

## NZCSRSC 2010

During the mid-trimester break 12-15 April 2010, Victoria University of Wellington hosted the 8th New Zealand Computer Science Research Student Conference (NZCSRSC) on the Kelburn campus. The conference was organised and run by postgraduate computer science students from the School of Engineering and Computer Science. The aim of the conference is to promote and strengthen the nationwide community of ICT research students.

There were a number of exciting keynote speakers. **Nat Torkington** a Victoria University alumnus talked about *The Career-Spotter's Field Guide*, which explained about life beyond the ivy-covered walls of academia. Nat drew upon his vast experience and anecdotal evidence from working in small startups to large corporations. **Rob O'Callahan** from Mozilla talked about how computer science can change the world. Rob encouraged people to think hard about what research problems one should solve in order to make a significant impact on society. **Sebastian Castro** from the NZ Registry Services talked about *A Day in the Life of the Internet* project which collects traffic data from key locations of the Internet for analysis to provide insight and questions about the future of the Internet. **Miriam Lips** from Victoria University of Wellington talked about the value of e-government research for *Designing 21st Century Government*.

There was an entertaining panel on what are your options once you have completed your Masters or PhD degree. The panelists ranged from people working in academia, government organisations, industrial research labs, startups, and large corporations. They gave the audience interesting insight into their careers since completing their PhDs, and offered some good advice to follow.

A range of workshops gave students the opportunity to build on their research skills. Workshop topics ranged from critical thinking, thesis writing, time management, presentation and poster skills, Maori and Pacific Nation students engaging in computer science research, women in the New Zealand IT industry, preparing to succeed in the job market, how to get yourself the job you want, the publication game, commercialisation and intellectual property in the IT, to discussions on careers in research and the industry in general.

A core component of the annual Conference are the presentations and posters from students. This year 33 graduates studying at New Zealand universities gave presentations and the standard of talks were of high quality, while 21 graduates had short papers presented as research posters. The Intergen best paper presentation was awarded to **Michael Walmsley**, "Automatic Adaption of Dynamic Second Language Reading Texts" and the IET best poster to **Stefan Schliebs**, "Heterogeneous Probabilistic Models for Optimization and Modelling of Evolving Spiking Neural Networks". The conference not only gave student researchers

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an understanding of what others are doing, but also the opportunity to interact with others who are motivated and passionate about their work.

But it wasn't all work. Highlights of the conference included the powhiri and kapahaka group at Pipitea Marae, Google opening dinner, Pingar social night that involved ten-pin bowling, and Careers Industry Night where a number of companies were present to recruit eager graduate students.

The conference was made possible with the tremendous effort by the organising committee, local university contacts, and support from our key sponsors: Google, Intergen, Pingar, The IET, InternetNZ, VicLink, and Victoria University of Wellington. We are also grateful for the valuable assistance provided by the following people: **Sue Hall, Ally Reid, Peter Andreae, David Pearce, John Hine, Doug Hauraki, Ian Witten, Tim Bell, Robert Amor, Rachel Blagojevic**, and our workshop presenters. Further information, such as presentation slides from workshops and recordings of some keynote speakers are available on the web site. We look forward to next year's conference at Massey University, Palmerston North.

More info: <http://ecs.victoria.ac.nz/Events/NZCSRSC2010/>  
 Craig Anslow,  
 General Chair  
 NZCSRSC 2010

..... and what a great conference it was. The New Zealand computer science community owes a huge debt to **Craig Anslow and the entire organising team** from Victoria University for organizing such a spectacular event. It was just great to see such a large group of young and active NZ Computer Science researchers come together for work—and play. Many attendees slept in the Pipitea Marae, making it a cultural as well as an educational experience. We all know the hard work that goes into conferences behind the scenes, and this one went off without a single 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 2010, 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!

There has been overwhelming support at the conference for running NZCSRSC every year, and Massey University is planning to host it in 2011. However, this will be contingent on the generosity of CoDs across the country, because the BuildIT fund that was used to subsidize recent conferences has expired.

Ian H. Witten

## Victoria

### News

#### School of Engineering and Computer Science – Summer Renovations

During the 2009-2010 summer trimester, the School of Engineering and Computer Science underwent another significant renovation, building on the renovations of the previous summer. This summer's work involved major changes to the school's areas on levels two and three. Level three involved removing most of the walls and rebuilding the level into staff offices, a new staff room and four research labs, the Distributed Systems Research Lab, the combined NMR and Cognitive Robotics Lab, Network and Wireless Research Lab, and lastly the OptiPortal and Usability Lab. Level two was also a significant rebuild with five new computer lab spaces and two small group spaces being created, with a range of layouts to facilitate different learning styles, also two fourth year labs were created and some offices renovated. The outcome has been to give the School of Engineering and Computer Science a fresh new look and feel, with major improvements in flow and a sense of space.

#### Victoria University joins PlanetLab

At the start of the year Victoria joined the PlanetLab NZ project. PlanetLab is a global experimental networking facility designed for conducting cutting-edge research on current and future network technologies, such as Next Generation Networks, Next Generation Internet, Future Internet, etc. Two planetlab nodes have been installed at Victoria. Funding is provided by REANNZ and the local contact is **Qiang Fu**.

### Appointments

**Wei Li** commenced on 26 January 2010 as Senior Lecturer in Network Engineering.

**Kourosh Neshatian** started here in March 2010 as a BuildIT Postdoctoral Fellow in Genetic Programming and Evolutionary Computation.

