New South Wales

University of Technology, Sydney

LP0775442 Prof C Chiarella; Dr LJ Clewlow

Approved Project Title **The Pricing and Hedging of Multi-Factor Multi-Commodity Based Swing Options**

2007 : $ 107,000
2008 : $ 107,000
2009 : $ 109,000
Primary RFCD 3503 BANKING, FINANCE AND INVESTMENT

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

Lacima Group Pty. Ltd.
Administering Organisation University of Technology, Sydney

Project Summary

The partner organisation, an Australian based company, is a leading global player in providing risk management solutions to energy corporations world-wide. The advances of the project will help it to enhance Australia's role as a provider of practical implementation of the most recent academic advances in the area of risk management technology.

LP0774836 Prof CM Duffield; Mr MA Roche; Prof C Homer; Prof L O'Brien-Pallas; Prof J Buchan; Dr J Shamian

Approved Project Title **Patient and nurse outcomes and the cost of nurses' turnover in Australian hospitals**

2007 : $ 134,000
2008 : $ 106,000
2009 : $ 110,000
Primary RFCD 3211 NURSING

Collaborating/Partner Organisation(s)

Wyong Hospital
ACT Health
WA Health
Administering Organisation University of Technology, Sydney

Project Summary

An adequate supply of nurses is fundamental to all of the National Health Priority disease areas where quality care cannot be delivered without an adequate number of motivated nurses. Designing cost-effective methods of retaining nurses requires understanding reasons why they leave the workforce and the impact this has on patient care and system costs. The findings will assist policy makers and workforce planners at both local and national levels, to design strategies to effectively recruit and retain nurses as demands for health care and market competition for staff both increase.

LP0775326 Prof JT Ellis; A/Prof JL Harkness; Mr D Stark; A/Prof DJ Marriott

Approved Project Title **Gastrointestinal parasites and their diagnosis**

2007 : $ 61,778
2008 : $ 61,778
2009 : $ 61,778
Primary RFCD 3204 MEDICAL MICROBIOLOGY

Collaborating/Partner Organisation(s)

St. Vincent's Hospital Sydney
Administering Organisation University of Technology, Sydney

Project Summary

Gastrointestinal disease such as diarrhoea, abdominal pain and irritable bowel syndrome are common in the Australian population and there are a wide variety of causes, including potentially parasites. The parasite Dientamoeba fragilis has, until recently, been overlooked as a cause of human disease, but recent studies have confirmed its role as a pathogen. This project seeks to improve the diagnosis of this organism in faeces and this development will allow effective treatment to be used in patients thereby ameliorating disease.

LP0775364 Prof RJ Gibson; Prof PB Bell; Dr HM Pattinson; Mr AT Lloyd James

Approved Project Title **Investigating the future of Australian television**

2007 : $ 75,000
2008 : $ 67,000
Primary RFCD 4203 CULTURAL STUDIES

Collaborating/Partner Organisation(s)

Australian Film, Television and Radio School
Foxtel
ACMA
Administering Organisation University of Technology, Sydney

Project Summary

This project investigates the future of Australian television and the society 'served' by it. Regulation of free-to-air TV has tightly controlled the production and dissemination of news, information and entertainment in Australia. Now digital technology offers audio-visual content on many extra platforms, fixed and mobile. This sets up profound changes in Australian economics, politics and culture. Yet there is a marked lack of independent research available to Government and Industry to assist them to plan for the changes. And there is almost no context for careful public debate about these crucial changes. This project will play a vital role in promoting knowledge and informed, strategic decision-making for all constituencies.

LP0775149 Dr HH Ngo; Prof S Vigneswaran; Mr A Listowski; Mr P Cullum

Approved Project Title **Fluidised bed biosorption-flocculation granular activated carbon (FBBSF-GAC) for membrane filtration in wastewater reuse**

2007 : $ 60,000
2008 : $ 60,000
2009 : $ 50,000
Primary RFCD 2908 CIVIL ENGINEERING

Collaborating/Partner Organisation(s)

Sydney Olympic Park Authority
Activated Carbon Technologies Pty Ltd
Administering Organisation University of Technology, Sydney

Project Summary

Water resource is limited and has been continuously decreasing. The idea of recycling and reusing of wastewater has been adopted for irrigation, industry and other non-potable uses. In Australia, wastewater reuse is now considered a key strategy for conserving water at national, state and local level. In this study, the proposed treatment unit is to produce a superior effluent quality for water reuse while minimize membrane fouling of the membrane filtration system. Hence, it will benefit water industries globally and communities in Australia. There will be a major export opportunity from Australia to supply efficient, low-cost and sustainable flocculant together with an improved treatment system worldwide.

