

MONASH News

Research, news and opinion from Monash University

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Microform technology could save millions

Physics and Materials Engineering

New technology developed at Monash University will simplify the production of parts with a diameter of less than one millimetre used in the micro-electro mechanical systems industry – and could save millions of dollars.

The tiny parts are currently produced in their millions and used in a variety of products such as mobile phones, laptop computers,

Dr Davies said the unique microforming method would revolutionise the industry and provide a cheaper, more efficient means of small parts production.

"Handling the parts is very tricky – because they are so small we have had to create a special device with a built-in microscope so we can actually locate the material we are working with," he said.

"We are talking about parts smaller than one millimetre in diameter, so as you can imagine there are a number of problems associated with creating them."

Dr Davies said although the industry was less than 10 years old, it had an annual turnover of around \$50 billion.

"Even if we can save a company 10 per cent on each part manufactured, the savings would be enormous. Devices are getting smaller, and demand for these products is always increasing, so business is keen to reduce costs."

Dr Davies likened the industry to car manufacturing but on a much smaller scale.

"We mould and stretch parts similar to the way vehicle manufacturers do with car body parts, but we are working with a microscope," he said. "This differs to the way these parts are currently

being made, and it is a much cheaper and more efficient process."

The SPME team is working closely with the Victorian Centre for Advanced Material Manufacturing, a state-government funded body, as well as researchers from Deakin University and the CSIRO.

– Ingrid Sanders

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Unique method: Dr Chris Davies and the microforming team are working on a cheap alternative for the manufacture of small parts.
Photo: Melissa Di Ciero

personal digit assistants (PDAs) and surgical equipment.

Dr Chris Davies and a team from the School of Physics and Materials Engineering (SPME) will soon start producing the minute parts with a specially designed microforming device, which stamps the parts rather than layering and cutting them, the method currently in use.

The project is the first of its kind in Australia and has attracted more than \$500,000 in funding.



Photo: Delwyn Hewitt

Tuning up for music showcase at Federation Square

The Monash Chamber Orchestra rehearses for its performance on Saturday 28 August as part of the Spotlight on the School of Music concert at Federation Square in Melbourne. Featuring staff and student ensembles that showcased the diversity and musical excellence of the school, the concert included the Monash Chamber Orchestra and Monash Piano Ensemble playing Gershwin, Sinfonia performing Corelli and Sibelius, performance staff playing Schumann's *Fairy Tales*, Viva Voce choir, Monash World of Music Orchestra, the African Choir and electronic music by Sonic Art.

Humour research reveals the secrets of what makes us laugh

Education

A sense of humour is a much admired asset. But do the same things make people laugh all over the world? And can we measure our ability to appreciate the funny side of life?

Monash PhD student at the Education faculty's Institute of Human Development and Counselling Mr Ben Leung aims to answer these questions via his research into the links between sense of humour, personality and psychological well-being in different cultures.

Under the supervision of registered psychologist Associate Professor Geoff Molloy, Mr Leung has just finished a preliminary study of sense of humour which shows some notable differences in individual humour appreciation linked to gender and nationality.

He surveyed more than 400 people using a self-developed psychometric scale – a tool for measuring mental states – comprising 25 written and 25 cartoon-type jokes. Participants were asked to score the jokes on a scale ranging from 1 to 5, with 1 being 'not at all funny' and 5 being 'very funny'.

They also had to identify whether the main humour element in the jokes was aggression, sex or double meaning, and provide demographic data about factors such as gender, age and nationality.

The survey found that written jokes were more appreciated by men than women, and by people of Chinese heritage rather than Australian. It also showed that jokes containing sexual connotations were more appreciated by men than women.

With the preliminary study complete,



Laugh and the world laughs with you: Humour researcher Mr Ben Leung.
Photo: Greg Ford

Mr Leung has begun a project to survey more than 1000 people around the world via a controlled-access online questionnaire to be distributed through a network of university colleagues in Australia, Hong Kong and the US from late September.

The questionnaire will feature a revised version of his psychometric scale with 10 written and 10 cartoon-type jokes, in conjunction with existing validated measures of sense of humour, personality traits, psychological well-being and social adjustment.

No other study has simultaneously investigated the links between humour appreciation, sense of humour, personality and social adjustment, according to Mr Leung.

"I want to know if people with a good sense of humour have introverted

or extraverted personalities and whether they're well-adjusted or maladjusted, and the relationship between all these things," he said.

"While a good sense of humour is generally highlighted as a desirable personality trait, the subject hasn't been studied much. We don't know a lot about who finds what funny and impact of cultural background on humour appreciation."

Mr Leung said his research, although in psychology, could also have important implications for teachers in multicultural classrooms, or teachers of English as a second language who want to know which type of humour is likely to work best with their students.

In his own experience of teaching university speech communication courses in the US and English as a second language in Hong Kong, Mr Leung discovered his students in Hong Kong tended to have a different sense of humour from their Western counterparts in terms of how they perceived and appreciated written humour.

"I like using puns and jokes in my teaching, for instance to explain the difference between two uses of the word 'flies', I might say 'time flies like an arrow' and 'fruit flies like a banana'."

"But I realised people from non-English speaking backgrounds weren't finding the one-liners so funny. They seemed to prefer much longer jokes, probably because they allowed for more mental processing time with an unfamiliar language."

– Michele Martin

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From the vice-chancellor's desk

A monthly column by the vice-chancellor of Monash University,
Professor Richard Larkins



The Australian synchrotron is being built at the Clayton campus of Monash University. It is due to be completed in 2007. Its construction has been funded by the Victorian State Government, which provided \$157 million.

So far, construction is occurring on budget and within the planned time frame. An additional \$50 million is required to construct beam lines for its various applications. Monash University, the University of Melbourne, CSIRO, ANSTO (Australian Nuclear Science and Technology Organisation) and the New Zealand government have each contributed \$5 million towards the beam lines, and the small Australian micro-manufacturing company Minifab has also made a financial commitment.

The synchrotron is an extremely powerful light source. By separating the light source into precise beam lines of different wavelengths, it is possible to harness the energy for a large variety of analytical and synthetic purposes.

The technology is not new, but research is continually delivering new applications. It has well-defined applications in microanalysis especially in determining the structure of proteins. This is a critical step in the design of new drugs for cancer, heart disease and other illnesses. It is also a vital tool in nanotechnology, materials engineering, microelectronics and photonics. Applications in imaging internal organs in medicine are being developed.

At present, many Australian scientists travel overseas at regular intervals to use synchrotrons. The synchrotron at Monash will attract scientists from all over Australia and other countries in our region. It is essential Monash develops its expertise so that we will be at the forefront of research utilising the synchrotron, and our researchers will be collaborators with many other scientists coming from other institutions to use the synchrotron. It should ensure that outstanding scientists come to work at Monash because of our expertise in synchrotron science and the proximity of the synchrotron. It will enhance our collaborative interactions with new industry that will grow up around our Clayton site.

Monash University has the potential to be at the very forefront of Australian research. Each of our campuses presents particular opportunities. The synchrotron at Clayton is a most exciting development which will be an enormous stimulus to Australian science and technology.

— Richard Larkins

\$3 million boost for learning in rural areas

Education

An Israeli accelerated learning program to improve education for low-achieving children and adults in rural and remote Australia has just received government funding of \$3 million.