### Awards and Prizes

#### Best Paper Student Award

In the Australasian Joint Conference on Artificial Intelligence, **Kourosh Neshatian** (PhD student, supervised by **Mengjie Zhang** and **Peter Andreae**) got the best student paper award.

#### Electronics New Zealand Conference (ENZCon 2009)

**Carl Benton** (PhD student, supervised by **Dale Carnegie**) won the best presentation prize, and **Ben Drayton** (PhD student, supervised by **Dale Carnegie**) picked up the best novice presenter prize.

### Seminars

#### Pacharawit Topark-ngarm

*Mobile client honeypots*

#### Hannes Mehnert

*Integration of Gradual Typing into Dylan for better error detection and optimizations*

#### Michael Pradel

*Automatic Generation of Object Usage Specifications from Large Method Traces*

#### Rodney G Vaughan

*Wave propagation and all that signal processing and protocol in wireless communications*

#### Timo Hoenig

*Exploiting Resources of Mobile Devices in Energy Critical Environments*

#### Alan Coulson

*Cognitive Radio – Opportunities, Challenges and Some Physical Layer Solutions*

#### Donald Bailey

*Real-Time Vision*

#### Felix Leder

*Malware Reverse Engineering*

#### Chris Male

*Lucene*

#### Susan Eisenbach

*Concurrent Programming: Is there a silver bullet?*

#### Petra Malik

*Translating Z to Alloy*

#### Jan Rabaey

*The Meaning of Electrical Engineering*

#### Rohitash Chandra

*Improving the Cooperative Coevolution Framework for Training Recurrent Neural Networks*

**Matthew Luckie**, University of Waikato.

*Internet Topology Discovery: Challenges and Techniques*

#### James Skene

*Descript, a declarative, object-oriented modelling language*

#### Mark Moir

*Experience with and Potential of Hardware Transactional Memory*

**Kate Kaiser**, Marquette University, Milwaukee, Wisconsin, USA.

## Information Technology Workforce Skills for the Future

**Birgit Demuth**, Technische Universität Dresden, Dresden.  
*OCL - Quo Vadis?*

**Felix Leder**, Giraffe Chapter of the Honeynet Project.  
*Take a deep breath and join in for a dive into Conficker*

**Philippe Kruchten**  
*Software Architecture Knowledge Management*

**Sven Hartmann**, Clausthal University of Technology.  
*Chasing after Potential Secrets in Relational Databases*

**Werner Heijstek**, Leiden University.

*Software Design in Global Development*

**Alcino Cunha**, University of Minho, Portugal.

*An Algebraic Approach to Bidirectional Model Transformations*

**Craig Anslow**

*Multi-touch Table User Interfaces for Collaborative Visual Software Analytics*

**Rashina Hoda**

*Organizing Self-Organizing Agile Teams*

**Robert O'Callahan**, Mozilla Corporation.

*API Design for the Masses*

**Rustan Leino**, Microsoft Research.

*The Dafny program verifier*

**Van Lam LE**

*Improving the Performance of Client Honeypot*

## Scholarships

Victoria PhD Scholarships (Nov 2009 round)

**Michael Waterman**

**Muhammad Iqbal**

**Mahboob Iqbal**

Victoria Masters (Research) Scholarships (Nov 2009 round):

**Carlton Downey**

Victoria PhD/Doctoral Scholarships (Mar 2010 round):

**Juan Rada-Vilela**

**Bing Xue**

**Zakwan Al-Arnaout**

**Xin Zhang**

TechNZ Masters Scholarship

**Ben Haughey**

BuildIT PhD Travel Grant

**Steven Nelson**

## ACM Travel Grants

**Urvesh Bhowan** (PhD student) and **Carlton Downey** (MSc student) were awarded ACM GECCO (Genetic and Evolutionary Computation Conference) 2010 Travel Scholarships by the ACM SIGEVO Group/Society. GECCO is to be held in Portland, USA on 7-11 July this year and is an A grade conference ranked by ARC/ERA.

## EvoStar Student Travel Bursary

**Urvesh Bhowan** (PhD student) was awarded a Student Travel

Bursary by the European Joint Conference on Evolutionary Computation (EvoStar 2010) held in Istanbul, Turkey on 7-9 April.

## MSc Thesis

**Vipul Delwadia**—*RemoteME: Experiments in Thin-Client Mobile Computing*

Ally Reid

## Canterbury

## News

### Computer Science in High Schools

The material for NCEA is being changed significantly starting in 2011 so that it now includes Achievement Standards that cover significant areas of Computer Science, to provide clearer pathways for students to further study in CS. A draft set of standards that can be used for Year 11 students starting in 2011 has just been released by the Ministry of Education.

At the end of the April NZCSRS conference there was a workshop on these imminent changes to NCEA, which brought together representatives from CS departments all over NZ to discuss them, and look at how we can support them. Each department now has a contact person who will be keeping in touch with national changes, and also be available for local schools who are seeking input. One of the outcomes from the meeting is a Google group to keep interested folk up-to-date with changes, and to allow discussion at a university level on related issues. Also, there are plans afoot to set up some sort of national consortium/collaboration of Computer Scientists doing research in CS education, which will be announced via the group. To join the Google Group: <http://groups.google.com/group/cs-and-nz-schools>  
 More info: [tim.bell@canterbury.ac.nz](mailto:tim.bell@canterbury.ac.nz)

### Tim Bell was the feature guest on National Radio's Nine Till Noon programme on 27 April.

Tim Bell (and Ian Witten) are the authors of a book called "Computer Science Unplugged", full of things you can do (without computers) with kids to teach computational thinking. Google liked it so much they paid them to give it away online. Tim is also very heavily involved in revamping computer science programmes in schools."

