

Program

Welcome to the School of Computing and Information Technology (SCIT) Trade Show and Research Showcase. The objective of this show is to present the software development work of our third year Computer Science and Information Systems project students to a wide audience. Students will be available to discuss their projects with you during this event. Much of this work has an industry focus and students will welcome your comments and feedback.

SCIT Research Centres and SCIT Higher Degree Research students are presenting displays and demonstrations from their specialist areas. Thank you for attending our Trade Show and Research Showcase. We hope you will find your visit worthwhile.

1:00pm

Welcome

Associate Professor Rodney Vickers
Associate Dean- Education
Engineering and Information Sciences

Opening Address

Adam Parkes
Computer Science Graduate
Head of Technology Arbidyne Capital

4:00pm

Trade Show Prize Presentation and Closing

Professor Willy Susilo
Head of School, SCIT

4:30pm

Refreshments for Trade Show participants in Building 3 Foyer

Key Note Speaker

Adam Parkes

Computer Science Graduate

Head of Technology Arbidyne Capital

Adam has recently started a new position with a finance firm called Arbidyne Capital as the Head of Technology. He developed his passion for real time systems and Ultra low latency algorithmic trading at Tibra Capital. Adam was perused by Tibra in his second last year of his degree and started with them in 2010.

While at university Adam worked for UOW ITS as an application programmer, Lab assistant, he was a tutor for CSCI204, CSCI222 and CSCI124 as well as being a PASS leader.

Prior to university Adam attained an Advanced Social Welfare Diploma specialising in Youth Work. The mix of computer science and social welfare has been a great strength for him in his career.

Adam is a business focused developer, with strong intra personal skills. Using his unique background and experience, he quickly advanced his career from graduate developer to Development Team Leader for Market Marking and High Frequency Trading. He and his team won the Tibra's innovation prize three consecutive times.

In his keynote speech Adam hopes to pass on some of his experience in the IT industry to give you a head start.

CSCI321 Project

This is a 12 credit point Software Project within the Bachelor of Computer Science degree. The subject develops the students' ability to define, design, program and document a non-trivial software project. At the beginning of each year, suitable projects are proposed by academics, sometimes relating to a research project, or by local businesses or organisations in need of some specific software.

Working in groups, students design, implement, test and document a software system solution to one of the proposed projects. This requires: project planning and scheduling, presentations, group coordination, research of proposed application domain, use of design methodologies, design documentation, coding, module and system integration, testing, verification, and implementation. Teams meet with their supervisors every week to discuss progress and problems. Team size is typically around 4 but can vary with the project.

In addition to the final product, each group is also required to produce precise project documentation that varies somewhat from project to project.

ISIT351 Project

The Information Systems Project subject provides students with practical experience in project management, in the design of real world ICT projects, team work and client interaction. At the beginning of the year clients are invited to present a 10 minute brief on an ICT project they would like performed. Students preference the projects and teams of 4-5 students are formed.

In the first half of the year the students negotiate the requirements with the client and produce extensive business analysis, design and planning documentation. In the second half of the year, the teams work with the client and subject coordinator to deliver specific ICT deliverables. These are as diverse as comparisons of existing software systems and their evaluation against requirements, prototypes that demonstrate proof-of-concept implementations to more elaborate end-to-end solutions.

CSCI321 Software Project

| Project Title | Group Members | Supervisor | Display No. |
|---------------|---|-------------|-------------|
| eShow | Man Pio Lei Mengzhe Wang Huicheng Xu Zhen Huang Guannan Yao | Luke McAven | 1 |

The Trade Show Management Toolkit provides an all-in-one solution to manage all aspects of a typical trade show. The software is specifically designed to be adaptive enough such that it can be adopted by any organizations who wish to host trade shows that are similar to the trade show hosted by SCIT in University of Wollongong. The software focuses heavily on end users and information management. Administrators can customize and run multiple trade shows concurrently. Each project group in the trade show can customize their project and group information and provide relevant documents. And finally, anyone is able to anonymously view the website and browse information about projects that are available to the general public. The software package also includes a tablet application for iOS devices that lets visitors view project information as well as providing a platform for judges and markers to mark and provide feedbacks for projects.

| Project Title | Group Members | Supervisor | Display No. |
|---------------|---|-----------------|-------------|
| Authors Aid | Zheli Jiang Jiajun Li Steven Rickert Kenneth Peake | Philip Ogunbona | 2 |

Authors Aid is a writing assistant for authors of fiction novels. It provides extensive management of character information, helping authors by storing the relationships, inventory, attributes and other important aspects of a characters history. Authors Aid provides an automated information gathering system, which will take character information as it is written, and also a manual addition system, allowing authors to tailor make their characters before they even start writing.

Along with the management of character information, the Authors Aid character management system also provides authors with a character information checking system, which will tell an author when their character is doing something that is at odds with what they have defined earlier. This gives authors an effective safety net, ensuring that their story is internally consistent with what they have already written.