The program is being delivered via a project co-directed by a Monash education lecturer.

Federal Education, Science and Training Minister Dr. Brendan Nelson announced the funding in Melbourne on 26 August.

He said the Yachad Accelerated Learning project aimed to reduce the literacy and numeracy gap between Indigenous and non-Indigenous Australians.

Monash Education's Dr Zane Ma Rhea is working in a team with Professor Marcia Langton of Melbourne University and Ms Helene Teichmann of HTT Associates to develop and manage the innovative pilot project.

"It was conceived after Professor Langton's 2003 study tour to Israel where she saw great potential in the Tafnit accelerated learning program, which addresses education disadvantage via principles of gifted and talented education rather than remedial solutions," Dr Ma Rhea said.

"The overriding principle is that the national school curriculum should be taught

to educationally disadvantaged groups in the classroom, along with additional accelerated learning classes before and after school, to bring the students up to the national average."



Improving literacy and numeracy: Dr Zane Ma Rhea.
Photo: Greg Ford

The current focus is on three trial sites – Halls Creek and surrounding areas in Western Australia's East Kimberley region, Cape York in Queensland and Shepparton in northern Victoria.

"We anticipate that student performance in each trial area will be commensurate with, or will exceed, the national average by the year 2007," Dr Ma Rhea said.

— Michele Martin

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Gala dinner: Law dean Professor Arie Freiberg, left, with Monash alumnus Mr Jon Faine.
Photo: Sharon Walker

Four decades of Monash law

Law

Hundreds of past and present students and staff gathered to celebrate the 40th anniversary of the Monash Law faculty at a gala dinner last month.

About 450 guests enjoyed a visual presentation that highlighted significant achievements and milestones of the faculty, as well as speeches by Monash Law dean Professor Arie Freiberg, ABC Radio presenter Mr Jon Faine and media personality Mr Campbell McComas, both Law alumni.

Professor Freiberg said that over four decades, the faculty had introduced ground-breaking concepts such as the Springvale Monash Legal Service, the Castan Centre for Human Rights Law and the Centre for Privatisation and Public Accountability.

The event at Atlantic South Wharf in Southbank culminated with a light-hearted musical tribute to Monash Law, sung by faculty members Professor Graeme Hodge, Professor Jeff Goldsworthy, Dr Greg Taylor, Ms Elspeth McNeil and Professor Jeffrey Waincymer.

Briefly

Fellowship rewards baby health research

Dr Flora Wong, from Monash's Ritchie Centre for Baby Health Research, has been awarded an \$18,000 Victorian Fellowship to further her research into the link between low blood pressure and brain injury in premature babies.

Dr Wong, a neonatologist and PhD candidate, is one of only a handful of Australian scientists exploring the effect of blood pressure on oxygen supply to the brain in tiny infants.

The fellowship will enable her to travel to the University College London, where she will explore and evaluate Spatially Resolved Spectroscopy – new technology that continuously measures brain oxygen supply and consumption in sick premature babies.

The Ritchie Centre for Baby Health Research, part of the Monash Institute of Reproduction and Development, is the only Australian research institute with research expertise in using this method on premature babies.

New centre a boost to medical training

The new Centre for Medical and Health Sciences Education, opened recently at Monash's Clayton campus, gives medicine and health science students access to the most up-to-date teaching facilities.

The centre includes two mock GP surgeries linked to tutorial rooms by one-way glass and 20 rooms with wireless technology, including a suite of seminar, tutorial and clinical skills training rooms.

Centre director Professor Brian Jolly said that global trends in health care were making it more difficult for students to learn real-life situations.

"There are fewer patients in hospitals now, and those that do attend are often too sick to see students," he said. "Among other things, these new facilities provide a controlled environment for health care professionals of the future to learn basic clinical procedures."

New head for Monash policy studies

The Monash University Centre of Policy Studies (CoPS) has appointed Professor Philip Adams as its new director.

An internationally acclaimed research centre, CoPS specialises in large, economy-wide modelling, usually referred to as computable general equilibrium (CGE) modelling. The centre undertakes academic and contract research projects designed to predict the economic impacts of policy decisions, conducts training courses in CGE modelling and offers graduate student supervision.

Professor Adams has been working with CoPS since 1991, most recently as its director of consulting. He is also the Australian coordinator for the Economic Outlook taskforce of the Pacific Economic Cooperation group.

UK economics expert visits Monash

Global economics expert Lord Meghnad Desai is currently on a month-long visit to Monash as a distinguished guest of the university's Institute for the Study of Global Movements and the Faculty of Business and Economics.

During his visit, Lord Desai will contribute to work currently being undertaken by the institute. He will be available to offer advice and direction to people who have received research grants from the institute and will present several lectures and seminars.

Lord Desai has taught at the London School of Economics since 1965 and is currently director of the school's Centre for the Study of Global Governance, which he established in 1992. He has several publications to his name as well as four honorary degrees and was made a life peer of the British House of Lords in 1991.

Eureka Prize for ethics research

Monash's Dr Justin Oakley has won the Australian Museum Eureka Prize for Research in Ethics for his efforts in tackling the thorny issues associated with the practice of individuals providing informed consent before surgery.

The \$10,000 prize was awarded to Dr Oakley, who is director of the university's Centre for Human Bioethics in the School of Philosophy and Bioethics, and his co-researcher Dr Steve Clarke, a research fellow at the Centre for Applied Philosophy and Public Ethics at the Australian National University, Canberra.

A record \$220,000 was presented to 22 scientists, engineers, writers and students at the 15th annual Australian Museum Eureka Prizes, announced in August. The Eureka Prize for Research in Ethics, sponsored by the Australian Catholic University, is awarded for the investigation of theoretical or practical ethical issues contributing to the understanding and development of ethical standards.

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Charismatic leaders may undermine staff

Psychology

Charismatic leaders, traditionally thought to make the best managers, can actually undermine the performance and attitudes of staff, a study by psychology Masters student Ms Janis McFarland has found.

The study, Leadership Impact on Motivation, Commitment and Performance: Subordinate Personality Determinants, found that contrary to current beliefs, charismatic bosses could have a negative impact on work performance of staff.

Ms McFarland said this was because different personality types responded better to differing management styles.

"Contrary to the current theories of good leadership, the style of charismatic leaders does not suit all workers; it's not a one size fits all approach," she said.

"All employees are different and some may prefer a leader who provides more clarity and guidance than the big picture approach generally associated with transformational or charismatic leaders."

Charismatic, also known as transformational leaders, traditionally provide intellectual

stimulation to staff and focus on the big picture rather than the detail of projects.

Ms McFarland said this big picture approach could actually demotivate many conscientious workers who needed further direction to complete tasks.

"Staff may become demotivated because they don't know how to achieve the big picture outcome," she said.

"In some instances an employee might be highly conscientious and would like to get the job done, but they need clarity and direction before they can begin the task. This can be upsetting to some personality types."

Ms McFarland interviewed 312 senior level staff from an Australian consumer company.

The study aimed to explore the relationship between leadership style and employee motivation and commitment and performance outcomes. It also considered the extent to which employee personality impacted on these relationships.

