

NZCSRSC 2011

The New Zealand Computer Science Research Student Conference (NZCSRSC) was held at Massey University, Palmerston North from 18–21 April 2011. Organised and implemented by a team of 10 Massey postgrad students, there were over 80 attendees from six New Zealand universities, three companies and two professional organisations. There were three keynotes, eight workshops, 30 student talks and 14 Poster presentations.

The keynotes started with **Jonathon Marshall** talking about his experiences as president of the XBMC Foundation, a non-profit organisation dedicated to directing and developing the open-source media center XBMC. He discussed the challenges of managing a distributed team of volunteer developers from around the world. **David Brebner**, founder and CTO of local technology business Unlimited Realities, was the second keynote. He talked about building the next generation user experience, and how things are moving in user interface design. The final keynote, **Sebastian Marino**, discussed his move from the movie industry to digital fabrication in the fashion industry. He talked about the way fabric can be simulated and designed in software, and how simulating aesthetics can improve design.

The workshops provide a chance to discuss issues relating to academia and research. More a dialog than a presentation, they are traditional NZCSRSC highlights—a place where knowledge and experience can be freely accessed. Workshops included reprised roles from last year's conference by **Ian Witten** discussing publication, **Tim Bell** talking about time management, and **Alex Potanin** helping students present work in posters. These were supplemented by local talent: **Stephen Marsland** discussed research careers, **Jens Dietrich** shared his experience of industry and academia, **Hans Guesgen** demonstrated how not to present, **Giovanni Moretti** helped students with thesis writing, and **Ben Wilde** from Unlimited Realities answered questions about business, research and technology.

The conference's core goal is to create and foster a community of postgraduate computer science students, allowing the sharing of knowledge and experience to encourage and support research. It included social events such as a powhiri and performance from local group Te Waiora at the Massey welcome dinner, a Pingar quiz night created by **Jevon Wright**, and an IET industry night where companies can interact with students.

The central aspect of the conference is the presentation of students' work. Students presented posters and gave talks on a broad range of computer science topics. All were well received, and sparked questions and discussion about research. The best poster award went to **Paul Schmieder** of Auckland University for "Intelligent Sketch Editing"; the best paper

presentation award was a tie between **Juan Rada-Vilela** of Victoria University for "Evolution of Morphology and Behavior of Virtual Creatures: A Model based on Swarm Intelligence and Artificial Neural Networks" and **Sook-Ling Chua** of Massey University for "Unsupervised Learning of Patterns In Data Streams using Compression and Edit Distance".

The conference was made possible by sponsorship from Massey University, IET, Pingar and Unlimited Realities, as well as NZ's computer science departments. I would also like to thank the local contacts at universities, the conference organising committee **Ayesha Hakim, Fahim Abbasi, Yuliya Bozhko, Jevon Wright, Ann Malsha De Silva, Linda Chua, Le Thu Nguyen, Amissa Arifin and Nick Taylor**, our conference mentor **Hans Guesgen**, administrative assistants **Michelle Wagner and Dilantha Punchihewa**, and finally **Ian Witten**, "father" of the conference.

NZCSRSC's real value lies in the interactions that occur between participants rather than in publications or presentations. Its continued success relies on attendance and support from industry and academia in New Zealand. Its rewards are invaluable for postgraduate students, and for the computer science research community as a whole. Please promote and attend NZCSRSC 2012 at Otago University.

Graham Jenson, General Chair

More info: <http://seat.massey.ac.nz/nzcsrsc2011>

..... another excellent NZCSRSC conference! Our community owes a big debt to **Graham Jensen and his team from Massey University** for organizing this event. (Let me mention in particular **Ayesha Hakim**, who did a lot of work but missed the conference because she had to return home for a while.) It was great to see such a large group of young and active NZ Computer Science researchers come together for work—and play. We all know the hard work that goes into organizing conferences, and this one went off without a hitch. On behalf of all attendees, I would like to say that it was a privilege to have had the opportunity to participate in NZCSRSC 2011, and I pass on from all of us a great big thank-you to the team who organized it. Those of you who didn't come—you don't know what you're missing!

By the way, I have heard concerns that by presenting at NZCSRSC a student may sacrifice the opportunity to submit their work to a subject-specific conference. In fact, this is not the case. NZCSRSC is a local meeting that does not preclude publication elsewhere. The Proceedings are not published—on the web or anywhere else.

Otago University are planning to host the conference in 2012. It relies on the continued support of CoDs across the country, who contribute towards the cost. See you in Dunedin!

Ian H. Witten

Victoria

News

Victoria University Lecturer Elected Co-Chair of APNIC Policy Special Interest Group

At the recent APNIC conference, Victoria University academic **Andy Linton**, was elected Co-Chair of the APNIC Policy Special Interest Group (SIG). With the imminent exhaustion of IPv4 addresses and the adoption of the replacement IPv6, Andy will play an active role in ensuring sound policy is in place.

Awards and Prizes

PhD Student **Ben Palmer** won “Best Student Paper and Best Paper” at this year’s Australasian Information Security Conference for his paper “Development and Evaluation of a Secure, Privacy Preserving Combinatorial Auction” and was co-written with his supervisors **Kris Bubendorfer** and **Ian Welch**.

Ben Haughey, a Master of Engineering student who is researching Robotic Manipulator Optimisation for his ME project, was recently awarded best student (novice) presentation prize at the Electronics New Zealand Conference 2010 for his paper titled “Simulation and Optimisation of a 2-DOF Parallel Planar”.