Authors Aid is an open source extension for Apache OpenOffice Writer, which gives authors all the creature comforts that they expect while writing: Fonts, Formatting and full control over their writing.

CSCI321 Software Project

| Project Title | Group Members | Supervisor | Display No. |
|--|--|--------------|-------------|
| Tournament Manager - Referee Appointment Module | David King Zhao Kang Chenhao Wei Glen Wiltshire | Janusz Getta | 3 |

What started as an algorithm for appointing referees turned into a module built to be extended into a Tournament Manager. We investigated the market for tournament systems and there was no one system to do it all. We spoke to referees and assignors and found they used several different systems and all of them assigned referees to games by hand, taking hours each week. With our product, referee assignors and referees (of which you might find a few floating around today), will just need to insert the games, names and referee availability into our system, click a button, and the program will give them a few set selections which they can modify to give them a result of their choosing.

Although our product is a complete product and useful to the industry in itself, we decided to build it in an easily extensible way. The result is a complete tournament manager where teams can be inserted, competition matches generated automatically, with players then able to see their game details and late changes to matches pushing SMS notifications. The system is designed so game results, and penalty cards, if any, can be inserted by referees. Spectators and players can see the competition draw and watch the season unfold.

| Project Title | Group Members | Supervisor | Display No. |
|--|--|--------------|-------------|
| URAC Pool Availability & Management | Steph Roddis Philip Marell Tim Ellis | Janusz Getta | 4 |

This project aims to improve the experience of viewing and managing lane availability for pool guests and managers respectively. Previously, managing bookings used a physical diary, showing lane availability was in the form of a manually-updated web page, and email notifications were manually sent out.

Pool guests will be able to use an iOS application ("Lanes") to quickly get up to date on lane availability for the current moment in time. They can also opt-in to receive email and/or push notifications for changes in availability at selected intervals.

Managers can use a web-based interface which integrates adding bookings requested by organisations, managing their availability mailing list, and the ability to freely arrange lane arrangements.

CSCI321 Software Project

| Project Title | Group Members | Supervisor | Display No. |
|-------------------|--|------------|-------------|
| Leap Touch Typing | Dylan Beazley Kane Doyle Kody Baker Joshua Monebit Julian Martin | Koren Ward | 5 |

Leap Typing Tutor provides touch typing feedback like no other tutor on the market. By utilising Leap Motion technology users of all typing experience can expect to improve their typing skills. To achieve this we have designed Leap Typing with a simple style which appeals to newly starting typers, as well as experienced typers with poor typing habits

Traditionally, the teaching of touch typing is done through repetitive reinforcement learning. The main problem with this learning approach is it requires considerable time and work to do and is not very enjoyable.

The Leap Typing Tutor overcomes many of these difficulties by using the Leap Motion sensor to allow the user to play fun games that teach proper finger-character associations as a side effect of playing the game. The Oculus Rift enhances the learning experience by providing the student with a fully immersive 3D environment which engages the student during their lessons.

There are various levels which require the user to blast away characters with one or both hands using the both the Leap Motion or a standard keyboard.

| Project Title | Group Members | Supervisor | Display No |
|---------------|---|-------------|------------|
| Drvr | Kapil Haresh Vigneswaren Yeoh Hui Jia Dyalan Shanmugarajah Ng Shien Wee | Luke McAven | 6 |

Drvr (pronounced driver) is a Windows PC application designed to help people learn about cars. It's a fun, easy to use tool to teach you in an interactive way about cars and how they work. It even has a self quiz section to allow you to test your knowledge and understanding in a fun and engaging way.

Drvr will appeal to new drivers and to current drivers, people who want to know what the dashboard symbols mean and what an ABS (anti lock braking system) does for them. Among the parts of the car covered are the fuel system, engine cooling system and electrical system. Drvr highlights the safety systems available in most modern cars, illustrating how they can be useful in saving lives.

Go ahead; put yourself back in the driver's seat of your car.

CSCI321 Software Project

| Project Title | Group Members | Supervisor | Display No. |
|---|--|------------|-------------|
| Augmented Reality Interface for a Simulated Industrial Robot | Miles Tuffs Matthew Jones Nathan Green Tyson Bell Megan Irving | Koren Ward | 7 |

Programming robotic welds is slow and expensive. Hours can be spent on re-welding jobs because of intricacies in weld lines. Our program utilizes augmented reality to give the user a close up view of a simulated robotic welder performing a weld on a real object.

Current robotic welding is dangerous and requires an isolated cell for safety while operational, meaning no people can stand nearby a robotic welder to get a close look, our product takes away the safety restrictions, and speeding up the whole manufacturing process with an improved proofing tool.

Non-AR simulators require proximity to the factory or work cell, with our tool you can program, view and edit welds in your home or office and then export the weld to a real welding robot and have it completed.

