

# Summary of Discovery Projects Applications for Funding to Commence in 2006

## New South Wales

### University of Western Sydney

**DP0666981** Dr T Kuratate

**Approved Project Title** **Building a Talking Head via Dynamic & 3D-Static, and Age- & Ethnically-Varied Databases: Perceptibility and Acceptability**

**2006 :** \$125,000

**2007 :** \$75,000

**2008 :** \$75,000

**Primary RFCD** 2802 ARTIFICIAL INTELLIGENCE AND SIGNAL AND IMAGE PROCESSING

APD Dr T Kuratate

**Administering Institution** University of Western Sydney

#### Project Summary

This project will provide cutting edge realistic, perceptible talking head animation. Based on rich 3D face motion and static face databases, it will allow the study of the facial structure of specific groups of people, and the creation of a lasting cultural heritage of faces. Information in these databases will be useful for research in high-quality 3D face reconstruction, with applications as wide as multimodal Biometric Identification, finding lost children, and security systems. The novel methods in this project will also advance auditory-visual speech and emotion research with particular commercial applications in telecommunications, human-machine interfaces, foreign language teaching, humanoid development, animation, and film.

**DP0662865** Prof DM McInerney; Prof Dr TE Cook; A/Prof JE Tuovinen; Dr D Viri

**Approved Project Title** **Securing the future: Optimising the success of remote Indigenous students at post-secondary education. A cross-cultural study**

**2006 :** \$100,000

**2007 :** \$100,000

**2008 :** \$105,000

**Primary RFCD** 3301 EDUCATION STUDIES

**Administering Institution** University of Western Sydney

#### Project Summary

Supporting remote Indigenous students to complete post-secondary education is a national and international imperative. Remote Indigenous student success in VET and University education is a key to the success of Indigenous families, communities and the nation as a whole. Post-secondary education provides students with 'capstone' skills, abilities and understandings that enable them to function at a high-level both socially and economically. Effective Indigenous participation in post-secondary education enhances economic and social self-sufficiency, reduces the likelihood of dependency on welfare, and provides powerful role-models for younger Indigenous students to be successful at school, and beyond compulsory school education

**DP0666886** A/Prof VA Nightingale; Dr A Gibbs

**Approved Project Title** **The Power of the Image: affect, audience and disturbing imagery**

**2006 :** \$124,000

**2007 :** \$90,000

**2008 :** \$90,000

**Primary RFCD** 4203 CULTURAL STUDIES

**Administering Institution** University of Western Sydney

#### Project Summary

In a period of fear and uncertainty about terrorism and war there is a pressing need to examine the specific contemporary modes of teenagers' engagements with media violence and the ways it contributes to their understanding of violence in the world around them. This project will identify the links young people make between affective and emotional reactions to media imagery, their own values and attitudes about the violence in everyday life (e.g. sexual harassment, bullying, fights at school), and their assessment of their own power and agency. It adds much needed Australian research to a field lacking a distinctive Australian perspective.

## Summary of Discovery Projects Applications for Funding to Commence in 2006

**DP0666770** Dr C Rocha

**Approved Project Title** **A study of the Brazilian community in Australia and Australian-Brazilian bilateral exchange**

**2006 :** \$81,000

**2007 :** \$78,000

**2008 :** \$74,340

**Primary RFCD** 3703 ANTHROPOLOGY

APD Dr C Rocha

**Administering Institution** University of Western Sydney

### Project Summary

This study provides knowledge of a recent and growing migrant group in Australia of which there is little information beyond the bare demographics. It contributes to a deeper understanding of the role of class differences in shaping migrant identities, by exploring the way the immense socio-economic gap in Brazilian society is transplanted from homeland to destination country. By investigating the as yet uncharted 'South-South' cultural pathways between Australia and Brazil, this project offers a critique of theories of power relations and globalisation. It will inform and enhance the growing bilateral relations between Australia and Brazil in the areas of tourism, investment, cultural promotion and education

**DP0664862** Dr MW Wiggins; Dr M Childs; Prof GJ Fogarty

**Approved Project Title** **Cognitive Features of Decision Support System Interfaces**

**2006 :** \$67,000

**2007 :** \$53,000

**2008 :** \$54,000

**Primary RFCD** 2801 INFORMATION SYSTEMS

**Administering Institution** University of Western Sydney

### Project Summary

The complex and time-constrained nature of the contemporary workplace is such that there is an increasing dependence on technology to assist operators in formulating accurate and timely decisions. This project is designed to ensure that the process through which this information is presented to operators is as efficient and effective as possible under the circumstances. Using an innovative approach to the development of such decision support systems, the outcomes of this project will direct the development of this type of technology in the future and, ultimately, lead to more effective and more efficient decision-making under uncertainty.

**DP0666463** A/Prof Y Xiang

**Approved Project Title** **Development of a Local Spectral Method for the Computations of Thin-Walled Structures**

**2006 :** \$80,000

**2007 :** \$80,000

**2008 :** \$80,000

**Primary RFCD** 2908 CIVIL ENGINEERING

**Administering Institution** University of Western Sydney

### Project Summary

This project will benefit Aust. society by providing a powerful tool for improving the safe and cost effective design of structures under extreme conditions (high frequency vibration, complicating supporting conditions). The method has the potential to be further developed to provide solutions to unsolved problems in acoustic wave transport, short electromagnetic wave propagation etc. The research training of the project will help to keep Australia to be at the forefront in this research field and the published research findings will promote the reputation of Australian researchers in the field of computational engineering. The international collaboration will be strengthened between the Investigator's team and his colleagues in US.

## Summary of Discovery Projects Applications for Funding to Commence in 2006

**DP0666540** A/Prof Y Zhang; Dr AC Nayak; Dr K Wang; A/Prof F Lin

**Approved Project Title** Foundations of Nonmonotonic Logic Programming for Complex Knowledge Systems

**2006 :** \$84,000

**2007 :** \$74,000

**2008 :** \$76,000

**Primary RFCD** 2804 COMPUTATION THEORY AND MATHEMATICS

**Administering Institution** University of Western Sydney

### Project Summary

This project will fundamentally provide a new paradigm of nonmonotonic logic programming. As such, it will significantly contribute towards Australia's leading role in the cutting edge research of intelligent systems development. The new nonmonotonic logic programming can be used as an effective platform by many Australian computer companies for building complex knowledge systems in real world domains. Hence this project has potential economic and social benefits for Australia. With a very strong research team across different universities and a collaborative research training environment, this project will further enhance Australia's international reputation as a leader in computing & IT research.

**DP0666780** A/Prof WX Zheng; Prof J Chen

**Approved Project Title** An Investigation into Performance Limitation of Wireless Networked Feedback Systems

**2006 :** \$87,000

**2007 :** \$74,000

**2008 :** \$76,000

**Primary RFCD** 2301 MATHEMATICS

**Administering Institution** University of Western Sydney

### Project Summary

Recent technological advances in information technology have begun to drive controls research in a direction that seeks to merge communication networks, control design, and computing power. Investigation of the constraints, limitations, and tradeoffs in design of wireless networked control systems is of intrinsic scientific interest and broad engineering impact. The success of this project will enrich Australia's leading role in the international control community. The training of the postdoctoral research associates will generate the expertise needed to maintain the coming generation involved in cutting-edge technological advancement. The project will strengthen research activities in Australia through strong international collaborations.