2010 Prime Minister’s Science Prize Awarded to the Magnetic Resonance Innovation Team

The Prime Minister’s Science Prize is awarded for a transformative science discovery or achievement which has had an impact in New Zealand or internationally. Of the \$500,000 prize money, \$400,000 is for furthering the team’s research. The prize was presented by the Prime Minister, Rt Hon John Key, on Friday 26 November, in Auckland.

The team, led by **Sir Paul Callaghan**, consists of: **Robin Dykstra**, Senior Lecturer in the School of Engineering and Computer Science at Victoria; **Mark Hunter**, Research Fellow in the School of Chemical and Physical Sciences at Victoria; **Andrew Coy**, a physicist and Chief Executive Officer of technology company Magritek; and **Craig Eccles**, a physicist and Chief Technology Officer at Magritek.

Mansoor Shafi, adjunct professor at the School of Engineering and Computer Science, has been named co-recipient of the 2011 IEEE Donald G. Fink Prize Paper Award.

This year, along with **Andreas F. Molisch** and **Larry J. Greenstein**, Mansoor has been presented the award for the paper entitled: “Propagation issues for Cognitive Radio,” Proceedings of the IEEE, Vol. 97, No. 5, May 2009.

Henry Williams has won a prize in Victoria University’s

Summer Gold Scholars Poster Competition, for his poster titled “Simultaneous Localisation and Mapping: SLAM.” Henry’s work over the summer involved researching the problems robots have navigating unknown environments, and seeking ways to improve their performance, using a technique called SLAM.

Seminars

John McCabe, Uni of Western Australia

On the Succinctness of RoCTL

Mark Poletti, Industrial Research Ltd

Spatial Sound Reproduction Systems Using Higher Order Loudspeakers

Terence Betlehem, Industrial Research Ltd

A constrained Approach for Multi-zone Surround Sound

Stephen Marshall, Teaching Development Centre, Victoria Uni

The Programme Development Approach

Ramesh Rayudu, Massey Uni

Power Electronics in Residential Power Quality to Robotics – Influencing the Government as a Side Effect

Greg Luck, Founder and CTO of Ehcache, Terracotta Inc

The Essence of Caching (JUG Seminar)

Neal Glew, Intel

Vectorisation in a Functional Language Compiler

Chris Cook, Uni of Wollongong

Engineering the Future through Manufacturing Research

Jules Congalton, Massey Uni

The Role of Team Diversity in Software Development

Productivity in New Zealand: A Mixed Methods Investigation

Xinghuo Yu, IEEE Fellow

Knowledge-Based Decision Support Systems for Industrial Applications

Neil Dodgson, Uni of Cambridge

Multi-View Autoscopic 3D Displays

Scholarships

Victoria PhD/Doctoral Scholarships, Nov 2010

Michael Homer Victoria PhD Scholarship

Roman Klapaukh Vice Chancellor’s Strategic PhD Scholarship

Yu Ren Victoria Doctoral Scholarship

Shahida Jabeen Victoria Doctoral Scholarship

Praveen Choppala IRL PhD Scholarship

Victoria Doctoral Scholarships, Mar 2011

Ramoni Adeogun

Arindam Bhakta

Yingnan Cong

Muhammad Khan

Victoria Masters By Thesis Scholarships, 2010

Yi-Jing Chung

Dayna-Maree Kivell

Abigail Rajendran

ACM Student Travel Grant, 2011

Urvesh Bhowan

Su Nguyen

Juan Rada-Vilela

PhD Theses

Kyle Chard—*DRIVE: A Distributed Economic Meta-Scheduler for the Federation of Grid and Cloud Systems.*

Rashina Hoda—*Self-Organizing Agile Teams.*

Adrian Jongenelen—*Development of a Compact, Configurable, Real-Time Range Imaging System.*

MSc Theses

Yu Ren—*Analysis and Implementation of Reinforcement Learning on a GNU Radio Cognitive Radio Platform*

Johnny Mc Clymont—*The Development of Extrospective Systems for Mobile Robotic Vehicles*

Frank Schmager—*Evaluating the GO Programming Language with Design Patterns*

Alan Kinzett—*Numerical Simplification and its Effect on Fragment Distributions in Genetic Programming*

Stephen Winch—*The Redesign and Implementation of a Reliable Robotic Pipe Inspection System*

Suzan Hall

Auckland

News

Gibbons Lectures 2011 – Applying Computer Power

Ian Foster, Uni of Chicago. Apl.

Computing outside the box

Mark Gahegan, Uni of Auckland. May.

eResearch in New Zealand

James Goodman, Uni of Auckland. May.

Co-operating computers – problems and prospects

John Morris, Uni of Auckland. May.

Attached Processors for Real-time Application

Autumn Graduation was held on Wed 4 May with two Science ceremonies. We celebrated the graduation of eight PhD's in these ceremonies.

Appointments

Samuel Chang and **Habib Naderi** took up positions as research programmers.

Currently interviewing for two lecturer positions.

Awards, Scholarships, Prizes

Reinhard Klette received funding from Auckland Regional Transport Authority for a project entitled *Enpeda Road Safety Education Course*.

Georgy Gimel'farb has been appointed to serve on the Advisory Committee of the International Association for Pattern Recognition (IAPR).

Alexei Drummond received funding from Massey Uni for the Model Ecosystem for New Zealand pilot project.