The program also speeds up the robotic welding process, making it easier for small production runs, with less trial and error from manually programming the welds.

| Project Title | Group Members | Supervisor | Display No. |
|-------------------------|--|-------------|-------------|
| Cosmic Encounter | Trent Fasavalu William Buggy Joey Pellizzeri Jarryd Saffery Toby Lee | Luke McAven | 8 |

Build your galactic empire with Cosmic Encounter, an online game based off the iconic board game of the same name. You begin your space exploration and conquest with 20 ships, 5 planets and 4 opposing players of equal force.

Each player has a unique alien ability that breaks the traditional game rules. This results in an exciting and unpredictable game play that facilitates alliances, betrayals and revenge. Players take turns attacking and defending and can chat freely within the game to collaborate or simply taunt.

The objective of the game is to establish colonies in other players' planetary systems. The winner is the first player to have five colonies on any planets outside his or her home system. With a variety of alien abilities and limitless strategies Cosmic Encounter provides a memorable gaming experience that will put your skills to the test.

CSCI321 Software Project

| Project Title | Group Members | Supervisor | Display No. |
|---------------|---|-------------|-------------|
| Sound Odyssey | Jonathan Yip Adam Dahler Nicholas Herbert Omar Mohammad-Rahim Kieran Haavisto | Luke McAven | 9 |

Sound Odyssey is a space exploration themed music education game, targeted for the PC platform. The game teaches the basic concepts for both musical and piano theory through a fun and engaging learning accompaniment to people who are just starting or wanting to learn the piano. A player uses their own Musical Instrument Digital Interface (MIDI) supported keyboard / piano as the primary game controller, enabling them to learn and practice these concepts. The game acts as a teaching tool, comprising of tutorial, song levels and examination levels. The in-game examinations are based on components from the Australian Music Examination Board's (AMEB) syllabuses and exams, testing the overall performance of the player's skills and concepts taught within the game. The game furthermore assesses the player's accuracy, fluency, expression and ability in playing the piano and their knowledge of musical theory. Boom town is a framework that allows the distributed simulation of the growth of a human settlement such as a town.

| Project Title | Group Members | Supervisor | Display No. |
|---|---|-------------|-------------|
| Boom Town: A distributed town growth simulation framework | Damien Fialkowski Shannon Archer Luke Makin Beckett Nash | Gene Awyzio | 10 |

Boom town is a framework that allows the distributed simulation of the growth of a human settlement such as a town.

The work of the simulation itself is completed by a set of modules running in parallel, each handling a section of the work, e.g. a roads module, a population module, etc. The framework that the simulation is built upon contains a master program, which handles the timing of the simulation (ensuring all modules have completed one 'tick' before beginning the next), communication between modules, and data persistence (storing snapshots of the state of the settlement at a particular time). The framework also contains core module code that each module must inherit from, including a worker thread that completes the work of the simulation, and separate threads to handle sending and receiving requests for data from other modules.

Our primary goal was to create a well-tested extensible framework that a simulation can be built upon. Our secondary goal was to create a set of basic modules that demonstrate the use of the framework and a program to visualise the settlement created.

CSCI321 Software Project

| Project Title | Group Members | Supervisor | Display No. |
|--|---|-------------|-------------|
| Professor Alberton's Algorithmic Adventures | Benjamin Waters Jim Gollop Petros Mavridis Nicholas Judd | Gene Awyzio | 11 |

Algorithms and Data Structures are integral to the study of Computers Science.

The aim of this project is to implement a language agnostic learning tool which demonstrates visually the behaviours and uses of several key algorithms and data structures.

A key feature of the application is the fun and engaging approach we are taking in order to impart this foundational knowledge.

The application uses a mixture of humorous lessons, demonstrative puzzles and interactive games as a window into Computer Science.

ISIT351 Project

| Display Title | Student | Client | Display No. |
|--|---|------------------------|-------------|
| Access Community Group's Goal Tracker | Anuj Guliani Gowtham Kondetti Prabhjot Kaur Shashank Pandey Tim Mullen Vinay Sreedhara | Access Community Group | 12 |

This application is created for the clients and employees of Access Community Group so that they can create, monitor, and share their goals and achievements. This app will behave as their personal diary through which they can see their progress on a daily basis. Also, through this app, ACG would advertise their community and supply their monthly newsletter for marketing purposes.

| Display Title | Student | Client | Display No. |
|-----------------------------|---|--------|-------------|
| Public Health Portal | Celbert D'Mellow Benjamin Darbyshire Isaiah Gonzalez Jarrod Simpson Micheal Apostolopoulos Alex DeAudney | QPS | 13 |

Public Health Portal looks to empower hospice and palliative care organisations to gain richer analytical insights. Using the dashboard software and MySQL backend, public health portal allows for users to enter data into a web form or connect directly to a database. This data is then displayed in the dashboard and enabled the user to gain richer analytics and identify trends they did not know previously.

