

Enhancing Student Exchange Experiences with High Definition Video Conference

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Use of Video conference technology (Turn of the century)



VTC @ MONASH



Online tearoom dishes up a gossipy brew

DIANA THORP

TEA may now be taken by Monash University staff — even though they are 8km apart on different campuses.

Of course, it's not the real thing: the university launched its virtual tearoom last week.

David Abramson, from the school of computer science and software engineering, said people had been "playing with boardrooms and the like", so why not a tearoom?

The computer science school, formed when the university merged four departments, is split over two campuses.

Professor Abramson said its 80 academics got together only once or twice a year and he was keen to explore technological ways of getting them together.

He also wanted to use technology for ad hoc communication, rather than formal structured meetings. The tearoom was an obvious choice.

"The issue is that the tearoom is still a place where a lot of business is done in any organisation," Professor Abramson said.

"People have casual conversations that often turn out to be strategic."

Each tearoom has a 24-hour video wall projecting images and transmitting sound from the other site. Professor Abramson has used the virtual tearoom to meet students on another campus.

He said the project was the first use of FVC.COM's MPEG-2 hardware in the country.

FVC.COM general manager Asia-Pacific Simon Runney said the project used a high-speed telecommunications link.

Although traditional videoconferencing used a point-to-point dialled line, similar to a telephone line, the new technology used an Internet line with a better quality result, he said.

The Monash project aims to investigate the impact of high-performance, high-availability videoconferencing on the staff of a multi-campus school and new uses of high quality tele-teaching systems in higher education.

Teatime: David Abramson, left, and David Duke talk to their Monash University colleagues Greg Watson and Milton Richardson

Picture: WILL SALTER





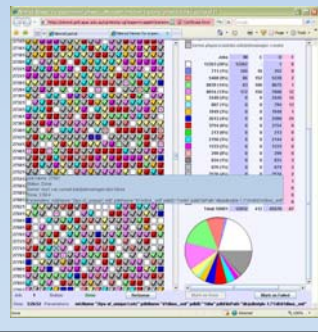
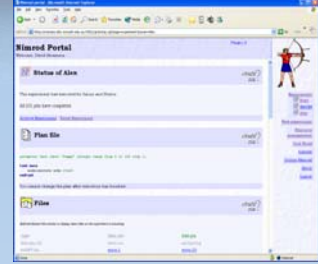
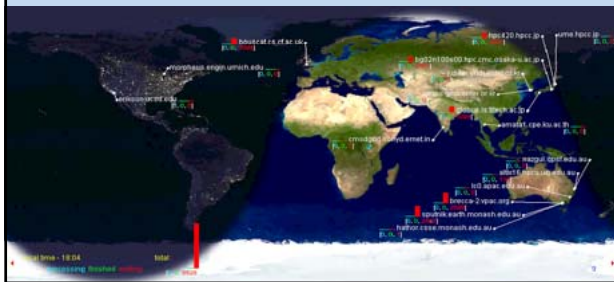
Student Exchange Experiences

PRIME @ Monash: Nearly always a PRIME number!

A group of five people, three men and two women, are posing for a photo at night. They are all wearing winter clothing, including jackets, hats, and scarves. The person on the far left is wearing a black jacket and a black beanie. The person next to them is wearing a blue jacket and a blue beanie with a red stripe. The person in the center is wearing a dark jacket and a grey beanie. The person next to them is wearing a light blue jacket and a light blue beanie. The person on the far right is wearing a green jacket and a grey beanie. They are all smiling and looking at the camera. The background is dark, but there are some lights visible, suggesting an outdoor setting at night.