Koray Atalag was awarded an ACHI (Australasian College of Health Informatics) fellowship in 2010 and attended the ceremony. The Australasian College of Health Informatics is the professional body for Health Informatics in the Asia-Pacific Region. ACHI sets standards for education and professional practice in Health Informatics, supports initiatives, facilitates collaboration and mentors the community.

Brian Carpenter was “In Conversation with Noel Cheer” on Triangle/Stratos Television. The interview appeared on Triangle Television on Wed 24 Nov, 7:00pm and Stratos Television on 29 Mon Nov at 8:30pm.

Jonathan Rubin (PhD student) and **Ian Watson** have been invited by the steering committee for the Annual Computer Poker Competition to co-chair for the coming year’s competition.

Bakh Khoussainov's collaboration with researchers at Stevens Institute of Technology was highlighted in an article on the e web.

More info: <http://www.pr.com/press-release/278734>

Biomatters won one of the three Entrepreneurship Challenge awards in 2010.

The Clinton Bedogni Prize for Open Systems, administered by the Department of Computer Science, was awarded to **Robert O’Callahan** at the New Zealand Open Source Awards.

James Goodman has been invited to become an ACM Fellow.

Alexei Drummond was awarded one of ten Rutherford Discovery Fellowships.

Reinhard Klette was invited to be a keynote speaker at the International Conference on Electric Information and Control Engineering, which was hosted by Huazhong Uni of Science and Technology, and was held in Wuhan, China, 15-17 Apr.

Gill Dobbie and her co-authors will be awarded the DASFAA 10+ Year Best Paper Award which recognizes the best paper from the DASFAA proceedings 10 years prior, based on the criterion of identifying the paper that has had the most impact (research, products, methodology) over the intervening decade.

Seminars and Events

Oct 2010

Hui Ma, Victoria Uni of Wellington.

A Geometrically Enhanced Conceptual Model and Query Language

Michael J. Dinneen, Uni of Auckland.

The Evolution of P Systems, to Hyperdag P Systems, to P Modules

Thomas Forster, Cambridge University, UK.

Yablo's Paradox

Alexander Melnikov, Uni of Auckland.

Exotic properties of computable abelian groups

Mark Wilson, Uni of Auckland.

What is Computational Social Choice?

Daniel Bertinshaw, Uni of Auckland.

Using Multi-Agent Based Middleware to Implement a Distributed Peer-To-Peer Semantic Service Oriented Architecture

Frank Stephan, National University of Singapore.

Automatic Structures and Model Theory

Huiling Wu, Uni of Auckland.

Edge-and node-disjoint paths in P systems

Masoud Khosravani, Uni of Auckland.

Hardness of Approximation and Integer Programming

Framework for the Spanning Caterpillar Problem

Nov 2010

Mahdi Rezaei, Uni of Auckland.

Review on Driver Distraction Studies

Richard Torkar, Blekinge Institute of Technology, Sweden

Gerald Weber, Uni of Auckland.

Abstraction Layers within the User Interface

Tamas Sziranyi, Computer and Automation Research

Institute (SzTAKI), Hungarian Academy of Sciences (MTA),
Budapest, Hungary.

Part and the whole: Relations in the scene of sensors' measurement space

Warren Jin, CSIRO.

Towards Detecting Adverse Drug Reactions from Administrative Health Databases Systematically

Ing. Annika Wagner, Fachbereich Angewandte Informatik,
Department of Applied Computer Science Hochschule Fulda,
Uni of Applied Sciences, Germany.

Annika Wagner's Research

Wanlei Zhou, Deakin Uni, Melbourne, Australia.

Finding the real source of Internet crimes

Feb 2011

Gem Stapleton, Uni of Brighton, UK.

Concept Diagrams for Ontology Modelling: Design, Formalization and Reasoning

Wang Han, Nanyang Technological University Singapore.

Fast obstacle detection for USV using stereo vision

Jozef Gruska, Faculty of Informatics, Masaryk Uni, Brno,
Czech Republik.

PHYSICS and INFORMATICS as two windows to see, explore and understand the world

Anko Börner, German Aerospace Center, Berlin, Germany.

Real-time dense stereo mapping for multi-sensor navigation

Melanie Siebenhaar, Technische Uni Darmstadt, Germany.

Cloud Computing Insights and Selected Research Challenges

Di Sun (Final report about MDc project). Uni of Auckland.

GPS and Lane Detection for Accurate Trajectories in Vision-Based Driver Assistance

Kun Ju (780 project student), Uni of Auckland.

Prediction Error Analysis on Slow Motion

Tahir Mehmood (PhD Student), Uni of Auckland.

Internet Multicast Protocols with Low cost and better Efficiency

Mar 2011

Neal Glew, Intel Corporation.

Vectorisation in a Functional Language Compiler

Lei Zhong (MSc student), Uni of Auckland.

Protecting Data on Service Providers

Haokun Geng (Final report about MSc project). Uni of Auckland.

Track Recognition System for Environmental Surveillance

Bakhadyr Khoussainov, Uni of Auckland & Auckland Uni of Technology.

Update Games

Paul Denny, Uni of Auckland.

CodeWrite – Supporting Student-Driven Practice of Java

Kai-Kristoph Fehrs, TU Hamburg-Harburg.

Stereo Vision using Spherical Images

Bok Suk Shin (visiting post-doc from Busan, Korea).

Pattern Recognition Using A Fuzzy Weights Decision Method based on Degree of Contribution

Koray Atalag, Uni of Auckland.