ISIT351 Project

| Display Title | Student | Client | Display No. |
|---|---|---|-------------|
| Engineering Across Cultures Research Database (EAC-R) | Sara Altalyan Robert Tester Joseph Bunworth | Tom Goldfinch and Ellyssebeth Leigh | 14 |

EAC-R Database project is a project that aims to design and construct a way of providing a single point of access to a wide range of resources about Aboriginal Engineering. This project is one of the major projects that are funded by the Commonwealth government' Office of Learning and Teaching. The important reasons for this project' aim is because the Australian Aboriginal cultures used a very strong engineering knowledge to manage the landscape which means to provide themselves with a healthy, safe and productive environment. However, the Aboriginal Engineering concept is not really obvious which it is such a major issue because it has been documented in a weak way. Therefore, the real business case issues of this project is referring to the lack of providing some innovative methods to reveal the resources regarding Aboriginal Engineering to other communities including students and academics in order to gain the idea of Aboriginal Engineering that indicates the principals and practices of the Aboriginal society.

| Display Title | Student | Client | Display No. |
|-------------------|---|--------|-------------|
| Online Speed-test | Chen Zhang Zijian Liu Zixu Wang Jing Zou | IMTS | 15 |

Students and staff complain that Internet access is not reliable in specific periods. For IMTS, a tool for quantitative network analysis is needed. In this project, system has been developed. It can test the upload and download speed of a connection by communicating with UOW servers. The system stores test records and these are displayed to users for comparison with the average speed. The average speed changes from time to time based on new test records.

ISIT351 Project

| Display Title | Student | Client | Display No. |
|-----------------------------------|--|-------------|-------------|
| Homestay Management System | Noel Lam Yat Meng Ang Kian Huat Sim Keat Ping Yeoh Keat Hong Yap Ee Jie Yap Yit How | UOW College | 16 |

Homestay places students from around the world with local Australian families for short and long term accommodation. Currently, all of these processes are completed manually. The system is required to facilitate in recording the administrative duties of the Homestay process and a back-end for matching students with homestay families. A user accounts system was designed for students, families and administration.

| Display Title | Student | Client | Display No. |
|--|---|---------------------------|-------------|
| Simulated Patient Management System Project | Sujadi Dwi Setiyanto Arya Putra Kurniawan Jeonghwan Lee Youn Kook Ha | UOW School of Medicine | 17 |

UOW Graduate School of Medicine (GSM) conducts the Simulated Patient (SP) Program to enable interaction between students and real people, to produce excellent medical practitioners. GSM currently run the program manually by using Microsoft Excel and manual processes. However, due to an increase in the number of SP integrations, the current SP management system is no longer effective and requires an upgrade.

U+Team has developed a solution to upgrade of current database and use a web-based application, this is supported with an SMS service.

The solution will enable admin to manage SPs account and their appointments into specific class(es) based on specific requirements (e.g. age, gender, medical history, and availability). It will also enable an SP to update their account details online. The system enables automatic booking reminders and a confirmation system using SMS.

ISIT351 Project

| Display Title | Student | Client | Display No. |
|------------------------------|--|-----------------------------------|-------------|
| Automated Tag Service | Drew Arthur Jamie Gahona Thomas Mossman Shuangtian Liang Xuan Ding | Commonwealth Bank of Australia | 18 |

The Commonwealth Bank MyWealth website has articles which have to be manually tagged by users and this is a limiting factor for their business, especially in regards to time efficiency for their employees. The aim of this project is to automate the generation of the tags based on the news content and develop a database that will map relevance between articles. The interaction of the project's services allows for articles to be pushed into it and have ranked relevant articles extracted from it. This project is designed using a RESTful approach so that it can be dropped into the client's existing environment with ease.

| Display Title | Student | Client | Display No. |
|---|--|--------|-------------|
| Event Based Mobile Phone Application | Yuwei Zhao Jialun Huang Rong Zhan Qiaochu Song Renjun Liu Yi Li | IMTS | 19 |

The event based mobile application focuses on public event or conference information. Users can view and manage the information on their own phone. The main functions include creating an event plan, as well as viewing transport and parking information. Staff can manage the user and event push notification details via an administration interface.

ISIT351 Project

| Display Title | Student | Client | Display No. |
|------------------|---|-----------------|-------------|
| UOWE KPI Project | John Pope Amie Wilson John Williams Ben Scollary Jay Itimate Pete Koutsoukos | UOW Enterprises | 20 |

Our team was tasked with improving the current process in which our client sources, collects, stores, interprets and reports their organisations suite of KPIs.

To address this issue we employed a number of sophisticated techniques to break down the issue into modular areas of focus into order to facilitate a more holistic approach to a solution; Data/Information Analysis, Application build, Error correction within current data framework and a Training package. It was necessary to balance a mix of organisational needs, wants, budget, risk appetite and project scope requirements to produce a product that would be adopted, engaged and utilised by all stakeholders and users across the organisation.