Tim's 30 min audio is at:

<http://www.radionz.co.nz/national/programmes/ninetonoon/20100427>

**Andy Cockburn was awarded a BuildIT Postdoctoral Fellowship award.** One of the two awards in the 2010 round in New Zealand, this award will allow Andy to seek a postdoctoral fellow in the next six months working in the area of Human-Computer Interaction for two years.

**Sayan Ray**, CSSE PhD student from our Network and Simulation Research Group, has been accepted into the Summer Entrepreneurship Program of the Stanford Graduate School of Business. In total, Stanford University only accepted seven students from New Zealand. Sayan's costs of participation in this summer school are covered by a scholarship awarded by the Foundation for Research, Science & Technology.

## Appointments

**Andreas Willig** joined our Department as a Lecturer in Feb 2010. His research interests are in the design and performance evaluation of architectures and protocols for packet-oriented networks.

## Scholarships

Canterbury: **Stephen Fitchett**  
 FRST: **Phillip Buchanan**  
 Honours: **Luke Williams**

**Susanne Tak**, a PhD student, won a \$5K Anita Borg Memorial Scholarship.

**Brenda Zheng** secured a one year Masters TechNZ Technology Fellowship (TIF) scholarship to develop computer vision assisted wheelchair guidance.

## Visitors

**Lyn Lambert**, Christopher Newport University, USA

**Ben Du Boulay**, University of Sussex, UK

**Kari Raiha** and **Saila Ovaska**, University of Tampere, Finland

**Keith Martin**, University of London, UK

**Ying Chun Han**, Kunming Metallurgical College in China

## PhD Theses

**Jason Alexander**—*Understanding and Improving Navigation Within Electronic Documents*

**Volkert Buchmann**—*Road stakeout in wearable outdoor augmented reality*

**Mayank Keshariya**—*Extended Policy-Based Management Framework to Provide Always Best Connected Services in Heterogeneous Mobile Environments*

## MSc Thesis

**Nathan Adams**—*A 2D visual language for rapid 3D scene design*

**Delio Brignoli**—*DDoS Detection Based on Traffic Self-similarity*

**Jian Gu**—*Development of computer vision algorithms using J2ME for mobile phone applications*

**Xuan Gu**—*Selective data replication for distributed geographical data sets*

**Jay Holland**—*A Constraint-based ITS for the Java Programming Language*

**Sascha Rehbock**—*Trustworthy Clients: Extending TNC for Integrity Checks in Web-Based Environments*

Gillian Clinton

## Waikato

### News

**Te Taka Keegan hits the New York Times (9 Mar 2010)**

**"Google's Toolkit for Translators Helps Feed Its Machine"**

"Te Taka Keegan, a university lecturer in New Zealand, is betting that Google can help him preserve the Maori language of his ancestors.

"Mr Keegan uses a tool called the Google Translator Toolkit to upload Maori translations of English texts to Google. Others can then use those translations in their work, increasing the quantity and quality of Maori translations that are available and creating incentives for children of Maori descent to learn the language.

'With this tool, we can actually uplift our language,' Mr Keegan said. 'For us, it is about saving our language from extinction. We are trying to help our culture survive.' Google Translator Toolkit may be good for the culture of the Maori people, an indigenous minority group in New Zealand. It's also good for Google as data from the toolkit helps Google beef up its machine."

Te Taka also features in an article in the German news magazine "Der Spiegel".

More info: <http://www.spiegel.de/spiegel/0,1518,691364-2,00.html>.

**A generous gift by a Waikato alumnus....**

..... was spent on upgrading the department's tearoom, and turning it into a place where staff and graduate students can seek inspiration as well as relaxation. New additions to the tearoom are squashy sofas for conversations, a big-screen TV and Nintendo Wii for game playing, café-style tables and chairs for informal meetings, an upgrade to the kitchen and a whiteboard for brainstorming.

### NZNOG Conference

The NZ Network Operators Group conference was hosted by the Computer Science Department at the University of Waikato from 27-29 January. Guest speakers included **Geoff Huston**, **William Norton**, **Joe Abley**, **Brian Carpenter** and **Philip Smith**. The main theme of the conference was the impending run out of IPv4 addresses and the consequent requirement on operators to move to IPv6. Many other topics were addressed including security, DNS and DNSSEC, metro optical networks and video traffic. The event was very successful with over 120 attendees and all talks well received.

## Awards and Prizes

### Top 20 Imagine Cup Teams

We had two teams competing to become one of the top four to go on to the final in the NZ competition on 30 Apl.

**Team Pithy: Jourdan, Luke, Jeffrey and Declan** did really well and received an "honorable mention".

**Team eUtopia: Carlo Meister, Gabe Young, Laura Bocock and Matt Bird** came third, one judge offered them support for taking their project further (outside Imagine Cup).

More info: <http://www.lividlive.tv/>

### Masters Student wins international contest using Weka data mining software

**Qun Sun** was placed first in the 'hard' graduate/postdoctoral section of the annual University of California San Diego Student Data Mining Competition.