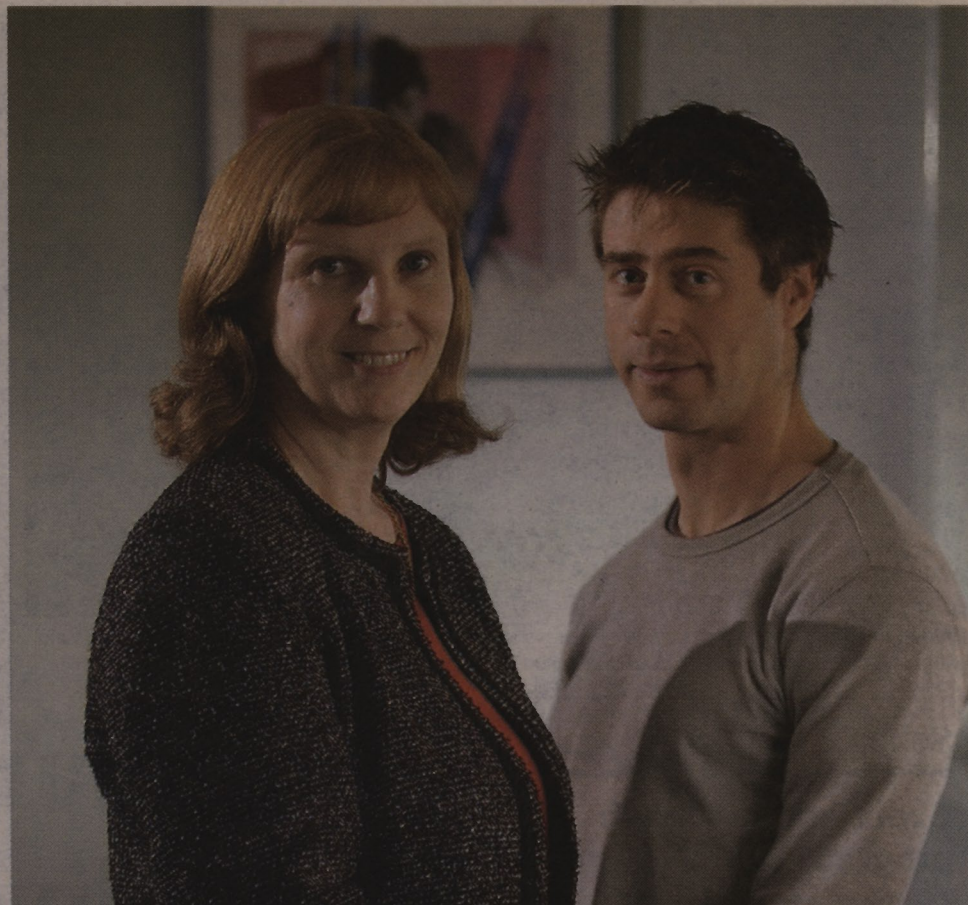
Psychology lecturer Dr Simon Moss supervised the project.

– Diane Squires

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Charismatic leaders researcher: Ms Janis McFarland, with her supervisor Dr Simon Moss.

Photo: Melissa Di Ciero

Personal attention the key to calming dementia patients



Calming presence: paying personal attention to dementia patients can soothe them.

Photo: Newspix

Aged mental health

Agitated dementia patients are soothed by any personal attention – even from strangers, a groundbreaking Monash University study has revealed.

The results initially surprised the Aged Mental Health Research Group, which had been expecting distressed patients would be most calmed by the taped voices of family recounting happy memories.

But instead, the simulated presence therapy project revealed patients were almost equally soothed by the taped non-emotive voice of a researcher through headphones – reading from a gardening book.

Researcher Mrs Barbara Eppingstall said the recorded reading from a book pacified patients more than expected.

"For many lonely, bored nursing home residents, even a tape-recording of a person reading from a book may be better than

nothing," she said. "The apparent effectiveness of our 'placebo' perhaps reflects on the monotonous nature of many nursing home environments, suggesting that much could be done to alleviate residents' agitation and distress."

Simulated presence therapy was first used in a small study in the US in the early 1990s, but the Monash University research – headed by Professor of Old Age Psychiatry Daniel O'Connor, of the Department of Psychological Medicine – is the first to use a comparative placebo group.

The 'Personalised Approaches to Agitation in Dementia' study involved 30 residents of Melbourne nursing homes who had frequent disruptive agitated behaviours.

"Agitated behaviour is a significant problem amongst people with dementia, and it can be disruptive to the nursing home or family environment, resulting in distress for both the person with dementia and their relatives and caregivers," Professor O'Connor said.

"We were expecting results to show that a recording of a relative recounting an event or memory from the patient's past – such as a favourite poem or a family anecdote – would have a calming effect when repeatedly played through headphones.

"But in fact, the findings suggest just paying personal attention to agitated elderly dementia patients is enough to calm them. It sounds banal, but it is actually very important – anything at all that is personal, perhaps even just putting on their headphones, helps them feel better."

Professor O'Connor said it was vital that research into dementia was well resourced.

"With our ageing population, it's a problem that is only going to increase – by 2041, 500,000 Australians will have dementia, compared with 130,000 in 1995."

– Allison Harding

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Breakthrough treatment for malaria

Pharmacy

Monash University researchers are part of an international team that has developed what has been described as the biggest breakthrough in malaria treatment in a generation.

The new synthetic drug, nicknamed Oz,

is set to become the major weapon in the fight against multi-drug resistant malaria and could be available to patients within three years.

Professor Bill Charman from Monash's Victorian College of Pharmacy said the drug (OZ277/Rbx11160) is cheap and easy to manufacture and could save millions of lives worldwide. He said malaria killed between

one and two million people every year, and in sub-Saharan Africa one child died every 30 seconds from the mosquito-borne disease.

"We are thrilled with the progress and speed with which this drug has been developed, and it is now entering human trials in Europe," he said. "Assuming all goes well, we are anticipating Oz will be available to patients within the next three years."

Newborn screening privacy defended

Genetics

A state government-funded agency that conducts newborn screening of all babies born in Victoria has defended the privacy and security of its records, following concerns raised by two Monash academics.

The director of Genetic Health Services Victoria (GHSV), Associate Professor Agnes Bankier, who is also an honorary Associate Professor in the Department of Paediatrics at Monash, said GHSV has been pro-active in clarifying the issues relating to ownership, storage and access to the newborn screening cards.

"GHSV has, since 2001, voluntarily initiated discussions with the Department of Human Services (DHS) and the Health Services and Privacy Commissioners," she said.

An expert committee was formed last November by the Health Services Commissioner to look into the questions of informed consent, privacy, storage, access and security of the cards. That report is due to be handed to the Victorian government soon.

Professor Bankier's comments follow an earlier Monash News report in which Professor Graeme Hodge and Dr Jonathan Clough of Monash Law had expressed concern about recent media reports regarding the control of the cards that contain blood samples taken from Victorian newborns since 1970.

Every baby born in hospital in Australia undergoes a routine heel prick test, in which a small amount of blood is soaked onto an absorbent card and then tested for a range of conditions, which can be treated often before the babies get sick or develop intellectual disability.

"There are issues regarding ownership and legal protection of the blood spot that need to be addressed nationally. In the meantime the newborn screening cards are stored securely in a DHS approved off-site storage facility according to government best practice guidelines, and access is restricted," said Professor Bankier.