Shared Health Information Platform – SHIP

Ludwig Staiger, Martin-Luther-Universitat Halle-Wittenberg.

Hausdorff Dimension and Constructive Dimension: The Case of Exact Dimension

Sandino Morales, Uni of Auckland.

A Kalman filter-based approach for improving disparity values for image sequences

Robin Hankin, School of Computing and Mathematical Sciences, AUT.

Getting Something for Nothing: The Emulator

Jacob Bellamy-McIntyre, Uni of Auckland.

OpenID and the Enterprise: A Model-based Analysis of Single Sign-On Authentication

Apl 2011

Rachel Blagojevic, Uni of Auckland.

Using Data Mining for Digital Ink Recognition

Simon Hermann, Uni of Auckland.

Accumulation strategies for semi-global stereo matching (SGM)

Mark Utting, David Streader, Uni of Waikato, and NetValue Ltd, **Rick Mugridge**, Owner, Rimu Research.

Tool Support for Test Automation as Example-Based Specifications

Robert Amor, Uni of Auckland.

Bon weekend; Reflections on a year's sabbatical at EPFL, Switzerland

Georgy Gimel'farb, Uni of Auckland.

Intelligent Vision Systems NZ: Recent achievements in theory and practice

Andre Nies, Uni of Auckland.

Randomness and Computable Analysis

May 2011

Carl Schultz, Cognitive Systems Group (CoSy) Uni of Bremen.

The 'Space' in DesignSpace

David Berry, Controlvision Pty Ltd. Auckland.

VisionServer Software at ControlVision

Visitors

Kari Kolehmainen, VTT Finland. Nov 10-Sep 11.
(Manoharan).

Richard Torkar, Blekinge Institute of Technology. Oct 10-Apr 11. (Tempero).

Annika Wagner Hochschule Fulda, Uni of Applied Sciences, Germany. Nov 10-Feb 11. (Hosking).

Raul Rojas, Free University Berlin. Dec 10-Jan 11. (Weber).
Anko Börner, German Air and Space Institute. Jan-May 11. (Klette).

Bok Suk Shin, Busan National Uni. Jan 11-Jul 12. (Klette).

Kai-Kristoph Fehrs, Hamburg University of Technology – Jan-Jul 11. (Klette).

Warwick Irwin, Uni of Canterbury. 1-14 Feb. (Tempero).

Alexei Miasnikov, 7 Feb-7 Mar. (Khoussainov).

Marc Suchard, 14-18 Feb. (Drummond).

Nicola Dal Ferro from University of Padua, Italy. Feb-Jun. (Delmas).

Ludwig Staiger, Martin-Luther-Uni Halle-Wittenberg. 4-24 March. (Calude).

Mike Stay, Google, Mountainview. 5-25 March (Calude).

Iskander Khalimulin. 2-23 Apr. (Khoussainov).

Singthong Pattanaseethanon, Jakkit Junsiri and Vithaya

Chamnanphai, Mahasarakham Uni, Mahasarakham,

Thailand. Apl-June. (Morris).

Ferran Diego. Uni Autonoma de Barcelona. May-Aug 11. (Klette).

PhD Theses

Fu'Ad Al Tabba—*A study of Hybrid Transactional Memory*

Richard (Lei) Li—*Process Integration Support*

Norhayati Mohd Ali—*Critic Specification for Domain-Specific Visual Language Tools*

Guocai (Jose) Chen, *Semantic Space Models for Classification of Consumer Webpages of Metadata Attributes*

Matthias Krueger—*Segmentation of Surfaces Using Active Contours*

Tobi Vaudrey—*Driving Assistance Software*

Joseph Heled—*Modeling the Interface between Population Genetics and Phylogenetics*

Heather Armstrong

Canterbury

News

Editor's note: We do not wish to set a precedent of inserting pictures into the CSANZ newsletter but this is obviously an exceptional circumstance.

Life in the city of shakes

It was a busy Tuesday, the second day of the semester. We were all thinking about setting assignments and preparing lectures, when everything shook just before 1pm. Surprisingly, the building was evacuated quickly and with no panic. Very soon it was impossible to use mobile phones, but looking around us we could see no damage, and people calmed down, thinking that we would be back to our desks quickly. When we later heard about the devastation in the city, everyone was shocked. The pain and suffering we witnessed is impossible to put into words. Some of our colleagues unfortunately suffered a loss of house, friends, relatives, and some still have to do without sewerage and deal with damaged homes and streets. For those of us lucky to live in the western part of Christchurch, it felt like we were watching news from another country, and we suffered from survivor's guilt.



CSSE Headquarters - floor boards on the pool table make for a good "Command Centre" table

Nevertheless, life goes on. Very soon, we started thinking about restarting teaching – and with most facilities on campus closed, we needed to think completely out of square. Thanks to our colleague **Richard Green**, we had a departmental headquarters in his billiard room, which was used to set up

laptops in a hurry to be used in the introductory programming course. We were given a very short escorted “retrieval” from our building (with mandatory hard hats) to retrieve essential items on 11 March, and our classes started on 14 March. Students (as shown in the photo) were very happy to be back to learning, even though postgrad lectures were happening in a restaurant of a nearby motel! Our undergrads were also in novel locations, but luckily we managed to be using proper lecture room at the Dovedale (College of Education) campus, with the exception of COSC121 which had lectures in a tent without any AV for a few weeks. A team from Google (led by **Craig Nevill-Manning**, a Canterbury and Waikato grad) turned up early on and provided valuable help in the form of Chrome laptops and YouTube facilities, as well as help for the broader community with systems like People Finder.