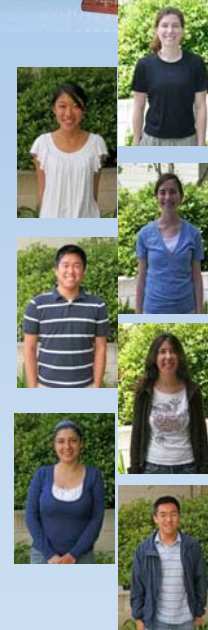
PRIME @ Monash

- Projects usually involve application of our middleware (Nimrod) to an interesting application
- Leverage investment in PRAGMA infrastructure



PRIME Projects - Monash 2008

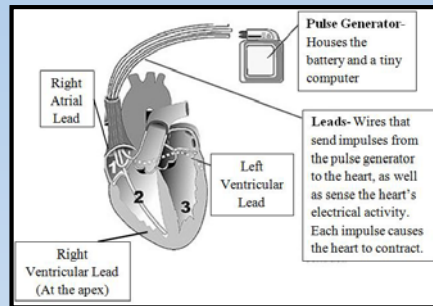
- Analyzing Adverse Effects of the Antidepressant Emsam in Silico, *Haley-Hunter Zinck*
- Binding Energy and Mechanisms of Conjugated Eneidyne with a Ruthenium complex, *Lynn Tai*
- Modeling Calcium Ion Transients in the Sarcoplasmic Reticulum, *Arielle Yablonovitch*
- Effects of Tissue Level Parameter Variation on Cardiac Output, *Randy Lee*
- Transmural Heterogeneity of Mechanics in the Normal Heart, *M. Amalia Prada Fernandez*
- Medical Research Data Visualization on Tiled Display Wall, *Sirvard Nshanyan*
- Simulation of Particle Incorporation during Electrocodeposition Process, *David Allen Wong*



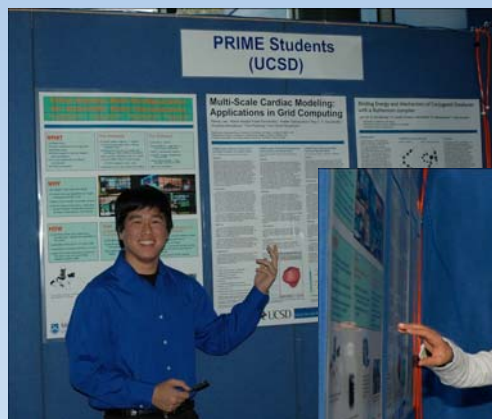
Lead placement for CRT

Revelli, Kirchhoffs, UCSD

- Study left bundle branch block
- Determine the optimal pacing sites for CRT
- 2 or 3 leads are inserted into the heart
- Challenges:
 - Placing the leads
 - Scar tissue effects pacing



PRIME embedded in local events



PRIUS Pacific Rim International University

PRIUS

- Establish a consistent educational program for graduate students.
- On-the-Job-Training Education on PRAGMA Research Framework



P.D

P.D Exchange prgm: produces liquidity in human resource



Doc

Long Abroad Internship: Provide skill building chances



M2

Short Abroad Internship: Offer trial opportunities



M1

Lecture course: Stimulate students' ambitions

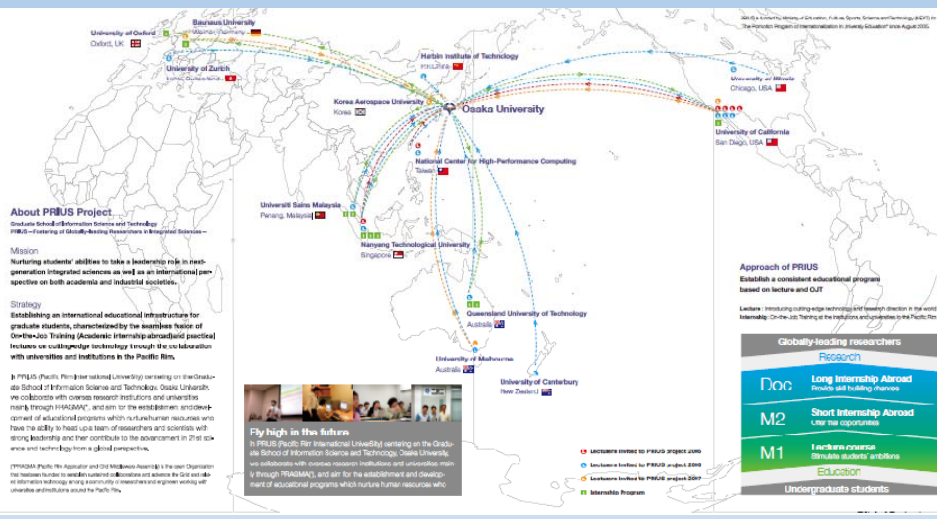


Educational Part



Research Part

PRIUS



About PRIUS Project
Graduate School of Information Science and Technology
PRIUS - Fostering of Globally-leading Researchers in Biological Sciences

Mission
Nurturing students' abilities to take a leadership role in next-generation integrated sciences as well as an international perspective on both academic and industrial societies.