LP0775468 Prof CG Palmer; A/Prof R Lim; Dr GC Hose; Dr JC Chapman; Dr MS Warne

Approved Project Title **Mechanistic and probabilistic approaches to assessing the impact of pesticide mixtures in Australian waterways**

2007 : $ 50,000
2008 : $ 60,000
2009 : $ 64,100
Primary RFCD 3008 ENVIRONMENTAL SCIENCES

Collaborating/Partner Organisation(s)

Department of Environment and Conservation
Administering Organisation University of Technology, Sydney

Project Summary

This project will provide vital information on the impacts of pesticide mixtures in Australian waterways and will also provide information with respect to safe levels of pesticides for water quality management. This information will be used to develop scientifically sound management policies and provide advice to regulatory authorities such as the NSW Department of Environment and Conservation and the Federal Department of Environment and Heritage. Specifically the results will contribute to ensuring the use of pesticides in market gardens close to Sydney does not threaten the health of local rivers.

LP0775435	Prof D Slade; Prof MJ Stein-Parbury; Dr HB Scheeres; Prof CM Matthiessen; A/Prof RA Iedema; Ms HC de Silva Joyce; Mr SK Choucair; Dr RN Dunston
Approved Project Title	**Emergency Communication: Addressing the challenges in health care discourses and practices**
2007 :	$ 122,000
2008 :	$ 152,000
2009 :	$ 142,000
Primary RFCD	3212 PUBLIC HEALTH AND HEALTH SERVICES

Collaborating/Partner Organisation(s)

ACT Health
NSW AMES
Division of Allied Health - NSCCH
Northern Sydney Central Coast Area Health Service
South East Sydney Illawarra Area Health Service

Administering Organisation University of Technology, Sydney

Project Summary

Communication breakdowns have been identified as the major cause of
critical incidents in public hospitals in NSW (NSW Health, 2005a). A key applied benefit of knowledge generated by the project will be a
contribution to the reduction of critical incidents leading to patient
harm - an outcome applicable to Emergency Departments nationally. This project will benefit Australia's Hospital and Health administrations as they endeavour to find solutions to the impact of communication breakdowns and provide communications training of health care personnel. The research will deliver recommendations for system-wide improvements in communication competency.

LP0775041	Prof C Zhang; Dr L Cao; Dr MK Browne; Mrs YK Morrow; Mr R Schurmann; Mr PG Newbigin; Mr F Figueiredo; Mr Y Zhao
Approved Project Title	**Data Mining of Activity Transactions to Strengthen Debt Prevention**
2007 :	$ 152,000
2008 :	$ 173,000
2009 :	$ 144,000
Primary RFCD	2801 INFORMATION SYSTEMS
APA(I) Award(s):	1
APDI	Mr Y Zhao

Collaborating/Partner Organisation(s)

Centrelink

Administering Organisation University of Technology, Sydney

Project Summary

A national benefit from this research will be the significant analytical contribution to the prevention of incorrect payment directly associated with 30% of Commonwealth outlays. Funds not incorrectly paid will be available for direction to other areas of national importance. Another benefit is the new technology will have application in commercial, state and federal government agencies where research into activity, event or process data can be used to improve service delivery outcomes. A further national benefit will be the development and use of frontier activity transaction mining techniques to ensure Australia a leading role in enterprise data mining research and development.

LP0775445 A/Prof N Zhang; Dr JM Jeyakumaran; Mr RT Tamba; Mr SP Fitzgerald

Approved Project Title **Dynamic Modelling and Gear Shift Simulation of Powertrains with Dual Clutch Transmissions**

2007 : $ 100,000
2008 : $ 115,000
2009 : $ 100,000

Primary RFCD 2904 AUTOMOTIVE ENGINEERING

APA(I) Award(s): 1

Collaborating/Partner Organisation(s)

NT Consulting International Pty Ltd

Administering Organisation University of Technology, Sydney

Project Summary

The project will make a significant contribution to the development and commercialisation of dual clutch transmissions, which represent a breakthrough vehicle transmission technology. The acquired knowledge and advanced simulation tools will enable engineers to design superior vehicles with improved fuel efficiency and performance. The project will hence benefit the nation and community, resulting in:
1) powertrains with improved fuel efficiency, drivability and gear shift quality at the lowest production cost;
2) increased employment in the automotive sector benefiting from leading the world in applying the frontier technology to vehicles;
3) increased knowledge base on complex dynamic systems, well trained researchers and engineers.