### World Class New Zealand Awards 2010

**Ian Witten** won the Research, Science, Technology and Academia category of the Kea Awards. Along with some colleagues from CS Waikato (and the Prime Minister), he attended the awards dinner in Auckland where the seven category winners were presented with their Tall Poppy statues. Ian said the award represented a significant acknowledgement of the global reach of the Digital Library Research Group. See his acceptance speech at: <http://video.com/11151172>

**Lindsay Groves, Ray Nickson, Greg Reeve, Steve Reeves, and Mark Utting** won the ASWEC Most Influential Paper Award of the past 10 years.

**Samuel Sarjant, Catherine Legg, Michael Robinson, and Olena Medelyan** won the WT'09 Best Student Paper Award.

**Michael Walmsley** received the Best Presentation prize at the NZCS Research Students Conference in Wellington.

## Scholarships

**Top Achiever Doctoral Scholarships** – research in the computer science field of online reading, artificial intelligence and formal methods.

**Simon Ware**  
**Michael Walmsley**  
**Samual Sarjant**

**BuildIT two-year PostDoc Fellowship**  
**Albert Bifet**

**COSI Postdoc Fellowship**  
**David Milne**

**BuildIT one-year PostDoc Fellowship**  
**Veronica Liesaputra**

## Internship

A clever idea has won a University of Waikato final-year computer graphic design student **Marc McHardy** an

internship with e-design company Digital Stream. His interactive poster, developed for his degree show project, impressed Digital Stream director **Russell Brown** and account manager **Mark Vuletich**, and won **Marc** an iPod and a web development internship with the company.

## Seminars

**Douglas Oard**, University of Maryland, USA. Jan.

*Finding Things You Can't Read: Interactive cross-language search for monolingual users*

**Elisabeth André**, Augsburg University, Germany.

*Towards emotional sensitivity in human-computer interaction*

**Martha Carothers**, University of Delaware. Feb.

*Artist books are not books about art*

**Marco Gori**, University di Siena, Italy. Feb.

*On the puzzle of the induction/deduction loop: Bridging perception and symbolic reasoning.*

**Jason Pascoe**, University of Minho, Portugal. Feb.

*What do tourists really want?*

**Greg Butler**, Computer Science and Engineering, Concordia University, Montreal. Mar.

*Trees, Enzymes, Computers: Challenges in Bioinformatics*

**Amrita Sahay**, Bachelor of Computer Graphic Design, University of Waikato. Mar.

*Effective Persuasion Techniques for Digital Interactive Advertising*

**Robert O'Callahan**, Mozilla Corporation Auckland. Apl.

*Using Computer Science—And Communities—To Change the World*

**Stu Sharpe**, Lead Programmer, Sidhe. Apl.

*What Makes a Great Game Developer?*

**John Cleary**, Chief Scientist, Netvalue Ltd. Apl.

*Ten Billion Piece Jigsaw Puzzles*

**Sam Jansen**, University of Waikato. Apl.

*Experience with practical parallel computing: from kilometre to nanometre*

## Visitors

**Andy Rauber**, Vienna Uni of Technology, Austria. Apl.

**Yukiko Maruyama**, Tokai University, Japan. Apl 09-Apl 10.

**Elisabeth Andre**, University of Augsburg, Germany. Jan-Feb.

**Thomas Rist**, Augsburg Uni. of Applied Sciences. Jan-Feb.

**Jason Pascoe**, University of Minho Portugal. Feb-Apl.

**Greg Butler**, Concordia University, Canada. March.

**Jin-sang Kim**, Keimyung University. Sep 09-May 10.

**Ryan Leduc**, McMaster University, Canada. Nov-Dec 09.

**Andrei Sukhov**, State Aerospace University, Russia. Dec 09.

## Sabbatical

**Te Taka Keegan** spent six months of 2009 as a Visiting Faculty Member of Google, based in Mountain View, California. He was there to analyse how Google's translation technologies could be used for minority languages, focusing on Google's Translator Toolkit. While their tools have been

built for the larger languages of the world he found that they could also be successfully used for endangered languages such as te reo Māori. He found it awesome to experience working in an office of 10,000 dedicated and very clever people, feasting in the free cafes and micro-kitchens, riding the scooters and Gbikes, playing the various table, board and video games, attending the TGIFs, but mostly just being part of the energy, the innovation and the goodwill that is Google. More info: [googleblog.blogspot.com/2009/10/google-translator-toolkit-and-minority.html](http://googleblog.blogspot.com/2009/10/google-translator-toolkit-and-minority.html)

## PhD Theses

**Doris Jung**—*Specifying single-user and collaborative profiles for alerting system*

## MSc Theses

**Jinjian Shi**—*Selection of components in compositional verification of safety properties*

**Quan Sun**—*Sampling-based prediction of algorithm runtime*

## Master of Computer Graphic Design

**Bonnie Kea**—*Cultural appropriation and Cook Island visual identity*

## Lincoln

## News

### Industry Connections

The Department of Applied Computing is hosting a Computer Industry Liaison Group meeting on 18 May. Topics to be discussed with invited industry colleagues, include developments to our end user computing and operating system curricula.

**Paul Mathews**, CEO, and **Erin Connolly**, Manager of Professionalism of the NZ Computer Society, visited Lincoln recently to discuss accreditation and other issues. The NZCS is currently working with the Australian Computer Society (ACS) to form an Australasian Accreditation Board which will accredit ICT degrees in New Zealand, Australia and the Pacific Islands under the Seoul Accord.