Strategy
Establishing an international educational infrastructure for graduate students, characterized by the worldwide network of On-the-Job Training (Academic Internship abroad/practical Internship on cutting-edge technology through the collaboration with universities and institutions in the Pacific Rim.

Approach of PRIUS
Establish a consistent educational program based on lecture and OJT

Education
Lecture: Introducing cutting-edge technology and research direction in the world
Internship: On-the-Job Training at the institutions and companies in the Pacific Rim

Research
Globally-leading researchers

Doc Long Internship Abroad
Provide skill building chances

M2 Short Internship Abroad
Offer trial opportunities

M1 Lecture course
Stimulate students' ambitions

Education
Undergraduate students

Fly high in the future
In PRIUS (Pacific Rim International University) starting on the Graduate School of Information Science and Technology, Osaka University, we collaborate with overseas research institutions and universities mainly through PRAGMA, and aim for the establishment and development of educational programs which nurture human resources who have the ability to head up a team of researchers and scientists with strong leadership and their contribute to the advancement in 21st science and technology from a global perspective.

Legend

- Universities involved in PRIUS project 2006
- Universities involved in PRIUS project 2008
- Universities involved in PRIUS project 2009
- Internship Program



"Imitation is the sincerest of flattery." - Charles Caleb Colton

MURPA = PRIME⁻¹

What is MURPA?

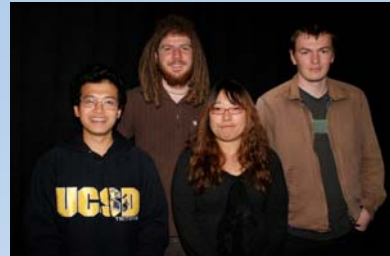


- A research oriented 'summer mode' undergraduate subject that allows students to complete a research project abroad;
- Collaborative research between Monash academics and peers overseas;
- A video conference based seminar stream that imports real time presentations from leading international researchers;

MURPA 2008-9



- Hoang Nguyen:
 - Kepler interface to Optiportal
 - Ilkay Altintas, UCSD
- Mr. Peter Serwylo:
 - Urban image manipulation
 - Jurgen Schultz, UCSD
- Nicholas Barnes:
 - Parallel computation of biomechanics problems
 - Roy Kerckhoffs, UCSD
- Aimee Li:
 - Virtual screening for inhibitors against avian flu
 - Wilfred Li, UCSD



MURPA 2009-10



- Aisa Na'im:
 - Data quality assurance in scientific workflows
 - Ilkay Altintas UCSD,
Maria Indrawan Monash
- Jonathan McClure
 - Mining for Bullet Clusters in Galaxies
 - Mike Norman UCSD,
Ann Nicholson Monash
- Andrew Paterson
 - Interactively Visualising Density Fields
 - Jurgen Schulze UCSD, Daniel Price Monash
- Ben Morgan
 - Visualization of tensor data in cardiac models
 - Roy Kerckhoffs UCSD, David Abramson Monash



MURPA International Research Seminar Series 2008

- Integrating Neuroscience Knowledge: Brain Research in the Digital Age, Mark Ellisman, 24Jul08
- CAMERA: Community Cyberinfrastructure for Advanced Microbial Ecology Research and Analysis Larry Smarr, 31 Jul08
- On Accelerating Scientific Discovery using Scientific Workflows and the Kepler System, Ilkay Altintas, 7Aug08
- Visualization, Jurgen Schulze, 21Aug08
- Avian Flu Modeling, Wilfred Li, 28Aug08
- Cardiac modeling, Andrew McCulloch, 4Sept08
- Quantum Chemistry, Kim Baldridge, 11Sept08



