

Victoria

Monash University

LP0883738 Prof DA Abramson; Dr L DeRose; Mr R Moench

Approved Project Title **A scalable debugging framework for petascale computers**

2008 : \$ 59,631

2009 : \$ 116,762

2010 : \$ 105,131

2011 : \$ 48,000

Primary RFCD 2803 COMPUTER SOFTWARE

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Cray Inc

Administering Organisation Monash University

Project Summary

Supercomputing underpins a wide range of areas of importance to the Australian economy; mining, agriculture, engineering, medical research and pharmaceutical development to name a few. It is of critical importance that software solutions in these areas behave correctly and do not generate erroneous results. This project will develop software tools and techniques that make it possible to detect and locate errors as software is converted to run on the next generation of 'petascale' supercomputers. We will deploy the tools both commercially through our industry partner, and also on national high performance computing facilities.

LP0883661 Prof RA Cas; Dr IH Campbell; Dr CV Spaggiari

Approved Project Title **Understanding the stratigraphic and structural architecture of late Archean basins and the context of their gold deposits**

2008 : \$ 40,000

2009 : \$ 80,000

2010 : \$ 95,000

2011 : \$ 55,000

Primary RFCD 2601 GEOLOGY

Collaborating/Partner Organisation(s)

Gold Fields Limited

Geological Survey of Western Australia

Administering Organisation Monash University

Project Summary

Gold mined from Archean rocks contributed \$4.0 billion to Australia's export income in 2006 and provided the backbone of support for many remote communities. However, production has fallen 40% since 1997 and will be exhausted within 15 years unless major new discoveries are made. The potential to find additional gold deposits remains high, but urgently requires new data and improved exploration techniques to assist in their discovery. The results of this integrated multidisciplinary project will help to arrest the declining discovery rate and thereby sustain this important Australian industry.

Summary of Linkage Projects Proposals for Funding to Commence in 2008

LP0883290 Dr FG Collins; Dr TC Molyneaux; Dr N Birbilis; Dr DW Law; Dr F Blin; Dr M Berndt

Approved Project Title **Improved Management of Australian Port Infrastructure by Development of Predictive Ageing Simulation**

2008 : \$ 25,627

2009 : \$ 51,254

2010 : \$ 51,254

2011 : \$ 25,627

Primary RFCD 2908 CIVIL ENGINEERING

APA(I) Award(s): 2

Collaborating/Partner Organisation(s)

Geelong Port

Maunsell Australia P/L

Sydney Ports

Administering Organisation Monash University

Project Summary

Exposure of built infrastructure to corrosive marine conditions causes deterioration and reduced service life. Asset managers lack predictive models of in-service durability. Using data gathered from Australian ports, life-cycle predictions will be developed, simulating durability and incorporating geographical location, structure type, composition, and levels of maintenance. The modelling has not been undertaken on Australian port assets, whereas international models reflect very different infrastructure and exposures and are based on simpler 2D conditions that do not simulate actual deterioration. The three-dimensional (3D) modelling and graphics will be unique worldwide, providing decision support for construction and maintenance.

LP0884010 Prof JM Godfrey; Prof KT Trotman; A/Prof KG Chalmers; Dr R Moroney; Dr B Potter

Approved Project Title **Managing the world's most precious resource: The role of water accounting**

2008 : \$ 28,000

2009 : \$ 67,500

2010 : \$ 69,000

2011 : \$ 29,500

Primary RFCD 3501 ACCOUNTING, AUDITING AND ACCOUNTABILITY

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

CPA Australia

The Institute of Chartered Accountants in Australia

Administering Organisation Monash University

Project Summary

This project contributes to the National Research Priorities goal to develop sustainable ways of improving water productivity, using less water in agriculture and other industries, and providing increased protection of rivers and groundwater. Robust and rigorous water accounting and assurance will allow water managers to identify and address system water losses, and will underpin increased market and investment confidence in water information among water users. The collaborations between industry, academia, government and the accounting and water management professions will provide and demonstrate high profile, significant and timely international thought leadership in the emerging discipline of water accounting standards.

