. In the one year, I've gleaned heaps of information. It's like any job: you can coast along and nothing happens, but the more you put into it, the better result you get."

## AUDF In Action: A Genetic Approach To Problem Solving

**Dr Yen Ping Cheung, Monash University  
Senior lecturer, School of Business Systems (Seeding Grant)**

Originally working in the Windows environment using C++, Cheung is using an AUDF-supplied iMac and Metrowerks CodeWarrior to develop a Macintosh version of a complex genetic algorithm used for a variety of problem-solving tasks. Using a data model based on "genes" and "phenocells" – the data equivalent to the organic sequences and byproducts of those sequences that make up all life – the processor-intensive algorithm tries hundreds or thousands of partial searches, combining the best matches until the ideal solution is found.

Uses for the system including matching resources with product demands to produce a manufacturing schedule, feeding a desired number of stops on a trip into the algorithm to determine the most efficient way between them, and organising worker shifts to produce the most efficient schedule. Cheung's implementation of the decades-old algorithm includes the novel introduction of "parasites" that inject spurious data that encourages the genetic algorithm engine to try new angles into the problem.

Having spent the last several months learning the Macintosh environment and how to program it, Cheung's port is progressing steadily, and she now plans to augment the Mac-based algorithm with a more user-friendly interface.



*Cheung (left, with student) is porting a genetic algorithm that runs hundreds of iterations until it converges on the answer*

# AUDF In Action: Making Java More Student-Friendly

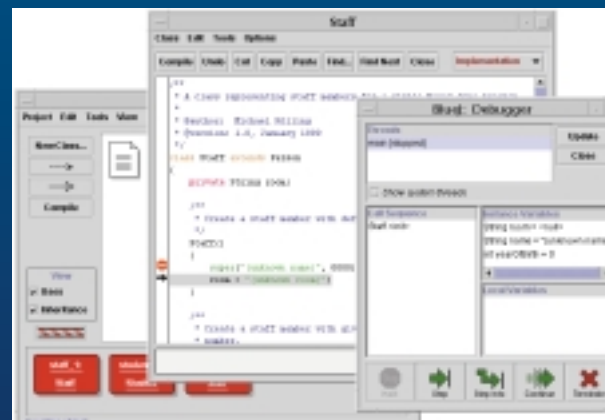
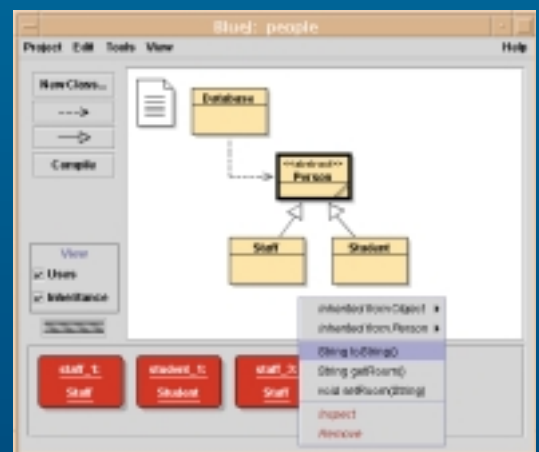
**Dr Michael Kölling, Monash University Lecturer,  
School of Networking Computing (Pilot Grant)**

Java development tools have focused on power developers who understand the nuances of object-oriented code and know how to use complex development tools. But for students, such an environment can be daunting to say the least.

Aiming to provide an easier-to-use Java development environment that can be used to teach students to program in Java, Kölling and partner John Rosenberg, dean of the Faculty of IT at Monash, have been working for three years to develop and refine BlueJ, their answer to this pressing need. Since its launch some time ago, BlueJ has been adopted by over 80 universities around the world, and is downloaded around 6000 times a month from <http://bluej.monash.edu>.

Based on and built in the Java 2 Enterprise Edition (J2EE) specification, BlueJ only ran in Windows environments because of Mac OS 9's lack of support for the newest version of Java. But J2EE is supported by OS X, a fact that led Kölling and Rosenberg to apply for AUDF funding to support their port to the Mac.

The Macintosh version of BlueJ was released in December 2000, and was "more or less working" under the beta version of OS X, according to Kölling. "It almost works, with really minor problems," he says. "We had to slightly extend the installer to take account of the different file system structures on Mac OS X, and we're hoping the minor problems will just go away when the final release of OS X comes out. We think it won't take much longer for BlueJ to be on OS X."