**Walt Abell** is collaborating with colleagues in AERU (Agribusiness and Economics Research Unit) on a project on carbon foot printing in the primary sector. This collaboration has resulted in the development of a new, web-based survey tool. The project has recently received \$120,000 in external research funding from MAF and a major private NZ firm. **Walt Abell** and **Keith Unsworth** are also supervising an Honours' project, in conjunction with AERU and AgResearch, on agent based modelling of Southland dairy farms.

**Keith Unsworth** was visiting professor at the School of Mathematical Sciences, Universiti Sains Malaysia, Penang, Malaysia, between 3 January and 24 January, 2010. During his busy visit he conducted a 2-day workshop using Matlab software, gave lectures to undergraduate classes on Computer Aided Geometric Design (CAGD), gave two research seminars on CAGD at the Penang campus, and a further seminar at the campus of the Dental Hospital of USM.

### NCEA Digital Technology curriculum

Our department has been invited to review the proposed "Digital Information" strand of the new NCEA Digital Technology curriculum. This is being coordinated by **Shirley Gibbs**.

**Stuart Charters** attended the Asia-Pacific Software Engineering Conference 2009 in Penang, Malaysia, and co-presented a workshop on Evidence-Based Software Engineering with **David Budgen** (Durham University, UK) and **Pearl Brereton** (Keele University, UK)

New postgraduate student, **Cameron Soulsby**, completed a very successful Summer Scholarship project partly funded by TEC and partly by Solmetric Corporation in the US.

Postgraduate students **Nassiriah Shaari**, **Bernard Otinpong**, **Elin Elianan Abdul Rahim** and **Richard Vidal** all presented posters at the recent NZCSRSC Conference.

## Appointments

**Debby Hutchison** has rejoined the department for Semester One, after a 13-year absence, as a contract lecturer in software engineering. Until recently Debbie was a software engineer at Jade Software.

## Awards

**Keith Unsworth**, **Alan McKinnon** and colleagues have been selected as recipients of the 2010 Harry C. Bigglestone Award for Excellence in Communication of Fire Protection Concepts. This award is for the paper "Estimating Thermal Radiation Fields from 3D Flame Reconstruction" that appeared in the First Quarter 2009 issue of Fire Technology. Keith and Alan wrote the paper that was also co-authored by **Paul Mason** (the masters' student whose work Keith and Alan supervised), **Charlie Fleischman** and **Michael Spearpoint** from the University of Canterbury and Chris Rogers from Tufts University in Boston. The award, which includes a cash prize of US\$5,000 from the US Fire Protection Research Foundation, will be presented at the Opening General Session of the 2010 NFPA Conference and Exposition in Las Vegas, Nevada on Monday 7 June 2010.

**Stuart Charters** has received an increase of funding on the MoRST Grid Middleware subcontract for 2010.

## Visitors

**Abdul Rahni Mt. Piah**, of the School of Mathematical Sciences, Universiti Sains Malaysia, Penang, visited the Department of Applied Computing for three weeks during February. Professor Rahni has been collaborating with **Keith Unsworth** for a number of years in the field of Computer Aided Geometric Design.

**Chris Rogers** from Tufts University in Boston flew in for one of his characteristically brief visits in April. Chris collaborates with **Alan McKinnon** and Keith **Unsworth** on Robotable projects.

## PhD Theses

**Kenjie Irie**—*Noise-limited scene-change detection in images.*

## MSc Thesis

**Shirley Gibbs**—*An examination of near-graduates computer self efficacy in light of business employers' expectations.*

**Xi Zha**—*Supporting multiple output devices on an ad-hoc basis in visualisation.*

Theresa McLennan

## Otago CS

## News

### Move into the Owheo building

The department has settled into the Owheo building after its big move in 2009. Heating and ventilation issues are being resolved, and students appreciate the convenience of having the whole department, including undergraduate labs, academic staff, support staff, research labs and seminar rooms in one place. We even have our own museum and library now.

### Global Game Jam

The Computer Science department hosted the Game Jam in the last weekend in February, as one of three sites in New Zealand. On Friday evening the theme for the games was announced as "Deception", with additional constraints / sub-themes of 'Cakes, Snakes, Lakes'. Over 950 games were created worldwide in a 48 hour period.

Approximately 15 people worked over the weekend to produce three finished games. The event is fantastic fun, and is a great test, not just of programming and artistic skills, but also design, teamwork and project management.

## Research News

HE KITENGA, the University of Otago Research Highlights publication for 2009, has a large article called "Math modelling aids brain research" which describes the achievement of computational modelling of neurobiological

data by our senior lecturer **Lubica Benuskova**.

## Appointments

The department said farewell to two lecturers in March.

**Paul Werstein** had been with the department since 1995. He has retired and returned to the USA.

**Janet Rountree** had been a lecturer since 2007, and has moved on to further challenges.

We have a vacancy for a lecturing position. Closing date for applications is 10 May.

More info:

<http://www.cs.otago.ac.nz/departement/employment.php>

## Awards

### Alumnus wins Outstanding Animation Award

In February, former member of our Graphics research Group and alumnus **Alexis Angelidis** and three other colleagues won their category 'Outstanding Effects Animation' in an animated Feature Motion Picture (Up) at the VES (Visual Effects Society) Award ceremony in Los Angeles, which was otherwise dominated by awards to the movie 'Avatar'.

## Scholarships

### Student wins Apple scholarship

In April, student **Thomas Verbeek** won a two year Apple University Student Developer Scholarship, following his impressive performance with his project application and interview. The scholarship includes a MacBook Pro, membership of the Mac Developer Program and the iPhone Developer Program, support to attend Apple conferences in 2010 and 2011, and the chance to participate in the Apple USA internship program.