Thousands of Canterbury students had participated in the “Student Army” who had worked hard to help the community to clean up. This seemed to have a very positive effect on the students when they started classes – they had a lot of “project” experience before they started for the year! It was heartwarming to see how students embraced the new circumstances without complaints, as well as the effort and innovativeness of staff who made things work. Teaching computer science without labs is a challenge, but staff came up with many interesting solutions, using LiveZilla to answer student queries by online chat, shifting laptops into lecture halls to be able to have tutorials, videoing lectures, etc. As better facilities became available we gradually improved the systems students could use – our introductory programming class used four systems in the first three weeks of teaching! This gave them a very broad experience, although for the department it was like doing the beginning of year four times over.



Getting the machine out of the Erskine building

The fate of our building is still unclear. Being one of the last to be checked, it was found that some repairs are necessary.

The teaching side of the building will be open soon, and we are all looking forward to going back to our research labs. The staff side of the building is more of a problem, and we hope to have it back some time in semester two. In the meantime, we’re guests in four other departments, which feels a little like being on sabbatical leave!

We are very thankful for all of you who sent us your sympathy and generous offers for help – your messages meant a lot to us!



Richard Lobb lecturing in a tent



Visiting Erskine fellow, Gordon McCalla lecturing in the Academy restaurant

AIED 2011

The International Conference on Artificial Intelligence in Education will be held at the University of Auckland, from 28 Jun to 1 Jul. The theme is “Next generation learning environments: supporting cognitive metacognitive, social and affective aspects of learning”. AIED 2011 is organized by **Tania Mitrovic** and the Intelligent Computer Tutoring Group from Canterbury, with **Moffat Mathews** playing a major role in making the conference happen. Originally in Christchurch,

we had to move it to Auckland due to the earthquake. Special thanks to **Gill Dobbie** and **Sathiamoorthy Manoharan** for helping us move. The conference will start with a day of workshops, tutorials and interactive events, followed by the three main conference days including keynote talks, panels, and presentations of full and poster papers. It is not too late to participate in this exciting conference.

More info: <http://www.aied2011.canterbury.ac.nz/>

Awards and Prizes

V Levesque, L Oram, KE MacLean, A Cockburn, N Marchuk, D Johnson, JE Colgate, M Peshkin.

Best Paper award for CHI 2011.

Enhancing Physicality in Touch Interaction with Programmable Friction

P Quinn, A Cockburn, KJ Raiha, J Delamarche.

An Honourable Mention award CHI 2011.

On the Costs of Multiple Trajectory Pointing Methods

Isaac Lee and Ray Hunt.

Best paper award Australian Information Security Management Conference.

A Novel Design and Implementation of DoS-Resistant Authentication and Seamless Handoff Scheme for Enterprise WLANs

Warwick Irwin had his teaching recognised at the recent 2011 Australasian Computer Science Week conference, where he received the CORE Teaching Award.

Amali Weerasinghe and **Sagaya Amalathas** (both PhD students from the ICTG group) received the Merit awards to present their papers at the ICCE 2010 conference.

2010 top three undergraduate students:

100 level – **Sam Dopping-Hepenstal**

200 level – **Joel Harrison**

300 level – **Steven Harvey**

Scholarships

Janina Voigt, who just completed her MSc, was awarded a prestigious scholarship from the Rutherford Foundation to undertake her PhD at the University of Cambridge in England.

Scholarships have been awarded for two PhD students of the Network Research Group and Simulation Research Group: **Ehsan Tabatabaei Yazdi** received the UC Doctoral Scholarship, and **Muhammad Asad Arfeen** has received the PlanetLab NZ Scholarship.

Visitors

Gordon McCalla, Uni of Saskatchewan, Canada, Erskine fellow, semester one

Steve Webb, semester one

PhD Theses

Ray Hidayat—*Texture-boundary detection in real-time*

MSc Thesis

Yuan Wangt—*An Authoring Tool for Building Mobile Phone AR*

Tobias Wulfft—*Evaluation and mitigation against malicious traffic in SIP-based VoIP applications in a broadband internet environment*

Gillian Clinton

Waikato

News

Imagine Cup 2011

Two teams of computer science students from the University of Waikato competed in the finals of the Microsoft Imagine Cup in Auckland. Team Taiao (**Jessica Champion, Michelle Clark and Michael Fowke**) has worked with the Maungatautari Ecological Island Trust to develop image recognition software that can ‘count’ the number of mouse tracks on the tracking cards used by conservationists. Team Bookie Monster’s (**Luke Bjerring, Andre Meister, and Ashley Steel**) project focuses on raising literacy.

Paul Hunkin appeared on TV3’s Campbell Live in Nov being interviewed about his Bid Bot Trade Me program.

More info: <http://www.3news.co.nz/Laziness-the-inspiration-behind-TradeMe-shopping-bot/tabid/367/articleID/186878/Default.aspx>

New Zealand Listener article

The 11 December issue of The New Zealand Listener featured an article about the National Library’s Papers Past collection of digitized historic NZ newspapers. The article ends with a discussion of the digitization and digital library work behind Papers Past, including mention of **Gordon Paynter, DL Consulting** and **Stefan Boddie**, and the University of Waikato’s Computer Science Department.