The end result of our project produced a comprehensive suite of data definitions, reporting channels, KPI roles, & component's; a viable platform agnostic dashboard system that facilitates KPI element entry, houses historical data and performs live trend analysis; transformed current COGNOS data point elements into more meaningful data; lastly a comprehensive training package and manuals that will allow smooth transition of roles and ensure business continuity.

We feel that our contributions have effected not just a significant process change to our client's organisation, but a paradigm shift in their current and future culture.

| Display Title | Student | Client | Display No. |
|--|---|---------|-------------|
| Westpac Technology Career Pathing Portal | Timothy Alexander Cornish Thomas William Llewelyn Jackson Oberg Madisson Holly Spanhel | Westpac | 21 |

BatLan has developed a web-based platform for Westpac. Due to drivers such as disruptive technologies; savvy customer expectations; changing workforce demographics and emerging skill requirements, greater focus is needed to develop an agile and innovative approach to managing their workforce.

Currently, individual team members do not understand their role and how its outputs contribute to the Westpac strategy. Career pathways across the Technology job family are poorly defined, incomplete and unusable resulting in team members not understanding their internal career options and often seeking an external move to advance their career. Taking the newly defined roles and capabilities as input, this project will deliver an engaging and informative technology career pathing portal.

ISIT351 Project

| Display Title | Student | Client | Display No. |
|----------------|---|--------------------|-------------|
| Crowd Tracking | Daniel John Isles Joseph Morris Benjamin Leslie Sellick Jonothan Stankovski Austin Doyle Thorne | Andy Leyden (IMTS) | 22 |

DiversIT has developed a tool to analyse WIFI data network access on the main Campus. The tool visualises congestion of users using the WIFI network in real time. It has been designed to identify the most popular areas by time of day and day of the week. This system will allow for greater understanding of where and when peak times of congestion are on the main campus. Using WIFI, anonymous data provide real time analytics and visualisation of movements and highly frequented areas.

| Display Title | Student | Client | Display No. |
|----------------|---|----------------|-------------|
| Wattle Project | Rory Chatterton Hannah Rose Davidson Shannon Kotey Filip Maravic Samuel Worne | Patrick Cookes | 23 |

Universities lack a formalised framework in which to Peer Review Educational Practice (PREP); a system in which to capture the complexities of the curriculum structuring, preparation and management that underpin best practice academic teachings. The introduction of such a system would improve teaching methodologies and assist in the collection of evidence for appraisal, leading to scholarships and promotions. The implementation of CircularMotion's system will foster high standards of teaching through the recognition of teaching excellence; promoting best teaching practice across university staff and highlighting peers of outstanding quality.

Circular Motion's system is built in the cloud, harnessing Amazon Web Services and is built upon the agile Django Python Web Framework. It is responsive across multiple device form factors, highly scalable and provides significant productivity increases for a process normally facilitated through hundreds of emails and phone calls.

ISIT351 Project

| Display Title | Student | Client | Display No. |
|--|---|--|-------------|
| Volunteering Illawarra eLearning Platform | Bruno Joseph Choulai Sahil Patel Aniruddha Shinde Fawad Farid Soomro Yi Sheng Tee | Shaun Sheirdan and Paul Kaiserfeld Volunteering Illawarra | 24 |

Volunteering Illawarra is moving to online training. Training may take place in real time or be part of a library of training modules that can be accessed as required. The project addresses the following outcomes:

- To develop on our website the ability to store training modules as part of an online library storage component which can be accessed by clients.
- To create the ability to film and deliver real time training so that people accessing it can see the trainer on their monitor i.e. webinars. On completion of a real time training workshop a copy of the talk will be emailed to participants and also stored in the online library. Our website needs to be able to accommodate online registration for real time training and allow for payment by credit card.
- For VI to be able to film all training and transfer this easily to our website

| Display Title | Student | Client | Display No. |
|----------------------|----------------------|--------------------------------------|-------------|
| Thirrourl Hub | Peng Wang Dong Xu | Thirrourl Neighbourhood Centre | 25 |

The Thirrourl Hub system is designed to support and assist service delivery and a variety of online functions as follows:

- Ability to register and pay for programs online.
- Apply for, renew and pay for membership online.
- A fundraising centre e.g. to hold silent auctions
- An event's organiser and registration with RSVP capability
- Information library for health, youth, mature age etc.
- Upload videos and access informative videos. Video content is an important aspect of fundraising, grant applications and marketing the centre to levels of government and funding bodies.
- To receive email messages and electronic communications
- Connect with our online blog, Facebook, twitter and Instagram accounts.
- To assist with creating a newsletter e.g. receive ideas and photos and display current and former newsletter.

Software Design Science

Display No. 26

SDS research focuses on complex software applications; that interplays with human and software as well as tuning existing methodological knowledge to develop them. Current research is on ontologies, agent based modelling, exploration and analysis of innovative system analysis and design and behaviour change support systems. Our research specialises in disaster management, health informatics, teaching and learning and early childhood applications. Some of these projects will be displayed.