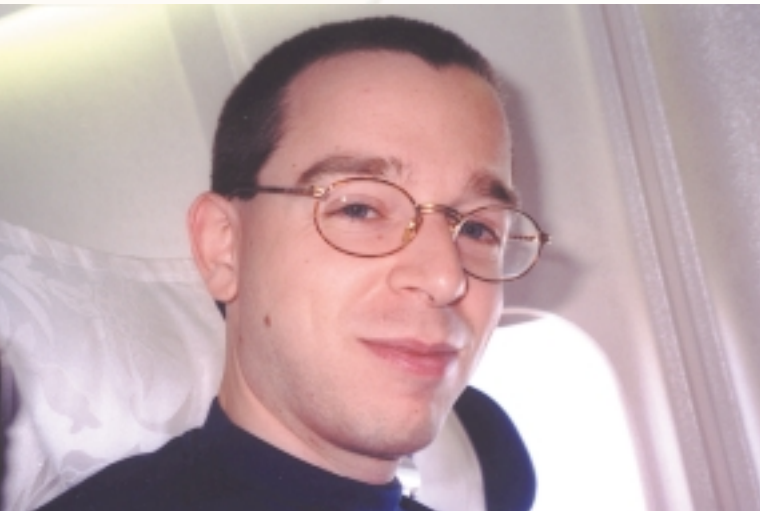


# Mac Advocacy With A Swiss Accent

By David Braue

**The Apple University Consortium has been established for so long in Australia that it's become recognised by universities across the country as one of the industry's premier programs for maintaining close ties between Apple and its key tertiary users throughout Australasia. And there is much to love about the program, according to a key figure in a similar, albeit younger, organisation in Switzerland that has similarly sought to unify academic Macintosh users from across that country.**

Founded in 1999, the Swiss Macintosh University Group (UniMac for short) was formed by the Zurich-based Swiss Federal Institute of Technology (ETH) as a means of bringing together IT professionals and developers at the country's higher education institutions.



UniMac's Max Schlapfer

In the time since, it has become a widely frequented affiliation of Mac advocates interacting through activities including regular education seminars, an online mailing list with around 170 participants, IT management focus groups, and other activities. Ten Swiss universities, along with CERN, the Geneva-based home of the World Wide Web, now participate in UniMac, but the group has yet to make inroads into Switzerland's 30 TAFE-like Fachhochschulen where the Wintel platform dominates.

"We are a very small country, but people hardly know each other and don't talk to others from other universities," says Max Schlapfer, Apple Macintosh platform manager at ETH. "This is a pity because know-how and knowledge exchange are very important – particularly since we have a stable market share of around 30%, and we're always fighting against the Wintel platform. Our goal is to bring people from different universities in Switzerland together and give them a platform to exchange news, information, technical support and so on."

UniMac is trying to maintain a highly technical focus that Schlapfer hopes will differentiate it from more marketing-hungry consumer user groups dotted across the country. Instead, he wants UniMac to be a real forum for problem solving amongst

developers, technicians, administrators and the many other people that keep Macintosh systems running within Swiss universities.

For example, its mailing list already provides an extremely useful channel for members to get informal technical support: "I'm happy to say that we have nearly every Mac guru in Switzerland participating in this group now," Schlapfer says.

Last year, the group held two well-attended meetings that attracted over 100 delegates, success that it hopes to replicate this year with conferences focused on Mac OS X and WebObjects development. And while past speakers have taken a more marketing-oriented approach in their presentations, the focus for future seminars will be far more technical in order to provide more useful information for attendees.

UniMac has been working with Apple Paris, the company's European headquarters, to get good technical speakers for future meetings. "Giving people a face is very important," says Schlapfer. "You know an email address and a name, but if you want to pick up the phone and call people, it helps if you know them from a meeting. And we are now focused on a more technical approach: if people are going to spend a whole day in Bern, or Zurich, and they bring the time to attend a meeting, you have to give them a benefit. With marketing sessions there's no benefit."

Although the subject matter UniMac is addressing is similar to that being promoted by the AUC, in many ways UniMac has taken a different focus than the AUC. For example, UniMac does not collect membership fees and does not provide any programs comparable to the AUDF or WWDC scholarships seen as a major benefit of AUC membership. This has left the group's focus primarily on IT managers at universities, although UniMac is actively working to expand its membership base.