### Student wins sponsorship

Also in April, second year student **Benjamin Humphrey** won sponsorship to attend the Ubuntu Developer Summit, which is being held in Belgium in May.

### Apple University Consortium scholarship win

System Administration team leader **Dave Robertson** also won a scholarship from the Apple University Consortium, in April.

## Internships

Two students, **Evan Falgayrac** and **Alexandre Chal  on**, from Paul Sabatier University, France, are working on network security with PlanetLab and OPNET at the Systems Research Lab between April and June.

## Seminars

Jan 2010

Douglas W Oard, University of Maryland.

*Finding Things You Can't Read: Interactive cross-language search for monolingual users*

Mar 2010

**Brendan McCane**, Department of Computer Science.

*And now for something completely different ...*

**Grant Dick**, Department of Information Science.

*Self-adaptive evolutionary algorithms - are they all they're cracked up to be?*

**Peter A Whigham**, Department of Information Science.

*A Simple Model for a Limit-order Driven Market*

**Anders Claesson**, Reykjavik University; joint work with **Kyle Petersen**.

*Conway's Napkin Problem*

Apl 2010

**Martin Takac**, Department of Computer Science.

*Generation of idioms in a connectionist language production model*

**Holger Regenbrecht**, Department of Information Science.

*The Augmented Mirror Box Project*

**Lubica Benuskova**, Department of Computer Science.

*Towards computational neurogenetics*

## International visitors

The following visitors have worked with our Theory Group:

**Mathilde Bouvel**, Paris, Jan-Feb.

**Nik Ruskuc**, St Andrews, Jan.

**Anders Claesson**, Reykjavik, Jan-Apl.

**Vincent Vatter**, Dartmouth, Sep. '09

## Research and Study Leave

**Anthony Robins** completed his RSL between Jan and Dec 2010. After brief meetings in India he worked as a visiting researcher at the Computer Science Department, University of Kent at Canterbury, then returned to Otago for the majority of his leave. He worked on topics in computer science education and neural network models of memory.

## PhD Theses

**Hayden Walles**—*A perceptual basis for noun phrase syntax*

Robert Pollock

## Auckland

### News

#### ANZAC 2010 Programming League

The Department of Computer Science plans to host the ANZAC 2010 Programming League at the University of Auckland again this year (selected Saturdays). The organizer has asked for an early indication of interest.

#### New Website

In February 2010 the Department of Computer Science launched its new website. This revamped website has a new look and feel that is consistent with the new University of

Auckland website. The site will continue to evolve and grow over time as we respond to feedback from staff and students.

**Nevil Brownlee** has been appointed as IETF's Independent Submissions Editor.

## Appointments

At the beginning of February 2010, the Department of Computer Science welcomed **Gill Dobbie** as its new Head of Department. Gill's research and teaching interests include database systems, data warehousing, semistructured data, and software engineering.

**James Skene**, postdoctoral fellow under **John Hosking**, leaves us in May to take up an appointment with AUT.

**Yun Sing Koh** took up a postdoctoral position under **Gill Dobbie**.

**Cynthia Qu** joined us as the new Financial Administrator.

## Awards

#### An EPSRC grant (UK) involving Beryl Plimmer

The funding enables her to visit a group at Brighton University to develop a sketch tool for Euler diagrams, and the PI to do a return visit to NZ.

#### Runner-Up in the Microsoft Imagine Cup 2010

Team .enpeda. (**Feixiang Ren**, **Jinsheng Huang**, and **Ali Al-Sarraf**) was Runner-Up in the Microsoft Imagine Cup 2010.

**Andre Nies** gained the prestigious New Zealand Mathematical Society's Research Award for 2009.

#### IEEE programming contest: IEEEExtreme

One of our Auckland programming teams made the top 25 and in fact second place (from 700 teams competing from 40 countries all over the world) in the recent IEEE programming contest: IEEEExtreme. The second place team consists of **Ronald Chan**, **Itamar Amaith** (Michael Dinneen's MSc student) and **Glen Robinson**.

**Paul Denny**, **Andrew Luxton-Reilly** and **John Hamer** won an Ako Aotearoa Good Practice Publication Grant for "Peerwise - Student Generated Assessment Questions" which will support production of a digital video.

**Christof Lutteroth** won a Marsden Fast-start for the next three years for the project "Algebra for User Interface Customization". The goal is to develop a GUI customization approach for end users that can rival the complex customization technologies currently only usable by software developers.

**Burkhard Wuensche** and **Paul Denny** have both received BuildIT travel grants.



## Internships

PhD student **Thusitha Mabotuwana** (supervisor **Jim Warren**) has been offered a Microsoft internship with their Health Solutions group in the US and will be with them from about May to August working on integration of mobile health applications to their Amalga health data and services integration solution.