Summary of Linkage Projects Proposals for Funding to Commence in 2008

LP0883961 Prof C Jakob; Prof AH Lynch; Dr LD Rotstayn; Dr R Colman

Approved Project Title **Assessing clouds and rainfall in Australia's community climate model - Towards an improved simulation of Australia's water resources**

2008 : \$ 32,500

2009 : \$ 65,000

2010 : \$ 64,000

2011 : \$ 65,000

2012 : \$ 33,500

Primary RFCD 2606 ATMOSPHERIC SCIENCES

Collaborating/Partner Organisation(s)

Australian Greenhouse Office

Administering Organisation Monash University

Project Summary

Climate change is likely to significantly affect Australia's water resources. A well-measured response to this challenge requires reliable projections of future climate using modern Earth System Models. By thoroughly evaluating Australia's community climate model this research will inform Australia's adaptation policy and through subsequent model development it will contribute to significant improvements in our ability to understand and predict climate change. Through better informing water resource management the research constitutes an important contribution to an environmentally sustainable Australia.

LP0883815 Prof EN Meeusen

Approved Project Title **Characterisation and development of adjuvants for new generation veterinary and human vaccines**

2008 : \$ 45,000

2009 : \$ 100,000

2010 : \$ 110,000

2011 : \$ 55,000

Primary RFCD 3202 IMMUNOLOGY

Collaborating/Partner Organisation(s)

Pfizer Australia

Administering Organisation Monash University

Project Summary

Vaccination is the most successful and cost-effective means of combating infectious diseases in both veterinary and human medicine. This project will increase our understanding of how vaccines work and will help the development of new vaccines against infections in both animals and man. The results of these studies will also increase the competitiveness of Australian scientists in the field of vaccine research and development.

Summary of Linkage Projects Proposals for Funding to Commence in 2008

LP0883295 Dr BG Naylor; Prof A Freiberg; Dr JF Debeljak; Dr I Dussuyer; Dr SD Thomas

Approved Project Title **Applying Human Rights Legislation In Closed Environments: A Strategic Framework For Managing Compliance**

2008 : \$ 16,179
2009 : \$ 49,623
2010 : \$ 78,222
2011 : \$ 44,778

Primary RFCD 3903 JUSTICE AND LEGAL STUDIES

Collaborating/Partner Organisation(s)

Ombudsman Victoria
Victorian Equal Opportunity and Human Rights Commission
Office of the Public Advocate
Office of the Inspector of Custodial services
Office of Police Integrity
Commonwealth Ombudsman

Administering Organisation Monash University

Project Summary

The project will be a principal source of knowledge about the application of human rights in secure settings in Australia. It will improve the delivery and quality of services to people held in closed environments, such as prisons, detention centres, and settings accommodating the aged and persons with disabilities. It will assist both human rights monitoring bodies, and staff and management of closed settings to implement human rights obligations in everyday operations, and will heighten awareness in the community of the rights of people in these settings.

LP0883541 A/Prof P Perlmutter; Dr AW Purcell; A/Prof M Aguilar

Approved Project Title **New technology for the delivery of peptide-based T-cell vaccines for tumour immunotherapy**

2008 : \$ 200,000
2009 : \$ 425,000
2010 : \$ 225,000

Primary RFCD 3202 IMMUNOLOGY

Collaborating/Partner Organisation(s)

Cancer Therapeutics Limited

Administering Organisation Monash University

Project Summary

This project is dedicated to finding simple methods for vaccinating humans and animals against a wide variety of cancers. Should this be achieved millions of Australians will be protected from the devastating consequences of cancer. Consequently there will be great benefits socially, medically and economically.

LP0884059 Prof CW Pouton; A/Prof CJ Porter; Dr H Benameur; Dr K Hutchison

Approved Project Title **Mechanisms of enhancement of absorption of poorly water-soluble drugs from the gastrointestinal tract mediated by lipids, surfactants and polymers**

2008 : \$ 45,000
2009 : \$ 95,000
2010 : \$ 130,000
2011 : \$ 80,000

Primary RFCD 3205 PHARMACOLOGY AND PHARMACEUTICAL SCIENCES

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Capsugel division of Pfizer

Administering Organisation Monash University

Project Summary

This project will provide technological advances with significant benefits in terms of improved drug treatment, and therefore health outcomes for Australia. The projects builds on internationally recognised research strengths at Monash University in lipid-based drug delivery, and connects Monash and Australia with applied research in the multinational pharmaceutical industry. This will enhance the standing of Australian biomedical research in the pharmaceutical world and directly facilitate a partnership between Monash and Capsugel in commercialisation of the outcomes of the project. The project will also train Australian scientists in skills that are in great demand in the developing pharmaceutical industry in Australia.