Intelligent Systems Research Lab (ISRL)

Display No. 27

A Multiagent-Based Adaptive Resource Allocation System for Resource Deployment in Emergency

In metropolitan regions, emergency events request urgent response within a short time limit in order to minimise the damage and the number of fatality. Most of these events require different resources that are usually distributed over a large area. How to efficiently allocate the distributed resources to an event is a challenging research issue. Traditional centralised resource allocation approaches have difficulties to find out the best resource assignment within the event's time limits by considering the dynamics of the metropolitan environment and the event itself. In this project, a multiagent-based decentralised resource allocation approach using domain transportation theory is proposed to handle an emergency event with multiple tasks. The project demonstration indicates that the proposed approach can effectively generate the optimal resource allocation plans by considering multiple factors of an emergency event.

Centre for IT Enabled Transformation

Display No.28

Centre for IT-enabled Transformation is a centre of researchers investigating the IT-enabled transformation of human society. Information technology is one of the most significant forces shaping all aspects of modern society. Consequently, there is a great need to better understand and more effectively manage the IT-enabled transformation processes. Our goal is to make a positive impact in this direction in the key areas including e-health, e-government, e-business and e-community. The four objectives of the centre are:

1. Improving the ERA ranking of Information Systems discipline in UOW (0806) from 3 to 4 in three years
2. Increasing external funding Success
3. Improving the standing and global recognition of information systems research undertaken at UOW
4. Increasing the number of HDR completion.

Our display will showcase the current grants and projects undertaken by the centre members, the staff members and HDR candidates.

Advanced Multimedia Research Laboratory

Display No. 28

The use of media – images, video, speech, audio, text and data – pervades every aspect of modern economy including health, surveillance, mining, finance, education, e-commerce, etc. Work at the Advanced Multimedia Research Lab is focused on the application of pattern recognition and machine learning techniques to develop innovative solutions in environmental surveillance, object search and retrieval, human gait analysis and human brain network connectivity discovery. For example an ongoing research is solving the problem of human activity recognition for both closed and open spaces using RGB+Depth cameras. Another thrust of our work is developing theories and techniques that will transform the way we represent and search for images of objects on the Internet. We have developed a method of detecting smoke from both static images and video sequences using commodity cameras. This method has become the basis of an early fire warning system. Our work in brain network connectivity discovery is targeted at early diagnosis of Alzheimer's diseases and the promotion of graceful ageing. Osteoarthritis is a degenerative disease and rehabilitation can be monitored through clinical gait analysis – algorithms being developed in our Lab will become complementary diagnostic and monitoring tool for clinicians.

Display No. 30

Decisions Systems Research Lab

Display No.30

Clinical Process Analytics

There is a growing need for bespoke techniques that leverage the data collected in the course of the practice of medicine to generate critical insights. While a (preliminary) body of work exists in mining historical records of treatments administered, much of the focus has been on generating insights from correlations between what treatments were administered and clinical outcomes. This project seeks to take the next critical step in this progression by developing techniques to leverage correlations between how treatments were administered and clinical outcomes.

Centre for Computer and Information Security Research (CCISR)

Display No.31

Privacy Preserved Online Shop

CCISR was established in 1991 and is one of the best security research centres in Australia. The research results from the Centre have been widely cited and applied in practice. The Centre currently has seven staff and twenty PhD students. The Centre's research has been continuously funded by Australian Research Council and industry such as DSD, DSTO, Microsoft, etc. during the past 23 years. CCISR's research covers many important topics in computer and information security, including, RFID security, authentication, access control,

intrusion detection, cloud security, biometrics, and cryptography.

In this display, we will demonstrate the research result of preserving privacy in online shops, where the customer identities can be protected without being disclosed to the shop. The display is based on our recent work on subset membership encryption and a new scheme of oblivious transfer. The scheme has been proven to be secure against malicious online shops and other potential adversaries.

Post Graduate Research

Centre for IT-Enabled Transformation

| Poster Title | Student | Supervisor | Poster No. |
|--|-------------------------------------|--------------------------------------|------------|
| A Multi Perspective Approach for Understanding the Determinants of Cloud Computing Adoption among Australian SMEs | Salim Alismaili Ph.D. | A/PR Jun Shen Dr. Mengxiang Li | 32 |
| Public Value Creation through Social Media Networks: Multi-methods research on Indonesia's disaster management agencies | Uuf Brajawidagda | Dr Akemi Chatfield | 33 |
| A Trust Model for Trust Establishment and Management in Business-to-Consumer E-Commerce | Cong Cao Ph.D.(Integrated) | Dr Jun Yan Dr Mengxiang Li | 34 |
| Exploration of Chinese perception of the quality of data collection processes in public health information systems | Hong Chen | A/PR Ping Yu Dr David Hailey | 35 |
| The Paradoxical Effect: Wearable Technologies, Exponential Growth & Privacy | Alexander Hayes Ph.D. | A/PR Katina Michael | 36 |
| Cloud Computing Data Breaches: A Socio-Technical Approach | David Kolevski Ph.D.(Integrated) | A/PR Katina Michael | 37 |
| Flood Modelling: Using Geo-Social Intelligence | Kun Yang Ph.D | Pro. Katina Michael Pro. Jun Shen | 38 |
| Self-regulated oriented learning path for supporting seamless learning | Alva Muhammad | A/PR Jun Shen | 39 |