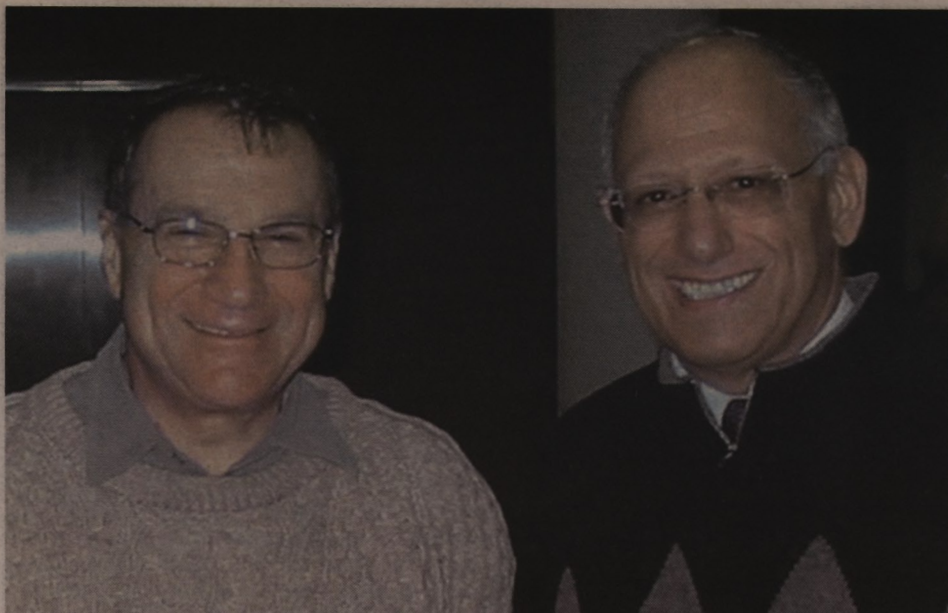
She said access to the records is only provided for: quality assurance associated with newborn screening; specific testing with consent of the parent or the individual for medical purposes; Hospital Ethics Committee approved research carried out on identified samples with specific consent, or anonymous samples; or forensic identification by order of a court including the Coroner's Courts – but only if police have first obtained a court order.

"The public can be reassured that the cards are secure and safe and have every confidence in the screening program. It should not be forgotten that the newborn screening program is vital for the welfare of the babies of Victoria," Professor Bankier said.

– Robyn Anns

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Unique insights: Centre supporter Mr Peter Kolliner (left) with Professor Andrew Markus at the launch of the collection at Monash's Sir Louis Matheson Library on Clayton campus.

Holocaust memoirs collected

Jewish studies

The first comprehensive collection of Holocaust memoirs published in Australia has been established at the Monash University Library.

The collection, housed in the Rare Books section at the Sir Louis Matheson library on the university's Clayton campus, was an initiative of Monash's Australian Centre for the Study of Jewish Civilisation under the guidance of centre director Professor Andrew Markus.

The project to collect and catalogue Holocaust memoirs written – and often self-published – in Australia and place them onto an online database began in 2003. More than 160 titles have been identified, with the earliest works dating back to the late 1970s and the most recent published this year.

To help readers and researchers, it is envisaged that a guide to each memoir will be published online, comprising a synopsis, index and location

maps, as well as web links to articles or papers dealing with issues raised in the memoir.

Last month, Professor Markus learned of the success of an international funding application to assist the development of the web-accessible bibliography.

He said the significance of the memoirs could not be overstated.

"They are testaments to the end point of racial bigotry," he said. "These memoirs detail the many different experiences and backgrounds of the authors. Each memoir offers a unique insight."

"As Holocaust survivors are an aged and aging community, the number of memoirs will inevitably decrease. The preservation of these publications, many of which have not made it into libraries and may well be lost given their limited circulation, is a matter of urgency."

– Karen Stichtenoth

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Schools

Experience Monash program

The Experience Monash program provides senior secondary students with the chance to explore the many areas of study available at Monash and find out about university life.

Participants learn about Monash courses by taking part in a series of practical activities, designed by academic staff to inspire and inform them.

Full-day programs will run at both the Caulfield and Clayton campuses, and students are welcome to attend on one or both days.

The Caulfield program will take place on Thursday 30 September and the Clayton program on Friday 1 October.

The program also includes a campus tour, a free lunch and an opportunity to talk to staff and current students about social and support services such as accommodation, financial aid and sports and recreation facilities.

Students can obtain an application form from their careers teachers, who have also been sent promotional brochures describing the activities on offer. Information contained in completed forms will be used to design programs to suit individual needs.

Careers teachers are asked to return all application forms to Monash, along with a signed cover sheet approving applicants' suitability for the program, by Wednesday 15 September to:

Experience Monash
Prospective Students Office
PO Box 10
Monash University
Victoria 3800

For further information, contact Ms Felicity McCudden on +61 3 9905 4213, or email felicity.mccudden@adm.monash.edu.au.

Ukrainian literary legend lives on

Ukrainian studies

Noted Ukrainian poet, translator and literary critic Mykola Zerov died tragically in 1937 when he was executed in a Soviet concentration camp. But his name lives on at Monash in the new Mykola Zerov Centre for Ukrainian Studies within the School of Languages, Cultures and Linguistics.

Centre director Associate Professor Marko Pavlyshyn said its establishment coincided with the 21st anniversary of Monash's relationship with the Association of Ukrainians in Victoria, which is making a substantial contribution to the centre's funding.

"The Mykola Zerov centre has been set up to highlight important research work in Ukrainian literature and culture at Monash and build on the successes of the Ukrainian studies program since it began in 1983," Dr Pavlyshyn said.

"Through the centre, we hope to attract more international and national research funding for Ukrainian studies, develop a program of visiting fellows and international conferences, and attract graduate students of high calibre from Australia and abroad."

Dr Pavlyshyn said the centre's teaching program and research would continue to build broader community awareness of Ukrainian culture and literature, and give the Ukrainian community a more visible presence in Australian academic circles.

He said current research included a project focusing on the works of late 19th/early 20th-



Literary legend: A bust of Mykola Zerov enjoys a special place on the desk of Associate Professor Marko Pavlyshyn. **Photo: Melissa Di Ciero**

century feminist writer Olha Kobylanska, and one examining contemporary Ukrainian literature in its political context.

Monash's Ukrainian studies program is one of only two such university programs in Australia, the other being at Macquarie University in Sydney.

– Michele Martin

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Predicting the unpredictable

Business and economics

Research by a visiting senior lecturer at Monash University has found conventional methods used to predict the outcomes of conflict situations are useless.

International forecasting expert Dr Kesten Green investigates forecasting methods used to predict decisions in terrorist actions, civil unrest, military campaigns, industrial disputes, boardroom battles and resource wars.

"While experts and leaders typically use their judgement or statistics to predict how conflict situations will turn out, my research has found that such predictions are no more accurate than chance," said Dr Green, who is teaching in the university's Business and Economic Forecasting Unit in the Faculty of Business and Economics.

"I have found that forecasts from simulations using role-players are substantially more accurate than forecasts from conventional approaches."