## Seminars and Events

**Andreas Saebjoernsen**, Dec 2009.

*Detecting Code Clones in Binary Executables*  
*Symposium on: Current Trends in Computer*  
*Part of the planning for ACCV2010*

**Felix Leder**, University of Bonn.

*Reverse Engineering Malware and Don't do this at home*  
*(Owning botnets)*

**Timo Ropinski**, University of Münster, Germany.

*Interactive Visual Analysis of Volumetric Data*

**Mark Moir**, Sun Microsystems.

*Experience with and Potential of Hardware Transactional*  
*Memory*

**Magne Jørgensen**, Simula Research Lab.

*How to Become an Excellent IT-research Institute with*  
*Substantial Impact on the IT-intensive Industry*

**Habib Naderi**, University of Auckland (PhD).

*Methods of Multihoming in IPv6*

**Eng Lim Goh**, Chief Technology Officer, SGI.

*Petascale applications : when processors spend more time*  
*talking than working*

**James Goodman**, University of Auckland.

*Source-Snooping Cache Coherence Protocols*

**John Case**, University of Delaware.

*Machine Self-Reference And The Theater Of Consciousness*

**Ian Witten, Gill Dobbie, Alec Holt, Nevil Brownlee**, May.

Gibbons Lecture Series: *Facing The Data Mountain*

**John Case**, University of Delaware.

*Computability Theoretic Learning Theory: 1. Philosophy of*  
*Science, 2. Cognitive Science, 3. Keeping Secrets.*

**Andrew Willmott**, Maxis.

*Video Games: Behind the Scenes*

**Alex Shafarenko**.

*Coordination language S-Net*

**Nicholas Weaver**, May.

*Inside the Netalyzer: Network Measurement and Debugging in*  
*Just Two Clicks*

## Visitors

**Dimitri Schlesinger** and **Boris Flach**, Dresden University of Technology, visiting **Georgy Gimel'farb**.

**Wolfgang Foerstner**, University of Bonn, visiting **Georgy Gimel'farb**.

**Johanna Leppavirta**, Helsinki University of Technology, working with **John Hamer** and **Andrew Luxton-Reilly**.

**Andreas Rausch**, Technische Universität Clausthal, Germany, visiting **Gerald Weber**.

**Timo Ropinski** from University of Münster, Germany; visiting **Burkhard Wuensche**

**K. Svozil**, visiting **Cris Calude**

**Iskander Kalimullin**, Kazan State University, Russia; visiting **Bakh Khousainov**

**John Case** from Uni., of Delaware, USA; visiting **Cris Calude** and **Bakh Khousainov**.

**Magne Jørgensen**, Simula Research Lab, Lysaker Norway; visiting **Emilia Mendes**.

## Conference

**Ewan Tempero** and **Ian Warren** chaired the Australian Software Engineering Conference (ASWEC 2010), which was held in Auckland on 6-9 April. This is the first time that ASWEC has visited NZ.

## PhD Theses

**Cameron Skinner**—*On the Discovery, Selection and Combination of Building Blocks in Evolutionary Algorithms*

**Hong Yul Yang**—*Measuring Indirect Coupling*

**Rainbow Cai**—*High Level Support for Performance Engineering, and Model Integration and Model Transformation*

Heather Armstrong

## Massey

### Appointments

**Andy Gilman** moved from Massey Palmerston North to Massey Albany. Andy was most recently a post-doctoral research fellow with **Stephen Marsland**, and has moved to be a lecturer at the Albany campus in the Institute of Information and Mathematical Sciences.

### Awards

**Eva Heinrich** was awarded the Darrylin O'Dea teaching award by Massey University for her work in e-learning. The citation includes the following statement: "Dr Heinrich's portfolio is a celebration of her significant contribution to eLearning and innovation across the teaching and learning spectrum. [...] Her understanding of pedagogy is outstanding and is demonstrated in the outcomes and successes of the technology-related learning and teaching projects which she has led—in particular, her work in the field of assessment. This work is complemented by her contribution to the development and implementation of ePortfolios within Massey and her scholarly contribution to this field in the international arena".

**Stephen Marsland** was awarded the early career award for mathematical research by the New Zealand Mathematical Society. The citation reads: "For his outstanding work in many areas of computational and applied mathematics, including self-organizing networks, machine learning, image registration, and generalized Euler equations".

## Sabbatical

**Ruili Wang** had a sabbatical visit to China, where he visited several long-term collaborators, including the State (National) Key Laboratory for Novel Software Technology at Nanjing University, the University of Science and Technology China (USTC) in Hefei, Hebei University of Technology in Tianjin and the Institute of Automation, Chinese Science Academy, and Tsinghua University, both in Beijing. As well as research, Ruili also strengthened Massey's connections with Hebei, with whom we have a strategic alliance.

## PhD Theses

**Mingzhe (Matthew) Liu**—*Theoretical Investigation of Traffic Flow: Inhomogeneity Induced Emergence*  
**Giovanni Moretti**—*A Calculation of Colours: Towards the Automatic Creation of Graphical User Interface Colour Schemes*

Stephen Marsland

## AUT

## News

### Square Kilometre Array (SKA) New Zealand (SKANZ)

SKANZ 2010 was a very successful series of events hosted by AUT University from 15–18 February this year and sponsored by AUT and the Australia research centres: Australia's Commonwealth Scientific and Industrial Research Organisation (CSIRO) and The International Centre for Radio Astronomy Research (ICRAR). They included a three day Conference: "Pathways to SKA Science in Australasia" and a one day Workshop: "VLBI and GNSS: NZ and Australian perspectives". SKANZ2010 attracted 110 participants, including many leading radio astronomers and scientists from 15 countries and representing 56 institutions. In total there were 55 oral presentations.

More info: [www.aut.ac.nz/skanz2010](http://www.aut.ac.nz/skanz2010)

The Square Kilometre Array (SKA) is a NZ\$4 billion next generation radio telescope, often called an IT radio telescope as it will require massive software development, a Terabit connectivity and an Exascale computing. SKA is planned to probe the Universe at a level of sensitivity orders of magnitude beyond what has previously been achieved.