Post Graduate Research

Advanced Multimedia Research Lab

| Poster Title | Student | Supervisor | Poster No. |
|--|-------------------------------------|---|------------|
| Vision-Based Postural Assessment of Upper-Body | Zewei Ding Ph.D. | A/PR Wanqing Li Prof Philip Ogunbona | 40 |
| Visual Instance Retrieval With Deep Convolutional Networks | Zhimin Gao Ph.D. (Integrated) | A/PR Lei Wang Dr Luping Zhou | 41 |
| ConvNets-Based Action Recognition from Depth Maps Through Virtual Cameras and Pseudocoloring | Pichao Wang Ph.D. | A/PR Wanqing Li Prof Philip Ogunbona | 42 |
| Kernel representation for action recognition | Jianjia Zhang Ph.D. (Integrated) | A/PR Lei Wang | 43 |
| Creation and Evaluation of a Large Scale RGB-D Action Dataset | Jing Zhang Ph.D. (Integrated) | A/PR Wanqing Li Prof Philip Ogunbona | 44 |
| Learning Structural Dictionary based on Inter-class Similarity and Representative Margins | Yuyao Zhang Ph.D. | Prof Philip Ogunbona A/PR Wanqing Li | 45 |
| Affine-Invariant Deep Matching for Image Dense Correspondence | Yan Zhao Ph.D. (Integrated) | A/PR Lei Wang | 46 |
| Learning an Action Lexicon | Lijuan Zhou Ph.D. (Integrated) | A/PR Wanqing Li Prof Philip Ogunbona | 47 |
| Visual Concept-based Image Retrieval | Weitao Zhou Ph.D. | Dr Lei Ye A/PR Markus Hagenbuchner | 48 |

Post Graduate Research

Centre for Computer and Information Security Research

| Poster Title | Student | Supervisor | Poster No. |
|--|--------------------------------------|---|------------|
| A Practical Treatment on Keyword Privacy in Encrypted Data Searching | Rongmao Chen Ph.D. | Prof. Yi Mu | 49 |
| Two stories, two protocols: Broadcast Encryption with Dealership and Online/Offline Ciphertext Attribute-Based Proxy Re-Encryption | Clementine Gritti Ph.D. | Prof. Willy Susilo Thomas Plantard | 50 |
| Short Ciphertext-Policy Attribute Based Encryption with Fine-Grained access control | Yinhao Jiang Ph.D. | Prof. Willy Susilo Prof Yi Mu | 51 |
| Functional Encryption By Encodings | Jongkil Kim Ph.D. (Integrated) | Prof Jennifer Seberry Prof. Willy Susilo | 52 |
| Improved Identity-Based Online/Offline Encryption | Jianchang Lai | Prof Yi Mu Fuchun Guo | 53 |
| Efficient Oblivious Transfer with Retrievable Receiver's Privacy | Weiwei Liu Ph.D. | Prof Yi Mu Dr Guomin Yang | 54 |
| Attribute Base Broadcast Encryption with Short Ciphertext and Decryption Key | Tran Viet Xuan Phuong Ph.D. | Prof Willy Susilo Dr Guomin Yang | 55 |
| Post Quantum Cryptograhpy | Arnaud Sipasseuth | Prof Willy Susilo | 56 |
| Privacy-preserving grouping proof with key exchange in the multiple-party setting | Yangguang Tian Ph.D. (Integrated) | Dr Guomin Yang | 57 |
| Anonymous Proxy signature with Hierarchical Traceability | Jiannan Wei Ph.D. (Integrated) | Dr Guomin Yang Prof Yi Mu | 58 |

Post Graduate Research

Centre for Computer and Information Security Research

| Poster Title | Student | Supervisor | Poster No. |
|--|----------------------------------|-------------------------------|------------|
| Proxy signature with revocation | Shengmin Xu | Prof Yi Mu Dr Guomin Yang | 59 |
| A Group Handshakes Scheme using in VANET | Zhongyun Yao Ph.D(Integrated) | Prof Yi Mu Dr Guomin Yang | 60 |
| Threshold Broadcast Encryption with Keyword Search | Shiwei Zhang | Prof Yi Mu Dr Guomin Zhang | 61 |