Dr Green uses university students as role-players. "Given the right information and instructions, a 19-year-old female arts student from the suburbs makes the same decisions as a 60-year-old Middle Eastern despot," he said.

Dr Green gives groups of students a description of a real conflict situation. In cases where the conflict occurred in the past, the descriptions disguise the actual conflict with fictitious place names and character names.

"I first give them a written description of a protagonist in the conflict and tell them to take on that person's role for the duration of the simulation."

"I then give them the description of the situation, and they begin to play out the conflict, interacting with the other protagonists and making decisions."

"They can confer with 'confederates', meet with other parties, make private deals – whatever seems appropriate in the situation."

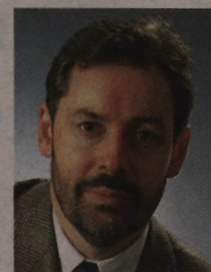
"They carry on improvising until they reach a decision. Most of the time, their decisions are the same as the decision that was made in the actual conflict, even when that conflict occurred 20 years before they were born, on the other side of the world."

"Not only can the simulated interaction approach provide better forecasts for conflicts, the findings also suggest that people may not be as different from each other as we think," Dr Green said.

– Robyn Anns

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Playing for real: International forecasting expert Dr Kesten Green

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Road safety – it's a matter of design



Photo: Newspix

Terrorism frightens people but the numbers that have died resulting from it pales into insignificance when compared with road trauma.

The true terror we should be very afraid of and focused on, with all our attention and resources, is the road trauma that every day tears at the fabric of our society and families.

Just consider how many times this year a front page headline has shown a family, a town or a group of friends, devastated by senseless death and trauma resulting from a road crash. Yet we seem to accept that it is a part of life's many risks. A risk we are willing to take when we drive somewhere because the freedom and mobility of owning and driving a car far outweigh the negative effects.

Total Australian fatalities in all wars to date are around 103,000 and since 1925 there have been just over 36,000 fatalities from war. This compares with around 171,000 fatalities resulting from all road crashes since 1925.

The total number of fatalities from natural and man-made disasters to date is around 800 deaths, including 66 from Cyclone Tracy, 202 from the Bali bombing and 83 from the Granville train crash. Double this number die on our roads every year. In fact every five hours someone dies on our roads.

Is this not a disaster or a tragedy of war like proportions?

The cost of road trauma is equivalent in magnitude to Australia's education budget, its defence budget and half its health budget.

We have federal ministers of education, defence and health. Why isn't there a federal minister specifically focused on road safety? Why isn't this question being asked of the Labour and Liberal parties during their election campaign?

Most often we blame the driver when a bad crash happens. We then seek to introduce a new process to influence or control road user behaviour. This unfortunately results in badly designed engineering systems that are not too dissimilar to landmines, being overlooked.

Blaming the victim has a long history, and continues to provide considerable hindrance to advancing injury prevention activities and helps to obfuscate the actual causes of death and injury.

The term 'accident' should be used reluctantly, as it has helped shield many situations, products and designs from serious scrutiny. The use of 'crash' or 'incident' is preferred.

These latter terms are neutral and do not convey any impressions of causation, in particular that the events, including injury, are of an accidental nature or result in a focus on



Road trauma imposes a huge cost on the Australian community but better road and vehicle design could help reduce the toll, writes Monash Civil Engineering Associate Professor **Raphael Grzebieta**, who is also president of the Australasian College of Road Safety – a key stakeholder in the national Safer Roads project.

the behaviour of the victim. By using the word accident we tend to inadvertently dismiss or lessen the need for a thorough investigation of the whole system.

Researchers in the Monash Civil Engineering department who believe the road toll can be reduced to almost zero are squarely focused on the crashworthiness of the

vehicle and road system – the interaction between the human body and the engineered system.

The department's crashworthiness researchers start from the premise that human error is a part of life. People make mistakes so we should design error-tolerant transport systems. If a crash occurs its severity should not be greater than what the

human body can tolerate and should not result in any long-term effects or disability.

The technology to design crashworthy vehicles and road systems has advanced considerably over the past decade. Substantial 'real world' data is being collected by research institutions, regulatory authorities and car manufacturers. This data details vehicle deformation, site accident information and injuries sustained by vehicle occupants and other road users.

Likewise complex vehicle crash tests with surrogate anthropomorphic dummies are now carried out daily. Dummy technology and the development of human injury tolerance curves are well advanced with respect to identifying life threatening head and chest injuries in a crash test.

Similarly computer simulations of the human body, of the vehicle and road system and injuries sustained by occupants and road users such as cyclists and pedestrians are well developed.

Designers are now able to investigate different crash scenarios in detail in order to mitigate injuries in prototype vehicles, vulnerable road users and vehicles that crash into road systems well in advance of any crash testing.

Impact loads and human kinematics (concerned with the motions of objects) can be readily obtained for design purposes.

In addition to this, accident reconstruction software has advanced to the point that it is now becoming an essential tool for litigation and coronial enquiries. Vehicle kinematics and speeds leading up to the crash event and forces generated during the crash can be determined using such software.

The question then is, with all this development and technological achievement, why are we still tolerating road carnage?

Safer Roads is a national project designed to encourage 'safer drivers in safer vehicles on safer roads'. It encourages governments to pursue best practice road safety options to design and build safer new roads, make existing roads more forgiving, demand safer vehicles through fleet purchase and regulate and enforce vehicle and driver standards in strong unified combination.

Further information and papers by Civil Engineering's crashworthiness research team can be downloaded from www-civil.eng.monash.edu.au/research/groups/structures/crashworthiness.

For information on the Safer Roads project go to www.aaa.asn.au/saferroads/The_SaferRoads_Story.asp.



The under-run barrier system shown here was developed by Dr George Reznitz as part of his PhD program, together with Civil Engineering's crashworthiness research team.

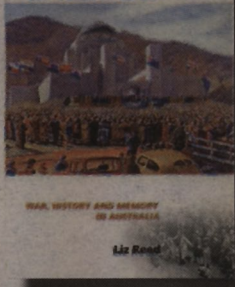
Impact speeds of up to 80 kmh are quite survivable using the Reznitz under-run system. It is a showcase example of what can now be achieved over seemingly impossible short crash distances.

Under-run crashes account for around 14 fatalities yearly and yet, after 20 years of lobbying government, there is no Australian Design Rule or even an Australian Standard requiring such systems be fitted to the rear of trucks in Australia.

Two hundred and eighty senseless deaths have occurred to date since lobbying for the standard started, around 80 more than in the Bali bombing. All we need is the political will to implement such systems and the lobbying of local MPs during election time demanding why they haven't been implemented.

INPRINT

BIGGER THAN GALLIPOLI



Bigger than Gallipoli

By Liz Reed

Published by University of Western Australia Press
RRP: \$38.95

Bigger than Gallipoli presents an in-depth analysis of the ways in which Australia remembers the Second World War, based on the commemoration of the 50th anniversary of the war's end.

Historian Liz Reed analyses how the commemorative program, Australia Remembers, conducted throughout Australia during 1995, represented remembrance visually, in text and in spectacle. Comparisons are drawn with similar events held in Canada and New Zealand. The book's key

themes of nostalgia, memory and commemoration are linked to explorations of how Australia as a nation seeks to reconstruct its identity.