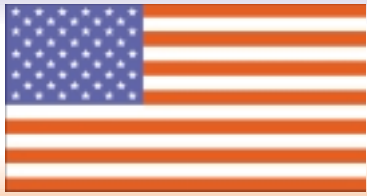
Students, however, have been particularly difficult to get involved in UniMac, concedes Schlapfer, who met with AUC chair Stephen Young at last year's WWDC and was impressed by what he heard about the AUC. "We try to get co-operation between the students," he says, "but we haven't found the right [way] now because students have a lot of other opportunities to spend their time, and it's difficult for a computer club to get the students active."

"In the student and developer part we are still growing and don't know exactly which direction we are growing. We would be happy if we had a student support group a little more supported by Apple – for example, by inviting students to the WWDC. I think that was really great, and we were impressed by how many Australian students were there."

Visit UniMac's home page at [www.unimac.ch](http://www.unimac.ch) or contact Schlapfer at [schlapfer@id.ethz.ch](mailto:schlapfer@id.ethz.ch).







# AUC Meets US Academia's IT Elite

By David Braue

**As every company knows, achieving true success requires, among other things, the ability to listen to customers and adapt business models to meet their needs. And while most people wouldn't be aware of it, Apple has taken quite proactive steps towards this end through the formation of the University Executive Forum (UEF), a formal group of university IT executives that has the ear of Apple's most senior executives.**

Formed several years ago as a means of increasing outreach to the university sector that continues to be a major user of Macintosh technology, the UEF consists of around 30 IT executives from many of the largest universities in the United States and Canada. Also participating in the UEF is Stephen Young, chair of the Australian AUC, who joined the group at the invitation of Apple's US and Australian operations and is the only member from outside of North America.

Meeting twice a year at Apple headquarters in Cupertino, California, the UEF provides ample time for members to meet and discuss the issues facing them in their everyday lives. As well as giving them the ability to network amongst themselves, the two-day forum also enables the group to meet with senior executives of Apple Computer, Inc. At the meeting in May 2000, for example, UEF members got an hour with Steve Jobs to share their thoughts about the company's direction and progress.

Those thoughts aren't always the most positive ones, says Young: "I think it's absolutely critical for Apple to be engaged with education, especially higher education," he explains. "They're sceptical, and it's a very interesting session because Apple sometimes gets told things it doesn't want to hear."

The opportunity to share experiences and strategies is invaluable, says Young, who through the UEF has learned a considerable amount about the things that make US universities tick. In many cases, he says, those things are much different than the issues affecting Australian universities – mainly because their larger budgets have spawned a different focus on issues such as standards-setting, development and commercialising software technologies.

As a representative of all Asia-Pacific AUC members, Young uses the forums to share and promote the agenda the AUC has followed throughout the Asia-Pacific region. Specifically, he found that the AUC's focus on promoting student developers was quite



Photographer: Michele Braglia

*UEF gives academic IT leaders a forum to voice their concerns and interests to senior Apple executives including Steve Jobs*

unique and well-received. "I had the opportunity to push what I was really keen on – students as software developers," he says. "One of the reasons I'm so keen on students is that most software developers have baggage [knowledge from older systems], but students don't come to the table with baggage. Some of the really exciting stuff, the old shareware tradition – I think students are the ones that are going to make it happen if anybody does. Steve Jobs affirmed in the session last May that Apple is very much focused on students too."

While they see the value of promoting development of students as programmers in their own right, however, not all UEF members are pursuing student development in the same way. Particularly in larger universities, the immense concentration of development skills has instead shifted the focus to large-scale software projects where students work more as part of a larger development effort.

"Several of the universities involved are producing some very good, publicly available stuff," says Young. "When you're talking with the [academic giants] of the world, who are able to allocate enormous amounts of staff resources to this development – beyond what any Australian university is able to – they think [student involvement] is great but it's not what they're focused on. Their focus is on taking the tools that they've given the world over the past few decades, and delivering product."

Hearing about their development efforts provides valuable insight that Young can bring back to the AUC members in Australia, New Zealand and India. For example, in the last session he was extremely interested to hear about one UEF member's implementation of a campus-wide wireless network.


"For me personally, one of the great pieces of value is that the UEF allows us to talk to people who are typically twelve to eighteen months ahead of us," says Young. "For example, one member was talking about their wireless implementation; no university here has yet made that commitment to resources. I think when you have ubiquitous wireless networking, it changes things in the way that things changed when we all got our mobile phones. We can talk firsthand to the people doing this stuff."

Young is also hoping to have one of the UEF members down to Australia to speak at the AUC Academic and Developer Conference in September, and is looking forward to the next UEF session in May to catch up on the latest developments amongst his peers.



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