

HD live from UCSD: Outcomes of MURPA eScience Projects 2009

Date and time: 25/2/2010 at 10am **Location:** Building: 26, Room: 135, Seminar Room , Clayton School of IT

Presenters: Four Monash 3rd Yr/Honours Students

Abstract

MURPA supports a unique summer mode placement in a leading research group overseas. It not only provides a research experience at the undergraduate level, but does that in an international context. Students are placed for a period of 8 weeks, allowing them to integrate into the research groups as team members. They have both a UCSD and Monash mentor for the project.

MURPA has been recently awarded for its excellence - an award from the Corporation for Education

Network Initiatives in California <http://messagelab.monash.edu.au/MURPAProgramRecognised>

Four Faculty of Information Technology third year students are on an 8 week visit to University of California San Diego (UCSD) as part of **MURPA 2009 (Monash Undergraduates Research Projects Abroad)** .

Following this experience they will be well placed to enter Honours in 2010. The students and a brief overview of their projects are:

Ms Aisa Na'im

Bachelor of Information Technology Systems (BITS)

Project: Data quality assurance in scientific workflows, Mentors Ilkay Altintas UCSD, Maria Indrawan Monash

This project aims to create a system that helps track versions of data sets that come from experiments. This helps researchers and scientists track the information to ensure it is valid and clean or to determine at what stage the data becomes unusable. This means that rather than having to repeat entire processes, a workflow can recommence at the point of fault.

Mr Jonathan McClure

Bachelor of Software Engineering (BSE)

Project: Mining for Bullet Clusters in Galaxies, Mentors Mike Norman UCSD, Ann Nicholson Monash

The Bullet cluster consists of two colliding clusters of galaxies. Studies of the Bullet cluster, announced in August 2006, provide the best evidence to date for the existence of dark matter. The aim of the project is to data mine large amounts of simulation data to parameterize a Bayesian network that probabilistically classifies clusters as either normal or bullet clusters.

Mr Andrew Paterson

Bachelor of Software Engineering (BSE)

Project: Interactively Visualising Density Fields (Astrophysics focus), Mentors Jurgen Schulze UCSD, Daniel Price Monash This project aims to develop a system for visualising SPH models of star formation and galaxy formation. Smoothed Particle Hydrodynamics (SPH) is a fluid simulation method used in astrophysics (and various other fields), to model star formation and galaxy formation.

Mr Ben Morgan

Bachelor of Software Engineering (BSE)

Project: Visualization of tensor data in cardiac models, Mentors Roy Kerckhoffs UCSD, David Abramson Monash This project will create visualizations of the DT-MRI data of the heart. Currently it is very difficult to visualise this data for easy interpretation. Different visualization strategies being developed by this project will help visualize the data and highlight vital information leading to better and faster diagnosis, in particular, the fibres and sheets in the heart.

MURPA Background

For 2008 and 2009 support has come from the the Office of the Deputy Vice Chancellor (International), the Monash eResearch Centre (MeRC), the Faculty of Information Technology and Monash Abroad. It is modelled on the successful PRIME program at UCSD. Projects usually have an eScience and eResearch basis as the main research group involved at Monash is the Monash eScience and Grid Engineering Lab (Message Lab), so students of faculties other than IT can, in principle, participate. MURPA also involves an advanced seminar scheme, in which students can attend seminars given by world leading experts before they leave. The seminar scheme is novel, because it uses a cutting edge High Definition interactive video link to the University of California, making it feasible to attract some of the world's best researchers "virtually" to Monash. These seminars also allow students to "meet" potential UCSD mentors and get some information about potential projects.

RSVP: Tuesday 23 February 2010 by Email to: rob.gray@infotech.monash.edu.au

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Forthcoming Seminars: [MURPA2010Schedule](#)