Liz Reed is a senior lecturer in Australian Indigenous Studies at Monash University. Her principal research interest is the relationship between history, the past, and memory and forgetting.

Lorenzo de' Medici & the Art of Magnificence

By F.W. (Bill) Kent

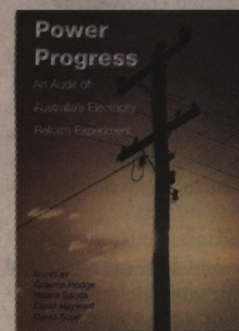
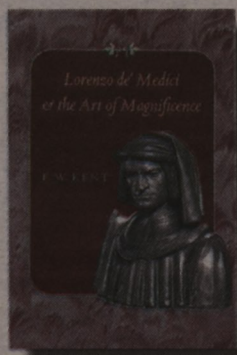
Published by The John Hopkins University Press
RRP: \$60.30

The author offers a new look at Lorenzo de' Medici (1449–1492) and his relationship to the arts, aesthetics, collecting and building – especially in the context of his role as the political head of republican Florence and a leading player in Renaissance Italian diplomacy.

His approach reveals Lorenzo's activities as a patron of the arts were far more extensive and creative than previously thought. Known as 'the Magnificent,' Lorenzo was deeply interested in the arts and supported efforts to beautify Florence and the many Medici lands and palaces. His expertise was well regarded by guildsmen and artists, who often turned to him for advice as well as for patronage.

Illustrated with photographs of Medici landmarks by Ralph Lieberman, the book presents a portrait of Lorenzo as a man whose achievements might have rivalled those of his famous grandfather, Cosimo, had he not died so young.

Bill Kent is the director of the Monash University Prato Centre, Italy.

Power Progress
An Audit of Australia's Electricity Reform Experiment

Edited by: Graeme Hodge, Valarie Sands, David Hayward, and David Scott

Published by Australian Scholarly Publishing
RRP: \$34.95

Nine out of 10 Australian electricity consumers now buy their power in a national, part-privatised market. In just a decade, the state-owned monopoly of electricity supply has been transformed by public policies and schemes promising

better service, lower prices and accountable management.

In *Power Progress*, 17 specialists, eight of whom are attached to Monash University's Centre for the Study of Privatisation and Public Accountability, explore a range of questions such as how the consumer has fared, who has benefited from the new national market and what gains have come from different kinds of reform, introduced by different governments.

Graeme Hodge is a professor of law and director of the Centre for the Study of Privatisation and Public Accountability. Valarie Sands, is director (projects) at the centre. David Hayward is an associate professor and director of the Institute for Social Research at Swinburne University. David Scott AO, a former director of the Brotherhood of St Laurence, is an adjunct professor at the same institute.

POSTscript

Monash

The Outsider Who Won a War

By Roland Perry

Published by Random House Australia
RRP: \$49.95

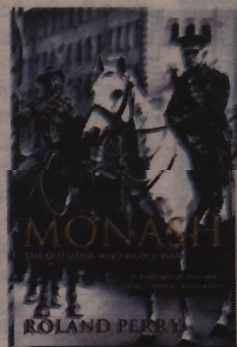
Pre-eminent as a scholar, engineer and soldier, Sir John Monash is the man after whom Monash University was named. In this book, Roland Perry reveals for the first time Sir John's relationships with those who tried to bring him down. Among these were prime minister Billy Hughes; the country's most influential journalists of the time, Keith Murdoch and Charles Bean; and other powerful figures who clashed with him or resented his rise against all odds.

Mr Perry draws on hitherto unpublished information from the general's intimate diaries and letters to chronicle his long relationships with the three main women in his life: his wife Vic and two lovers Annie Gabriel and Lizette Bentwitch. The biography also exposes one of the most mysterious stories in Australia's history when one man – Monash – stood between democracy and anarchy as many influential figures urged him to lead a coup to overthrow the federal government.

If you are a member of the Monash community and have a forthcoming book, contact media@adm.monash.edu.au.

Books featured in 'Inprint' are available or can be ordered at Monash's four on-campus bookshops.

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- www.monash.edu.au



Artist in residence:
Monash alumnus Mr Peter Bonner
Photo: Greg Ford

Artist draws on perceptions

Ten years after beginning as a student at Monash University's Caulfield campus, award-winning international artist Peter Bonner is back as the latest participant in the 2004 Artist/Designer in Residence Program.

Since arriving back at Monash, he has relished the opportunity to teach students and bring his thoughts and experiences to the drawing program within the Art and Design faculty, while at the same time working intensively on his own projects.

"It's awesome being back in Melbourne and being able to add to the program," he said.

"I am interested in perception – working from the memory of seeing moments and capturing that in a drawing. This perceptual experience is an important element of my class plan."

Mr Bonner's passion for art follows a radical switch from

a career as a corporate finance recovery manager in London working for accounting firm Price Waterhouse.

Later, as a third-year fine arts student at Monash in 1996, he won the prestigious Dobell Drawing Prize – the first and so far only undergraduate student to win the prize, awarded annually by the New South Wales Art Gallery to coincide with the Archibald, Sulman and Wynne art prizes.

In 1997, he was short-listed again for the Dobell, as well as for the Wynne Prize for Landscape.

Shortly after completing his degree with first class honours in 1997, Mr Bonner left Melbourne to take up a scholarship to study at the New York Studio School of Drawing, Painting and Sculpture.

Now living in Brooklyn, New York, he has exhibited extensively in both the US and Australia. His works are included in collections at

the Art Gallery of New South Wales, the Monash University Collection and the Victorian State Library Collection, as well as in various private collections in Australia, the UK, Europe and the US.

Research fellow and a former drawing studio coordinator at Monash Mr Geoff Dupree taught Mr Bonner in the mid-1990s and was instrumental in facilitating his involvement in the program.

"Peter is a highly motivated, talented and successful artist who has developed an enormous range of resources as a painter and as such is making an interesting contribution to the drawing program," he said.

Mr Bonner will be in residence at Caulfield until 31 October before returning to New York.

– Karen Stichtenoth

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Art after dark

A series of confronting photomedia works produced by Monash University students is on display this month at the Glass Studio, part of Cube 37 gallery, in Frankston.

The exhibitors are third-year and honours students involved in the photomedia studio within Monash's Art and Design faculty at Caulfield campus.

Photomedia lecturer Mr Matthew Perkins, who was once an artist-in-residence at Cube 37 and has since curated a number of exhibitions for the gallery, coordinated the exhibition.

"The Glass Studio is a unique space, and the exhibition provides a good opportunity for the students, many of whom have limited exhibiting experience, to gain some exposure," he said. "Public showings put the artist in a slightly different mindset – the artist has to consider how the public may receive the work and the issues this may entail."