More info: [www.skatelescope.org](http://www.skatelescope.org)

SKANZ2010 was an ideal opportunity to publicise SKA-related developments within Australia and New Zealand and

closely followed the Government's signing of the Australia – New Zealand SKA Cooperation Agreement and the commissioning of AUT's 12m antenna near Warkworth.

More info: [www.ska.govt.nz](http://www.ska.govt.nz) and [www.irasr.ac.nz](http://www.irasr.ac.nz)

Several positive spin-offs resulted from the events. Apart from the updates in international SKA developments, the spotlight was on progress in Australia and New Zealand and the benefits, both science and engineering, especially for New Zealand. As a result of the Workshop, a special Task Force is being set up to investigate possible SKA applications for Earth sciences.

### International Global Intellectual Culture workshop (IGIC)

The workshop on Global Intercultural Collaboration was held on 4-5 February 2010 at AUT. This was a highly successful and inter-cultural workshop, see write up by Ako Aotearoa, one of the sponsors.

More info: <http://akoaotearoa.ac.nz/ako-hub/ako-aotearoa-northern-hub/resources/files/global-intercultural-collaboration-future-challeng>

**Alvis Fong** gave his Inaugural Professorial Address early March on an overview of the semantic web that focuses on ontology as an effective conceptualism commonly used for the semantic web, an approach towards an automated ontology generation and discusses industrial applications such as the semantic helpdesk. Alvis pursues research in internet and multimedia technologies, digital communications and software engineering. His papers are regularly presented at IEEE/ACM conferences and have been published in many leading journals. He is the lead author of the book *Internet and Multimedia Engineering* (Wiley 2006). An active member of the professional community, he serves on the committees of many international conferences, as well as on the editorial boards of several journals. In 2009, he became the founding Editor-in-Chief of the *Journal of Advances in IT*.

**Tony Clear** was senior programme co-chair with **John Hamer** for this year's ACE 2010 Conference, in the second year of a rolling two year cycle. This results in outputs of a published conference proceedings for which he was the lead editor; a published joint panel statement; and he had the opportunity to jointly co-ordinate a BRACElet workshop with **Ray Lister** and **Jacqui Whalley**.

**Nik Kasabov** has been elected Fellow of the IEEE, effective from 1 January 2010. He was nominated and supported by several societies, among them the IEEE Computational Intelligence Society, and by prominent peers. His work was also mentioned in an article called "NZ firm has high hopes for cancer test" in the NZ Herald on Tuesday Jan 12 2010. **Nik Kasabov** is one of very few New Zealanders who has received this honour. He was invited to the position of Guest Professor at Shanghai Jiao Tong University for the next three

years; KEDRI will be actively involved in research collaboration with this university.

## Appointments

**Jeff Hunter** has been appointed as Head of Research to look after Mathematical Sciences area.

**James Skene** has been appointed as Lecturer in Software Engineering effective 1 June 2010.

**Paul Cowpertwait** has been appointed to an Associate Professorship in Analytics.

**Stig Emanuelsson** has been appointed to as temporary Lecturer in Logical Database Design.

**Guinevere Nalder** has been appointed as a fixed term lecturer in Mathematical Sciences.

**Alex Raichev** has been appointed as a fixed term lecturer in Mathematical Sciences.

**Hyuck Chung** has been appointed as a fixed term lecturer in Mathematical Sciences.

**Diana Kirk** has been appointed as a fixed term lecturer in Software Engineering.

**Neil Bennie** retired in December 2009.

**YunSing Koh** departed in February 2010.

## Awards

**Judith Symonds** gained a HRC grant for a project to use a mobile phone to augment goal management training for patients after brain injury co-investigators Boon-Chong Soon from School of Engineering, **Kathryn McPherson & Nicola Kayes** from School of Health and Cavit ABI from West Auckland.

**Stephen MacDonald** received TEC Summer Studentship to support **Michelle Jamieson** to undertake research in SERL relating to the use of fuzzy logic methods in software project management.

**Frederik Schmidt** has been awarded a BuildIT PhD scholarship. Frederik will be studying for his PhD in SERL in the area of search based software engineering under the supervision of **Stephen MacDonell** and **Andy Connor**.

**Sherlock Licorish** has been awarded a VC Doctoral Scholarship for three years as well as a BuildIT PhD Scholarship. Sherlock is undertaking research in SERL on assessing and modelling the impact of personnel changes in software projects and is being supervised by **Stephen MacDonell**.

**Stefan Schliebs** received the Dean's Award for the Best Postgraduate Study in the School.

SCMS PhD Fees Awards

**Frederik Schmidt**  
**Andrew Zimmer**  
**Seth Hall**

Academic Staff VC Doctoral Study Award

**Murray Black**  
**Leo Hitchcock**  
**Alan Litchfield**  
**Parma Nand**  
**Tim Natusch**

## Visitors

**Ander Berglund** and **Arnold Pears** from Uppsala University, Sweden, visited the School and each gave talk at the International Global Intellectual Culture workshop.

**Janet Tonk** from Tongji University, Shanghai, visited the School and gave a talk at the International Global Intellectual Culture workshop.

**TranCong Danh** from HoChiMinh University of Sciences, Vietnam, visited the School and attended the International Global Intellectual Culture workshop.

**Professor Marco Gori** and **Professor Edmondo Trentin** from the University of Siena visited KEDRI and gave seminars in February.

*Saide Lo*