Post Graduate Research Centre for Intelligent Systems

| Poster Title | Student | Supervisor | Poster No. |
|---|---------------------------|--------------------------------------|------------|
| A Broker-Based Optimal Matching Approach of Buyers and Sellers for Multi-Attribute Exchanges in Open Markets | Dien Tuan Le Ph.D. | Prof. Minjie Zhang Dr Fenghui Ren | 62 |
| Computational Approaches for Coordinating Concurrent Multiple Negotiations | Lei Niu Ph.D. | Dr Fenghui Ren A/PR Minjie Zhang | 63 |
| GPU massive paralleled programming for a large scale learning problem | Van Tuc Nguyen Ph.D. | A/PR Markus Hagenbuchner | 64 |
| A Hybrid-learning Based Broker Model for Strategic Power Trading in Smart Grid Markets | Xishun Wang Ph.D. | Prof. Minjie Zhang | 65 |
| Enhance Human Computer Interface with Electrotactile Feedback | Daniel Pamungkas Ph.D. | Dr Koren Ward | 66 |
| A Multiagent-Based Domain Transportation Approach for Optimal Resource Allocation in Emergency Management | Jihang Zhang Ph.D. | A/PR Minjie Zhang Dr. Fenghui Ren | 67 |

Post Graduate Research

Decision Systems Laboratory

| Poster Title | Student | Supervisor | Poster No. |
|---|---------------------------|-------------------------------------|------------|
| Mining Requirements from Open-Source Software Development | Daniel Avery Ph.D. | Dr Hoa Dam Prof Aditya Ghose | 68 |
| Characterization and prediction of issue-related risks in software projects | Morakot Choetkiertikul | Dr Hoa Dam | 69 |
| Online Integration of Fragmented Semi-Structured Data | Handoko Handoko Ph.D. | Dr. Janusz Getta | 70 |
| Optimization of Query Processing with Multilevel Storage | Nan Noon Noon | Dr. Janusz Getta | 71 |
| Clinical process analytic: from synthetic to real data | Bakhtiar Sadeghi Ph.D. | Prof Aditya Ghose Dr Hoa Dam | 72 |
| Mining Process Task Post-Conditions | Metta Santiputri Ph.D. | Prof Aditya Ghose Dr Hoa Dam | 73 |
| Failure-oriented testing: Web applications | Elmin Selay Ph.D. | Dr George Zhou Prof Willy Susilo | 74 |

Post Graduate Research Software Design Science

| Poster Title | Student | Supervisor | Poster No. |
|--|-------------------------|----------------------|------------|
| Real time multi agent systems platform | Amir Ashamalla | A/PR Ghassan Beydoun | 75 |
| Learning Through Online Social Interactivity | Matt Halliwell Ph.D. | Dr Mark Freeman | 76 |
| An agent-based knowledge analysis framework in disaster management | Dedi Iskandar Inan | A/PR Ghassan Beydoun | 77 |
| Application of MBSE(Model based Systems Engineering) Methodologies and tolls to bring more transparency into the contracting of large and complex infrastructure systems | Farid Shirvani Ph.D. | Prof. Peter Campbell | 78 |

Post Graduate Research

Other Research Areas

| Poster Title | Student | Supervisor | Poster No. |
|---|---------------------------|---|------------|
| Geolocating an area specific synthetic population into dwellings | Ajith Jayasekare Ph.D. | Prof. Pascal Perez Dr Mohammad- Reza Namazi-Rad | 79 |
| The Impact of Implementing Virtual Reality Worlds for Safety Training in the context of Mining Industry | Shiva Pedram Ph.D. | Prof. Pascal Perez A/PR Stephen Palmisano | 80 |
| Development and Empirical Validation of a Stakeholder Value Driven Framework for Evaluating Big Data Portals in Government | Wisam Al-Zubaidi Ph.D. | Dr Akemi Chatfield | 81 |
| Fully Homomorphic Encryption using Hidden Ideal Lattice with Public Key Compression | Zhunzhun Chen | Prof. Willy Susilo Dr Thomas Plantard | 82 |
| Semantic Effect Annotation of business process models | Kerry Hinge | Prof Aditya Ghose Dr Hoa Dam | 83 |
| Data Mining to Identify the Relationship between Effective Use of EHR and Risk Management for Resident Safety in Australian Aged Care Homes | Tao Jiang Ph.D. | A/PR Ping Yu DR Jun Ma | 84 |
| An Access Control Mechanism for patients, healthcare professionals and healthcare organisations | Sao Ian Leong Ph.D. | Dr Khin Than Win Prof Willy Susilo | 85 |
| Automatic Test Case Prioritization | Chen Liu Ph.D. | Dr George Zhou | 86 |
| Technological contribution to end- user vulnerability | Lindsay Robertson | A/PR Katina Michael Dr A Manoz Aneiros | 87 |

Post Graduate Research

Other Research Areas

| Poster Title | Student | Supervisor | Poster No. |
|---|--------------------------------------|---------------------------------------|------------|
| Decision Making during Natural Disaster through Visualisation using Social Image Data | Asslam Umar Ali Ph.D.(Integrated) | A/PR Katina Michael | 88 |
| Policies for Information and Cyber Security | Junhua Zhang | Dr William Tibben Dr Khin Than Win | 89 |