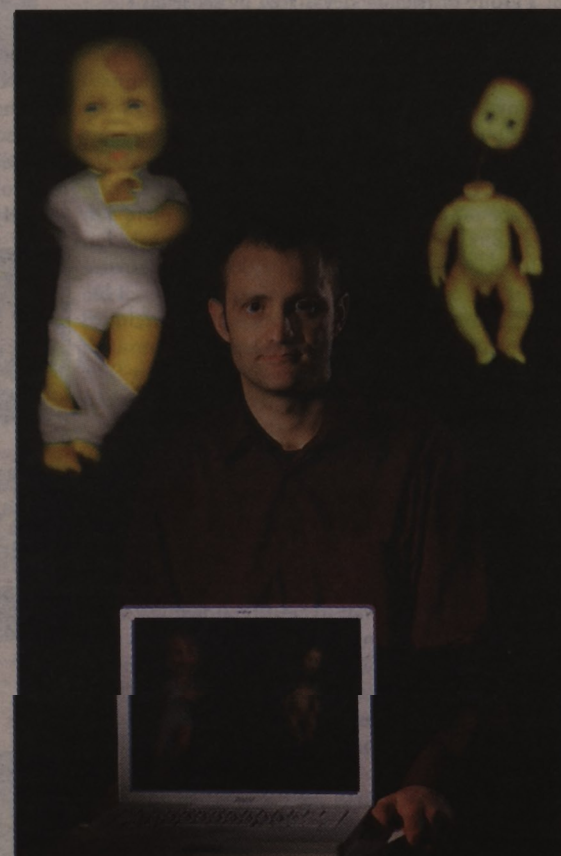
"There are also presentation issues that must be resolved when presenting the work in a gallery setting. At the Glass Studio, these issues are complicated by the fact that work must be projected."

The images – digital and photographic stills, video or film – are projected onto an 11-metre long glass wall from inside the studio and can only be viewed externally during the hours after dark each night.

A small part of the wall is used to project time-based works (video), while a larger area is used for still-image projection. All images are controlled by a central computer system, and sound is an important component of the display.

One of the exhibitors is third-year visual arts student Ms Emma Guy. Her display of projected stills centres on dark psychotic images of dolls she has 'scavenged' from various sites.

Captured using a scanner, the dolls are transformed by Ms Guy into digitally manipulated monsters that reveal their unusual nature through



Dark psychotic images: Mr Matthew Perkins displays student Emma Guy's untitled work on dolls. Photo: Greg Ford

'weird facial features and ambiguous gender.'

"Dolls are a symbol of nostalgia for childhood," she said. "The images are intended to confront the viewer about their own sense of what childhood is – adults make associations which tend to be quite different to how kids see the dolls."

– Karen Stichtenoth

Show notes

What: Photomedia Works from Monash University

When: 13 September until 3 October

Where: The Glass Studio, Cube 37 gallery, Frankston Art Centre, Davey Street, Frankston

Who: For information, contact matt.h.w.perkins@artdes.monash.edu.au, telephone +61 3 9933 2290.

Turning quantum physics into children's stories

This is Ellie the Electron.

"How do you do?" says Ellie.

Ellie is very, very small.

She is always moving.

Ellie can NEVER stand still,

Ellie looks like a cloud, see her fuzzy edges?

Translating complex quantum physics theories into simple stories for youngsters is all in a day's work for Dr Yvette Hancock from the School of Physics and Materials Engineering at Monash University.

Dr Hancock began writing children's books on quantum physics theories last year after completing her thesis.

She has already completed one children's story featuring Ellie the Electron and there are many more in the pipeline.

"I had a burst of inspiration, and two hours later my thesis had been transformed into a story for kids," she says.

Her first review was from nine-year-old critic Katherine Morgan, who said she loved the story and had brought lead character Ellie the Electron to life with a drawing.

The book, which is yet to be published, uses simple language to explain the complex concept of many-body physics.

"I have made sure that all terminology is correct but have simplified the language to appeal to children," she says.

Ellie the Electron investigates a range of physics concepts including Heisenberg's uncertainty principle, electron spin, spin quantization, the Pauli Exclusion Principle and fermion statistics.

While this may sound like a foreign language to many, Dr Hancock has simplified the language and managed to capture the heart of the theory in a story suitable for young children.

Now she is planning an entire series, which she hopes will become a quantum physics version of the popular Little Golden Books.

With an obvious passion for her research, Dr Hancock is keen to spread the message that physics can be fun and entertaining and its concepts easy to grasp.

She is working on another book, called Psi – The Wave Function, which refers to another quantum physics specific term.

Like with Ellie the Electron, Dr Hancock will use Psi as a character to bring the tale of this famous wave equation to life.

"I see my physics research as representative of characters on a journey, and I have approached the books in the same way," she says. "As a researcher, you follow the life of the subject matter, study its behaviour and generally see what it gets up to, so I personalise my research a lot."

Dr Hancock says she has tried to capture the excitement of quantum physics by focusing on cutting-edge research in the field, and as with stories detailing the metamorphosis of caterpillars into beautiful butterflies, says physics can be understood by children as young as four or five.

"So far, the stories have been drawn from my research, which has real applications to science. There is no reason why we can't communicate this research to everyone, especially to children."

"I think sometimes their little minds have a far greater capacity than what we give them credit for. If we teach them concepts like quantum physics, it could also help them grasp other unusual or exotic ideas."



Simple language:

Dr Hancock is planning an entire series she hopes will become the quantum physics version of the popular Little Golden Books.

Photo: Greg Ford.



Imagination inspired:

Nine-year-old Katherine Morgan was the first to read Dr Yvette Hancock's children's book Ellie the Electron. Katherine said she loved the story and was inspired to bring the character to life with a drawing (see photo below).

Photo: Melissa Di Ciero

"If we can simplify our language, there is no reason why physics can't capture the imagination of children and inspire them. A child's imagination is vast and uninhibited. It is probably better equipped than an adult's at embracing the bizarre

world that is quantum physics."

Dr Hancock says children already learn Italian, French and Japanese in their early years of primary school, so physics should not be out of their league. "Physics is a language in itself so, like vocabulary, the younger children start learning new concepts, the easier it is for them to pick it up"

She has received an enormous amount of support from her colleagues and has asked for their input with topics and ideas for future books.

"There is so much to teach people about physics, and a series of books could really help break down the barriers and fears that children hold on the subject. The potential outcomes for science and physics would be enormous," she says.

"Physics is the language of nature's many beautiful and fundamental secrets. It would be a privilege to share this – and my love of physics – with children."

– Ingrid Sanders

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Top international appointment in fine arts

Monash University's Faculty of Art and Design has appointed internationally respected artist and academic Claudia Terstappen as professor of fine arts, following an extensive, worldwide search.

Professor Terstappen starts at Monash this month and will be based at the university's Caulfield campus.

As the only studio-based fine arts professor in a Victorian university, she will play a key role in the faculty's activities, integrating studio-based activity with world-class research output.

Art and Design faculty dean Professor John Redmond said Professor Terstappen was selected on the basis of her world-class exhibition record.

"Studio-based research is an important aspect of our faculty's activity," he said. "To have someone with such a prolific international profile is a tremendous coup for Monash."

Professor Terstappen completed a masters degree in fine arts (sculpture) at Staatliche Kunstakademie Düsseldorf, Germany. Over the past two decades, she has established an extensive exhibition record. Her works are held in public and private collections in the UK, Europe, the

US, South America, Japan and Australia.

She has won numerous prizes and awards for her work and has lectured at some of the world's most recognised art schools, including the Slade School of Fine Art and the Royal College of Art (both in London), Oxford University's Ruskin School of Art and the Massachusetts College of Art in Boston, US.