Summary of Linkage Projects Proposals for Funding to Commence in 2008

LP0883705 Prof BC Scates; A/Prof MN Oppenheimer; Ms CI Yeats

Approved Project Title **A Land Fit for Heroes. A Social, Cultural and Environmental History of Soldier Settlement in New South Wales, 1916-1939.**

2008 : \$ 21,000

2009 : \$ 42,500

2010 : \$ 74,503

2011 : \$ 53,003

Primary RFCD 4301 HISTORICAL STUDIES

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Department of Veterans' Affairs
State Records New South Wales

Administering Organisation Monash University

Project Summary

The digger has an iconographic status in Australian society; thousands of families have charted the service records of relatives who served in the first AIF. This project will recover the returned soldier as important an historical entity as the men (and women) who went to war. It will look at ways our society tried to recover from the trauma of war, examine our veterans' return to Australia and their difficult readjustment to civil society. Soldier settlers faced a new battle in opening up the land. Like many in regional NSW today, they struggled against isolation, drought and financial hardship. This project will evaluate the role soldier settlement played in populating remote districts and assess its long-term environmental costs.

LP0883452 Prof J Soria

Approved Project Title **The effect of turbulence scale and intensity on water flow measurement using ultrasonic techniques**

2008 : \$ 25,000

2009 : \$ 50,000

2010 : \$ 50,000

2011 : \$ 25,000

Primary RFCD 2918 INTERDISCIPLINARY ENGINEERING

Collaborating/Partner Organisation(s)

Rubicon Systems Australia Pty Ltd

Administering Organisation Monash University

Project Summary

Management of water resources and water distribution networks is important as Australia and the world face increasing water shortages. A significant aspect of water management is prevention of supply losses in urban and non-urban water distribution networks - a vital factor in improving water security of Australian cities and agricultural production regions. This research will develop ultrasonic flow-velocity technology, which can be retrofitted to existing water distribution networks, providing distributed high precision water flow measurement systems that can prevent the loss each year of more than 155GL of water through leaks and burst in Australia's capital cities alone.

Summary of Linkage Projects Proposals for Funding to Commence in 2008

LP0883855 Prof MG Wallace; Prof GI Webb; A/Prof NL Boland; Mr IR Evans; Dr H Gu

Approved Project Title **Methods and software for efficiently solving the transportation crewing problem**

2008 : \$ 120,000
2009 : \$ 220,000
2010 : \$ 195,000
2011 : \$ 200,000
2012 : \$ 105,000

Primary RFCD 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 3

Collaborating/Partner Organisation(s)

Constraints Technologies International Pty Ltd

Administering Organisation Monash University

Project Summary

This project will target major savings in airlines, trucking, rail and public transport, with resulting benefits for industrial logistics, travel and tourism. The results discovered within the project will enable the industrial partner, CTI, to develop solutions for major companies worldwide. The results can also be transferred to other industrial optimisation applications, such as mining, services and manufacturing. Finally the project will build on Australia's international prominence in data analysis and combinatorial optimisation, and capitalise on a major opportunity for the Australian software industry.

LP0883416 Prof I Zukerman; Dr Y Marom

Approved Project Title **Sentiment detection from opinion surveys -- the quest for customer and employee satisfaction**

2008 : \$ 52,500
2009 : \$ 105,000
2010 : \$ 102,500
2011 : \$ 50,000

Primary RFCD 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

GAPbuster Worldwide

Administering Organisation Monash University

Project Summary

The research will yield improved international standing through scientific advances disseminated through high impact refereed publications and open source software. The advances made through the application of sophisticated probabilistic techniques to Language Technology problems will attract post-graduate students, and promote commercial interest. The demonstration prototype will provide proof of concept of an application that enables business intelligence to automatically process free-form feedback from customers and employees, with resultant recommendations leading to increased customer and employee satisfaction. The applicability of the outcomes of this research to service industries will further improve Australia's service reputation.