MURPA Lectures 2009

Peter Arzberger	Benefiting Society through Information Technology: Why Changes in Education are Needed
Fran Berman	Harnessing the Data Deluge
Ilkay Altintas	On Basics of Using Workflows for Scientific Exploration and the Kepler System
Roy Kerckhoffs	Multi Scale Modelling of the Cardio System
Cindy Zheng	Introduction to PRAGMA Grid
Wilfred Li	Machine Learning Approaches in Avian Flu Drug Discovery
Phil Papadopoulos	User-defined Clusters - Introduction to the Rocks Cluster Toolkit : Merging Clouds and Clusters
Mike Norman	Exploring OptIPortals as Petascale Simulation End Stations
Larry Smarr	Can a Greener Internet Help Us Moderate Climate Change?
Jurgen Schulze	Immersive Virtual Reality Research at Calit2

MURPA Lectures 2010



Nancy Wilkins-Diehr	Science Gateways and their tremendous potential for Science and Engineering
Jurgen Schulze	Latest Developments in Virtual Reality at Calit2
Ania Sher	Mathematical models of cardiac muscle cells: Predicting drug-induced arrhythmias.
Robert Konecny	Multiscale Modeling of Proteins
Phil Papadopolous	Extending Rocks Clusters into Amazon EC2 Using Condor
Wilfred Li	Workflows for Computer Aided Drug Discovery: New Twitter for the Old Problem
Philip Bourne	New Modes of Scholarly Communication
Mike Norman	Gordon: A New Kind of Supercomputer for Data-Intensive Applications
Larry Smarr	Global Climatic Disruption and its Impact on Victoria and California
Sameer Tilak	Cyberinfrastructure for Large-Scale Environmental Observing Systems

HD Video Seminar Room



I've participated in numerous video conferences to date but nothing like this. The quality was so high that the experience was almost as if we were all in the same room.

The massively increased bandwidth was transformational. Quantity begat quality.