Global Games Jam 2011

The University of Waikato’s Computer Science Department hosted the 2011 Global Game Jam. It attracted 37 would-be game developers willing to take on the challenge of creating a five-minute computer game in just 48 hours. The winner of the People’s Choice Award was **Tim Rudkins** who produced a solo effort entitled Extinction of Thought. Also popular was the game Flee, created by Waikato students **Amigo Huang** and **Pascal Tian**.

Sally Jo Cunningham has been elected to the steering committee of the ACM/IEEE Joint Conference on Digital Libraries.

The Human Computer Interaction group at Uni of Waikato will be hosting the CHINZ 2011 Conference in Hamilton, 4-5 July.

Books

Witten, I.H., Frank, E., Hall, M.A. Data Mining: Practical Machine Learning Tools and Techniques. (Third Edition).

Witten, I.H., Bainbridge, D., Nichols, D.M. How to build a Digital Library. (Second Edition).

Appointments and Departures

Gina Roberts has resigned to take up a permanent position with Corporate and Executive Education in Waikato Management School. We wish her well for the future.

Awards and Prizes

Medal for Waikato student at Informatics Olympiad

First year student **Boris Pfahringer** came away from the Sep 2010 International Olympiad in Informatics held at the University of Waterloo with a bronze medal for the second year in a row.

Team members **Jamie McCloskey** and **Logan Glasson** also won bronze medals, giving the New Zealand team their best-ever result at the annual competition.

David Milne received an Honorable Mention in the competition for the Australasian Distinguished Doctoral Dissertation.

Internship

Mark Hansen spent the summer as a Google intern, and was offered a full-time job with them in their Sydney office.

Seminars

Daniel S Weld, Thomas J Cable/WRD Professor of Computer Science and Engineering, Uni of Washington. May.

Knowledge-based Weak Supervision for Scalable Information Extraction

Sharon Jensen and team, National Library Wellington. May. *The Bicultural Digitization and Service Priorities (BSDSP) project.*

Jean-Charles Lamirel, University of Strasbourg (INRIA lab in Nancy, France). Apl.

Towards a systemic and multiview approach for data analysis and data mining

Ralf Heese and Adrian Paschke, Freie Uni, Berlin. Mar. *Tools for the Semantic Web*

Dana McKay, Swinburne Uni of Technology Library, Melbourne. Mar.

Digital, physical, interactive, human: Tales from an academic

Hendrik Blockeel, Katholieke Uni Leuven, Belgium. Mar. *How to abuse a decision tree*

Joaquin Vanschoren, Leiden Institute of Advanced Computer Science, Leiden Uni, Netherlands. Feb.
Experiment Databases: A new way to share, organize and learn from experiments

Euan Cochrane, Archives New Zealand. Feb.
Background and context on Archives New Zealand and the Government Digital Archive

Dirk von Suchodoletz, Institute for Computer Science at Freiburg Uni. Feb.
Digital Preservation in Computer Science

Jeremy Evas, Welsh Language Board, Cardiff. Feb.
Language Planning in Wales: Lessons for New Zealand?

David Nichols, Computer Science, UOW. Dec.
A climate of distrust: sceptics and scientists on the blogosphere

Martin Fabian, Chalmers Uni, Netherlands. Dec.
On Solving Large Scale Supervisory Control Problems

Michael Twidale, Graduate School of Library & Information Science, Uni of Illinois at Urbana Champaign. Nov.

eXtreme Research? What might it look like?

Jonathan Bowen, London South Bank. Uni of Westminster, Museophile Ltd, UK. Nov.

Wikis and museums, and
The Industrial Use of Formal Methods: Experiences of an Optimist

Asad Arfeen, PhD student, Uni of Canterbury. Nov.
Talk: On-line analysis of active network measurements

Visitors

Jean-Charles Lamirel, Uni of Strasbourg and INRIA lab in Nancy, France. Apl.

Lynn Silipigni-Connaway, Research Scientist OCLC, U.K. Mar.

Adrian Paschke, Freie Uni, Berlin. Mar.
(With one of his students)

Greg Butler, Computer Science at Concordia Uni, Montreal, Canada. Mar.

Peter Raffensperger, Uni of Canterbury, Mar.
Visited the Machine Learning group.

John Brine, Uni of Aizu, Japan. Mar.
Visited the Digital Library FLAX group.

Elisabeth André, Uni of Augsburg, and **Thomas Rist**, Augsburg Uni of Applied Sciences. Feb.
Visited as part of the IT4SE project, with three Masters students from the University of Augsburg who are doing their research in smart energy use area, and will be here until October 2011.

Dongxue MA, Uni of Aizu, Japan. Dec 10-Dec 11
Visiting the Digital Library FLAX group.

Jeremy Evas, Welsh Language Board. Jan.

Indré Žliobaitė, Eindhoven Uni of Technology. Jan–Mar.

Steffen Wendzel, Uni of Applied Sciences, Ausburg. Dec–Jan.

Saturnino Luz, Trinity College Dublin, Nov.

Collaborating with Bill Rogers and Masood Masoodian on information visualisation and natural language processing.