Before joining Monash, Professor Terstappen spent 10 years as director of the MA European Fine Art program at Southampton University (Winchester School of Art) in Barcelona, Spain.

Her current interests centre on contemporary installation and photography.

Professor Terstappen said her main focus at Monash would be on research activities.

"I hope to bring to Monash a range of international contacts from a wide variety of backgrounds emphasising the plurality of contemporary issues in the field of art and design," she said.

"I see these links as an opportunity for international research and exchange across the faculty."

– Karen Stichtenoth

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World-class exhibition record:

New Monash fine arts professor Claudia Terstappen.

Photo: Greg Ford

New tool for measuring osteoarthritis

Epidemiology

Researchers from Monash University's Department of Epidemiology and Preventive Medicine have revolutionised knee scans with the development of new technology that harnesses the power of magnetic resonance imaging (MRI).

The new technique measures loss of knee cartilage and is particularly useful in diagnosing osteoarthritis, one of the leading causes of pain and disability in the community and the most common musculoskeletal disorder affecting Australians.

Dr Flavia Cicuttini, who has spent the past five years perfecting the knee MRI scan, says it is a far more precise way of measuring cartilage loss. Until now, determining the extent of osteoarthritis in a patient has been done mainly with X-rays.

"MRI has often been used in assessing knee joints after injuries, such as in the case of footballers and sports stars, but until now it has

not been used much in assessing the level of wear and tear in joints," she said. "X-rays can only detect big changes in the wearing out of joints over a long period of time, and until now there has been no other way to measure slight changes in osteoarthritis.

"But the problem is that X-rays only show bone, not cartilage, so it is a highly inaccurate way of determining the rate of cartilage loss."

The new technique focuses on the knee joint and shows the amount of cartilage, which is particularly useful in diagnosis of osteoarthritis.

"Instead of taking half-an-hour for a full MRI scan, our method only takes five minutes, which significantly cuts the cost," she said. "In time, this technology could be used as a screening tool available to the general public to assess cartilage damage, the extent of the damage and the possibility of the patient developing osteoarthritis.

"We expect in the future doctors will want to look at knee cartilage in much the same way as they are currently doing with bone density scans."

Dr Cicuttini said the team had mastered the



technique and had already tested several hundred patients. "Already research from our study group has shown that of the people with osteoarthritis, one third who lost cartilage at the fastest rate over a two-year period were seven times more likely to have a knee replacement within four years.

"This gives strong support for using this method to assess drug therapy and preventative

Revolutionary knee scans: Dr Flavia Cicuttini, who has spent the past five years perfecting the new technology said it is a far more precise way of measuring cartilage loss.

Photo: Melissa Di Ciero

strategies for the condition.

"The ultimate goal of the research is for health practitioners to be able to use the technology to identify new methods to prevent and treat osteoarthritis. In addition, we eventually hope to provide individuals with information on how much knee cartilage they have and so give information of a person's risk of developing severe osteoarthritis."

Dr Cicuttini said most cases of osteoarthritis were found in middle-aged and older people, and more than 90 per cent of knee and hip replacements, which equated to about 40,000 new cases every year, were caused by this degenerative joint disease.

She is working with Monash's Associate Professor David Suter from the Institute of Vision Systems Engineering to fully automate the process.

— Ingrid Sanders

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Invasive ants form giant supercolony in Melbourne

Biology

A giant supercolony of Argentine ants has been found stretching across Melbourne, which could pose a serious threat to the city's biodiversity.

Ms Elissa Suhr from the School of Biological Sciences at Monash University discovered the colony of alien ants, which are among the world's 100 worst invaders, while completing her honours thesis on the genetic structure and behaviour of the ants.

Well-known as a tiny household pest, the Argentine ant has the potential to displace native plants and animals.

"In Argentina, their homeland, the ants are multicolonial, a social system where colonies span tens of metres, are genetically diverse and are highly aggressive toward each other. So population numbers never explode and they are no threat to other plants or animals," Ms Suhr said.

"In Melbourne however, their genetic make-up and behaviour is totally different. Here, they have a

Ant attack:
Researcher Elissa Suhr hopes her findings will lead to a better understanding of the invasive Argentine ant.

Photo: Greg Ford



unicolonial social system. The ants are genetically uniform, no longer fight and have formed a giant supercolony that extends at least 100 kilometres across the city. The ants can move freely between physically separate nests.

"The absence of fighting allows colonies to coalesce so that ant numbers build up to epidemic proportions, which in turn can lead to greater impacts on native biodiversity."

But Australia is not the only

country to be affected by the outbreak. By 'hitch-hiking' across countries, thanks to international trade, the ants have spread to all Mediterranean ecosystems around the world and had huge impacts in other countries.

In California in the US, the ants have displaced native ants, decreased the diversity of other native insects, affected dispersal of seeds and even decreased lizard numbers. "Supercolonies of Argentine ants have been found extending for 6000 kilometres in Europe and spanning 3000 kilometres across California," Ms Suhr said.

Since completing her honours thesis, Ms Suhr has continued to research the species in a joint project between the Australian Centre of Biodiversity and the Centre of Environmental Stress and Adaptation Research, which now includes a study of the ant on a nation-wide basis.

She is looking at ants in Perth and Adelaide to see whether the same genetic structure and behaviour of the Argentine ants that exists in Melbourne extends across southern Australia. If they do, a giant supercolony extending for thousands of kilometres across Australia could exist.

She hopes that her findings will lead to a better understanding of invasive ants and ways to effectively control their spread.

— Ingrid Sanders

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Exporting financial training expertise

Financial services

Monash University will join the Victorian Government in promoting the state's expertise in financial services training and education to Asian markets.

The Minister for Financial Services Industry, Mr Tim Holding, has announced a \$300,000 joint project to strengthen Victoria's education and training exports in the financial services industry.

The funding will pay for a project manager and a project team that will bid for tenders, conduct extensive research and consultation with industry stakeholders and participate in trade missions to showcase Victoria's educational capabilities for the finance sector.

The collaboration will involve the Department of Accounting and Finance in Monash's Faculty of Business and Economics, and the State Government's Department of Innovation, Industry and Regional Development.

The project will expand a significant area of activity within the Business and Economics faculty that includes existing projects which focus on markets in China, Indonesia and Vietnam.

Department of Accounting and Finance head Professor Jayne Godfrey described the project as ground-breaking.

"It is a wise move by the State Government, and the first time any government has specifically invested money to assist universities with the development of such a niche market," she said.

"Monash is an international university with a world-class concentration of academic expertise in financial services. We look forward to using our connections and skills to promote and deliver Victoria's financial services training expertise internationally to the highest standards."

Mr Holding said the initiative would assist in the economic development of Victoria's financial services industry by marketing financial services educational expertise to overseas aid agencies, domestic regulators and multilateral and individual financial institutions.

The concept springs from the recently released action plan for the financial services industry, 'Investing in Victoria's Future'.

— Robyn Anns

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Financial services training: From left, Professor Michael Skully, Department of Accounting and Finance; Professor Jayne Godfrey, head of the Department of Accounting and Finance; Professor Max King, deputy dean of the Faculty of Business and Economics; and Mr Tim Holding, Minister for Financial Services Industry.

Photo: Greg Ford

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