Alan Finkel,
Chancellor, Monash Univ



Larry Smarr: CAMERA



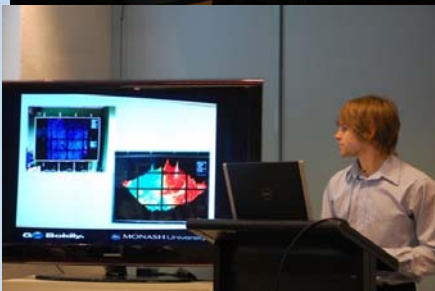
2009 Student Seminars UCSD -> Monash

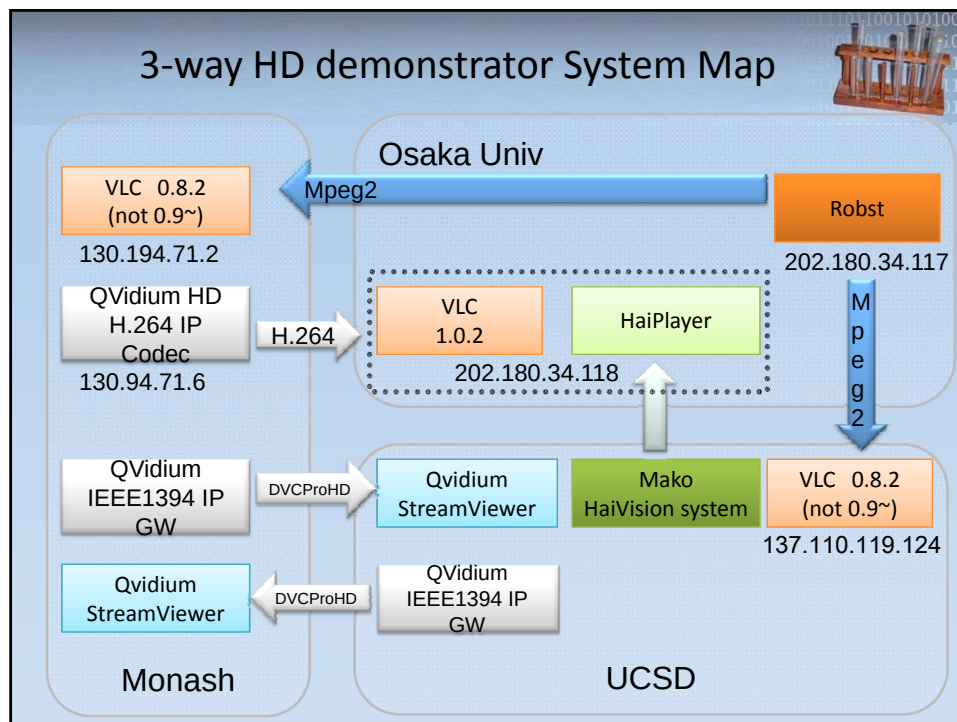


2010 3 Way HD – AU/UCSD/JAPAN

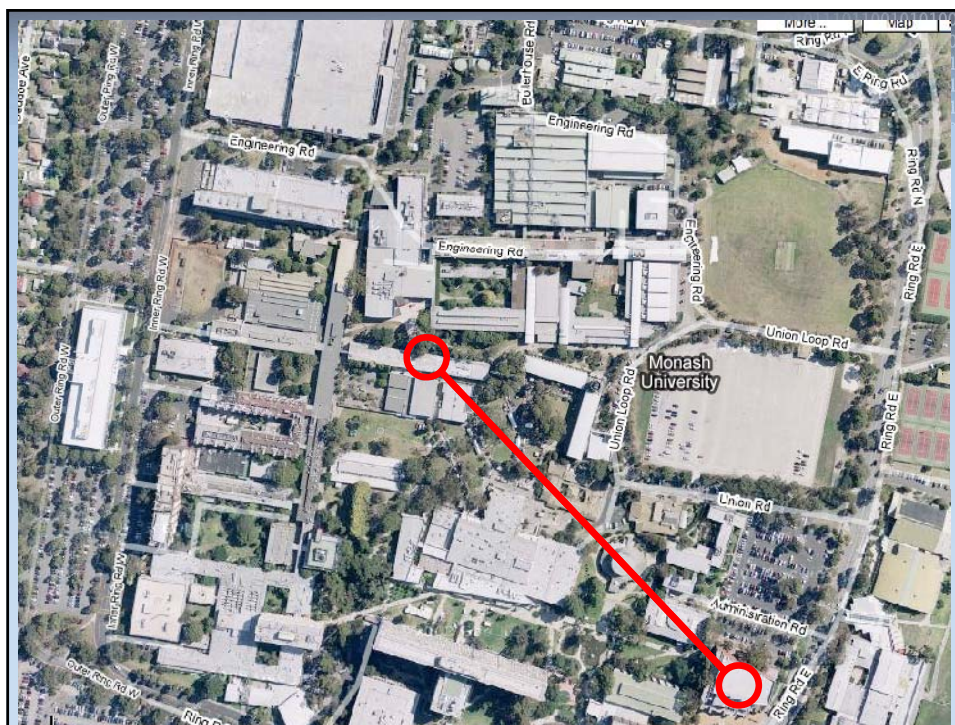


PRIME seminars Monash -> UCSD





**OTHER EDUCATIONAL
ACTIVITIES?**





The future is here, at least for some.
High-speed communication will impact research and
education.

Alan Finkel,
Chancellor, Monash Univ

What are we doing next?



- Adding new MURPA partners
 - National Centre for Supercomputing Applications (NCSA) @ UIUC (US)
 - Warwick University (UK)
 - Technion (Israel)

What are we doing next?



- Can we build a truly international university?
 - Discussion with UCSD, U Osaka,
 - Existing courses?
 - New courses?
 - What are viable topics in science and technology
 - Looking for win-win opportunities
 - What about topics in the arts and humanities?
 - Language?
 - Cultural outreach?
 - Art and Design?

Acknowledgements



- Stephen Welsh and Hector Bracho
- Stephanie Fahey and International office
- Teri Simas & PRAGMA
- Larry Smarr and CallIT2
- Mike Norman and SDSC
- Paul Bonnington, MeRC and Rob Gray
- UCSD Mentors
- MONASH ABROAD
- AARnet (Chris Hancock and Greg Wickham)
- ... the students



Monash professor David Abramson (center) accepts the award for High Performance Networking Applications on behalf of the Australian university and UC San Diego