PhD Theses

Stefan Mutter—*Sequence-based protein classification: Binary Profile Hidden Markov Models and propositionalisation*

Andrea Schweer—*Augmenting autobiographical memory: an approach based on cognitive psychology*

Veronica Liesaputra—*Realistic electronic books*

David Milne—*Applying Wikipedia to interactive information retrieval*

Shaoqun Wu—*Supporting collocation learning*

ME Thesis

Suaurabh Sathe—*Supporting meetings in virtual worlds with enhanced communication features*

Lincoln

News

There's a whole lot of shaking going on! The Department was in full pre-semester work mode when the tragic earthquake of 22 February struck, but fortunately our only injury was a gash to **Alan McKinnon's** head as he dived under a desk. Our 200 level students lining up for their summer school final exam may have been relieved to have one fewer exam to sit, but the unfolding tragedy and closures more than made up for it. The campus is now overflowing with extra people, such as personnel from EQC, Fletchers and Environment Canterbury, as well as colleagues and students from CPIT (Christchurch Polytechnic Institute of Technology). A much shortened teaching semester and ongoing aftershocks during lectures make for interesting working conditions.

Appointments/Staff

Shirley Gibbs has been appointed as Lecturer. Shirley has been contributing to the department for a number of years in a different role, so her new appointment is very welcome. Her interests are in computer literacy and end-user computing.

Harvey Taylor has been a contract lecturer in software engineering in semester one. Harvey was a consultant at Jade Software.

Internships

Gareth Falkingham completed a TechNZ funded summer studentship with Tait Electronics working in the area of Software Visualisation and Static Analysis. **Stuart Charters** was the academic mentor.

Leshi Chen completed a MoRST funded BESTGRID Summer of eResearch summer studentship with **John McCullum**

(Plant and Food Research) and **Stuart Charters**. The topic was "Web Based Genetic Marker Design".

Awards

Mo Yakubu, Tony Hou, Matt Almutairi (B Software & IT students) and **Rachel Grout** (Commerce) competed in Microsoft's Imagine Cup in April. The team was delighted to make the final NZ round and was placed fourth. Their mentors were **Stuart Charters** (Lincoln) and **Mike Cochrane** (Landcare). Team Kai's system makes it easy for charities to get access to food surpluses in supermarkets and restaurants. Mo, Tony, Matt and Rachel are working hard on taking the system to market.

Conferences

Alan McKinnon attended both the Asian Conference on Computer Vision and the International Conference of Image and Vision Computing NZ in Queenstown.

MaplISc (Hons) Thesis

Shirley Gibbs—*An Examination of Near-graduates' Computer Self-efficacy in light of Business Employers' Expectations*

Sharon Long

Otago CS

News

400-level papers

All of our 400-level papers, including the new ones introduced this year, except the Research Project, have become single semester papers. Previously these papers were all offered over a full year.

New Editorship

In March, Lubica Benuskova took up a new Editorship of the journal IEEE Transactions on Neural Networks.

Robocup success

School teams coached by **Anthony Robins** and **Sandy Garner** from our department achieved successes in the December Robocup competition. Teams from Balmacewan Intermediate, **Piotr Jankowski**, San Diego State University and **Logan Park** won the Junior Dance and Senior Soccer categories respectively.

Kevin Novins

In Jan, the department heard the sad news that **Kevin Novins**, a Senior Lecturer with us for several years up to 2001, had died in California. He had been undergoing chemotherapy. Kevin's expertise was in Computer Graphics and Computer Vision, and he worked in the Graphics group. More recently he had been working for a hedge fund in California.

Appointments

In the last few months the following staff have decided to move on.

Nathan Rountree, Senior Lecturer, has become a Chief Technical Officer in the private sector.

Cameron Kerr, Teaching Fellow and ten-year stalwart of our networking papers, is moving to become a Systems Engineer at ITS (still within the Uni).

Martin Takac, Postdoctoral Fellow, is returning to Slovakia. **Bronwyn Atterbury** is returning to Africa with her family to begin a new life in Tanzania.

PhD Thesis

Syed Faisal Hasan—*Congestion control for multimedia applications*

Ignas Kukenys—*Face detection with Support Vector Machines (submitted)*

Visitors

The Systems group currently has a research fellow, **Quan Chen**, from Shanghai Jiao Tong Uni.

Seminars

March 2011

Aiden Wright Computer Science, Uni of Montana.

Fixed points of genetic algorithms

Richard O'Keefe, Department of Computer Science.

If you look for surprise and find it where you expect it, is it still surprising

Paul Hansen, Department of Economics.

What's under the hood of Otago Choice? The PAPRIKA algorithm for Multi-Criteria Decision-Making

Andreas Willig, Department of Computer Science and Software Engineering, Uni of Canterbury.

Protocol aspects for cooperative communications in wireless sensor networks

April 2011

Piotr Jankowski, San Diego State Uni.

Integrating a Multi-Objective Genetic Algorithm with a Geographic Analysis and Visualization System: An Application to Hazard Management

David Eyers, Department of Computer Science.

Securing distributed event based systems

Nigel Stanger, Department of Information Science.

A Tale of Two Floppies: Adventures in Digital Preservation

May 2011

Lech Szymanski, Department of Computer Science.

Deep architectures and classification by intermediary transformations

Robert Pollock

Massey

News

NZCSRSC

We were delighted to have the NZCSRSC conference in Palmerston North for the first time. It was very enjoyable being able to attend the talks, and we were very impressed by the organisational skills demonstrated by our students, particularly **Graham Jenson**.

Curriculum Redevelopment

We are currently in the process of redesigning our computer science curriculum, partly in response to the Bachelor of Engineering redesign process that the School of Engineering and Advanced Technology is undertaking, of which we are a part.

