



## Examples of new *Discovery Projects* in 2010

### Western Australia

**The University of Western Australia** (Contact: 08 6488 2806)

*Person Identification from Multiple Non-Invasive Iris and Face Biometrics in Video* (DP1096801)

**Summary:** This project will undertake research to develop a prototype system for personal identification that can be used by law enforcement and security agencies to enrol people at points of entry at public places. The system will non-invasively acquire face and iris biometrics and match them against a database of known persons. The proposed system can be used in sensitive buildings for access control, eliminating the need to carry access cards or remember passwords. This research contributes to the national research priority of Safeguarding Australia. We will develop new techniques in computer vision and train new researchers in this area.

*Chief Investigator: Professor Robyn Owens*

**ARC funding:** \$390,000 over 3 years

**Murdoch University** (Contact: 08 9360 1289)

*Protect, prepare and engage: Does extracurricular activity participation offer sustained benefits for youth?* (DP1095791)

**Summary:** Organised extracurricular activities such as sport and music have the potential to promote healthy development and to reduce the levels of risk behaviours in teenagers. However, current research evidence, often based on middle-class youth in the US, is inadequate for making policy recommendations for improvement to the after-school lives of Australian youth. This study will offer insight into the long-term benefits of making a diverse selection of organised activities available to Australian teenagers, and will improve our understanding of which aspects of participation are most likely to enhance their social and educational opportunities.

*Chief Investigator: Professor Bonnie Barber*

**ARC funding:** \$340,000 over 3 years

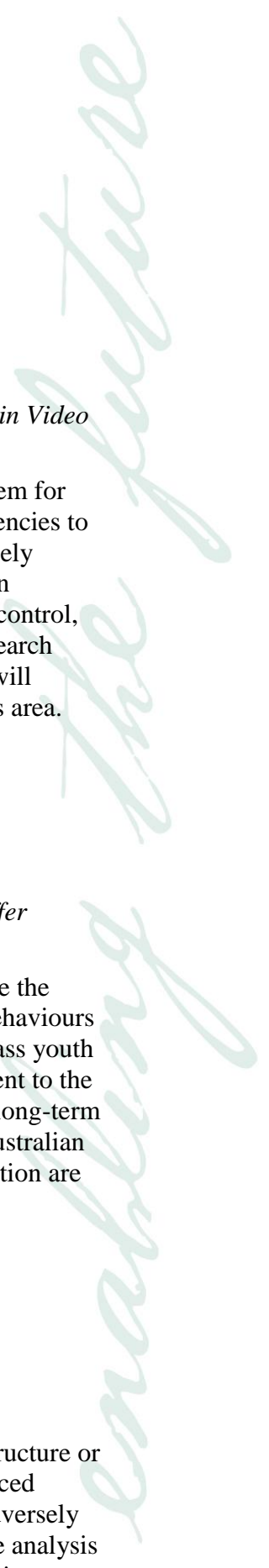
**Curtin University of Technology** (Contact: 08 9266 2793)

*Prediction and control of fluid-structure interactions* (DP1096376)

**Summary:** Fluid-flows create a pressure that can deform the surface of a structure or cause it to vibrate; an extreme example is the fluttering of a flag. Flow-induced vibration of the external panels of vehicles causes damage, noise and can adversely affect performance. This project will develop a wholly new approach for the analysis of these interactions. The versatility and completeness of the approach permits a step-change in the design of panels, reducing material and manufacturing costs without compromise to safety and performance - an immense benefit for the myriad engineered products or structures that feature flow over a deformable surface.

*Chief Investigator: Professor Anthony Lucey*

**ARC funding:** \$262,000 over 3 years





**The University of Western Australia** (Contact: 08 6488 2806)

*Novel approaches to the forensic identification of human remains: integration of studies of bone form and chemistry (DP1092538)*

**Summary:** In a global era of terrorism, crime and even natural disasters, new approaches to identify victims, and prosecute offenders, are greatly required and long overdue. The combination of new computer and chemical methods will help identify unknowns, reconstruct missing parts and separate commingled remains. Its affect on understanding bones may be like that of DNA on soft tissues. The results will update our ability as forensic scientists to strengthen Australian security systems by improving our ability to manage accidents, disasters, terrorism and crime. This project will start international collaborations and train a new generation of Australian forensic experts.

*Chief Investigator: Dr Daniel Franklin*

**ARC funding:** \$410,000 over 3 years

**The University of Western Australia** (Contact: 08 6488 2806)

*Assessment of the Mass Flux in a Benthic Boundary Layer of a Stratified Lake (DP1096728)*

**Summary:** Understanding the underlying processes responsible for Benthic Boundary Layer (BBL) mass flux in stratified lakes is of fundamental ecological importance. By verifying the ability of the current Centre for Water Research hydrodynamics models to reproduce the dynamics of the BBL, Australia will cement its position as an international leader in the development of technologies to guide the management of lakes, reservoirs, estuaries and coastal areas. Furthermore, these water bodies are important sources and sinks of carbon and the extent to which they contribute to the national and international carbon inventory can be assessed using this technology.

*Chief Investigator: Professor Jorg Imberger*

**ARC funding:** \$205,893 over 2 years