Travels

Hans Guesgen is currently away. He travels first to Florida where he is chairing the FLAIRS (Florida AI Research Society) Conference and then on to Bremen in Germany, where he is visiting Mehul Bhutt.

Visitors

We have recently welcomed **Sven Albrecht**. Sven is a PhD student at Osnabrueck Uni in Germany and visiting the MUSE (Massey University Smart Environments) group as part of the MERMAID collaborative project. While he is here Sven plans to work on sensing of house environments using the Kinect 3D camera.

PhD Theses

Luofeng (Frank) Xu—*A Study of Frequent Pattern Mining in Transaction Datasets*

Stephen Marsland

AUT

News

School of Computing and Mathematical Sciences

At the end of 2010 several staff in the Mathematical Sciences within the school of Computing and Mathematical Sciences took early retirement and the programme is expanding every year. This brought about the appointment of nine new permanent lecturers from the beginning of 2011. We are delighted to have them join us to strengthen the degree offerings and research activity within the School.

Hyuck Chung - Lecturer in Applied Mathematics. Hyuck was appointed last year on a fixed term contract, following post doctoral experiences at the University of Otago, University of Auckland and Uni of Illinois Urbana-Champaign. His PhD is from the Department of Mathematics at the University of Auckland.

Robin Hankin - Lecturer in Statistics. Robin joined the School from the Department of Land Economy at the Uni of Cambridge where he was a Senior Research Associate. He has had teaching experience at the National Oceanography Centre in Southampton and a five year period at the Uni of Auckland in the School of Environmental Science. His PhD is from the Engineering Department at the Uni of Cambridge.

Jeong (Kate) Lee - Lecturer in Statistics. Kate joined the School from the Uni of New South Wales in Sydney where she has been a Research Associate following the completion of her PhD at Queensland Uni of Technology under the supervision of **Kerri Mengersen**. Kate also has a MSc with First Class Honours in Applied Mathematics from the Uni of Auckland.

Guanghua (Andy) Lian - Lecturer in Applied Mathematics. Andy completed his PhD in Mathematical Finance from the Uni of Wollongong early last year and has recently been a postdoctoral research Fellow at the Uni of Adelaide. Andy also has an MA in Business Management from Huazhong Uni of Science and Technology at Wuhan, China and a BSc in Applied Mathematics with a minor in Computer Science from Sichuan Uni, Chengdu, China. In addition he is completing studies as a Chartered Financial Analyst having qualified for a Certificate of Quantitative Finance.

Jiamou Liu - Lecturer in Computer Science. Jiamou joined the School from Uni of Leipzig, Germany, where he has been a research fellow. Jiamou completed his PhD from the University of Auckland in the field of Theoretical Computer Science. During his PhD he also studied in Cornell University, USA and worked in Microsoft Research Asia, Beijing, China.

WeiQi Yan - Lecturer of computer science. He received his PhD degree from Chinese Academy of Sciences (Academia Sinica), China. He has been working in Columbia Uni in NYC and UC Irvine, USA. He has been a faculty member of computer science, National Uni of Singapore (NUS) and a lecturer of computer science, Queen's Uni Belfast (QUB), UK. His research interest is intelligent surveillance. He has managed four granted research projects, authored three monographs and over 90 research publications which covered major journals and conferences of his research area.

William Liu – Lecturer of Network Security. He had completed his PhD from Uni of Canterbury, in 2010. He is teaching Computer Networks, Information Security Technologies and Network and System Administration etc. William has research interests in the design and performance evaluation of architectures and protocols for packet-oriented networks, especially in the area of network dependability and network optimization, including network survivability and security in Next Generation Networks (NGNs), Green Networking, Content-based Networking, Cloud/Crowd Computing etc.

Quan Bai – Lecturer of Programming. He joined the School from CSIRO Tasmanian ICT Centre, Hobart, where he has been a Postdoctoral Research Fellow. Quan completed his PhD from the Uni of Wollongong, Australia in the field of Multi-agent Systems. Major application fields of his research include ebusiness, supply chain management, resource planning/scheduling, and decision support systems.

James Skene – Lecturer of Programming. He has completed his PhD from Uni College London in 2007. With a particular interest in programming and modelling languages, he is teaching first and second year programming courses at present. The topic was the use of service-level agreements in federated distributed systems.

Appointments and Departure

John Ayoade has been appointed as a fixed term lecturer.

Gisela Klette has been appointed as a fixed term Project Coordinator.

Stephan Thorpe has been appointed as a fixed term lecturer.

Stefan Mark has been appointed as a fixed term lecturer.

Alna Van Der Merwe has been appointed as a fixed term lecturer.

Joy Fouchee has been appointed as a fixed term lecturer.

Martine MacGregor Reid has been appointed as a fixed term lecturer.

Judith Symonds departed in April 2011.

Awards

Nik Kasabov has been offered a Marie Curie fellowship, which is funded through the European Commission Framework 7 research programme.

SCMS PhD Full Scholarships

Bing Huang

Doug Hunt

Sripirakas Sakthithisan

SCMS PhD Fees Awards

Michael Bosu

Mahmoud Mahmoud

Abdul-Lateef Balogun

VC Doctoral Study Awards

Lonnie Wilkerson

Wen (Linda) Liang

Visitors

Phan Minh Tan and **Tran Cong Danh** from HoChiMinh University of Sciences (Vietnam) visited the School and discussed on-going collaboration activities.

Saide Lo