NZCSRSC 2011

NZCSRSC (New Zealand Computer Science Research Student Conference) 2011 will be held at Massey University Palmerston North on 18-21 April 2011. We are well underway to making this another great student conference, and are working hard to meet the high standard that previous conferences have set.

The conference is all about networking and sharing of ideas between research students. It is THE event which gets students from all over the country to a single location to become part of an otherwise unseen national community of computer scientists. We escape from our offices and labs to show other people what interests us and what we have made. This is a great opportunity to practice the skills which are necessary in research, and also to propose (potentially incomplete) ideas and gain valuable feedback. For past attendees, this is another chance to discuss the progress of previously presented research, and maintain the relationships with students from other universities.

This conference is organised for and by students. Students submit and review papers from their peers. Authors of accepted long papers give a presentation, and short papers will have a poster session. There are also fun social events, interesting keynote speeches, and opportunities to meet industry sponsors. The call for papers has already gone out; the deadline is 10 Dec. 2010. There is a list of student partners on the web site, and further information. The value gained from this conference comes from the students who attend, so as always we are relying on all computer science research students to help make this conference great.

NZCSRSC accepts papers from students even if they have been published elsewhere. Also, the Proceedings are not published on paper, so presentation at this conference shouldn't inhibit re-submission of papers to other venues.
Graham Jenson, Co-Chair
More info: http://seat.massey.ac.nz/nzcsrc2011

Victoria

News

IPENZ Provisional Accreditation for BE
The Institution of Professional Engineers New Zealand has granted provisional accreditation for Victoria University's Bachelor of Engineering Degree. The accreditation covers the three specialisations of Electronic and Computer System Engineering, Network Engineering, and Software Engineering. The Bachelor of Engineering degree was developed in 2005, following an extensive programme of capital expenditure and staff recruitment, in support of the University's aim of providing an internationally acclaimed engineering program.

Visit by IPENZ appointed panel
A panel appointed by the IPENZ visited the University from 14-16 Jul 2010, and made the following comments regarding the strengths of the programme:
- Broader graduate skills are encouraged by Part 3 of the degree, which allows students to choose three coherent courses outside their area of specialisation.
- Students benefit from the team and project-based experience the programme provides.
- Staff demonstrate collegiality and enthusiasm for engineering.
- The teaching programme is enriched by the staffs' research and industry interaction.
- VUW is committed to providing strong institutional support for engineering.
- VUW provides a good quality and quantity of infrastructure, personnel, technical and other resources in support of the programme.
- The accreditation process is extensive and meticulous, and helps provide assurance to both students and industry regarding the quality of degrees.
- The degree will be eligible for full accreditation once the first graduates have spent time in the industry, and the effectiveness of the programme can be verified.

Peter Andreae has been on a series of Ministry of Education writing groups developing brand new Achievement Standards for the Programming and Computer Science strand and the Digital Infrastructure strand of the new Digital Technologies area within the secondary school Technology curriculum.

These new standards will be rolled out from next year, starting with the Level 1 standards. In 2014, university Computer Science departments will see a new group of first year students who will not need to take a CS1 course; we will need to modify our programmes to accommodate a new stream of students who will be better prepared for Computer Science/Software Engineering and should also have a much

better idea of what the discipline of Computer Science is about. Computer Science departments around the country will need to provide support and professional development for the high school teachers who will be putting this into practice, many of whom have not taught, or even learned, any programming before.

Awards and Prizes

Thomas Kuehne, ACM SIGSOFT Conference Distinguished Paper Award
An Observer-Based Notion of Model Inheritance
"Return on investigation" is an increasingly important consideration in model-based engineering, and it is more cost-effective to create a new model from an existing one rather than create it from scratch. It therefore makes sense to make maximum use of the relationships between models. Organising models in a network of relationships enhances model retrieval, investigation of model compatibility, and megamodeling of big systems. It is intended that the ideas introduced in the paper will form the foundation of a systematic basis for organising models.
Full paper: http://www.springerlink.com

Social Cloud Computing
Kyle Chard and **Kris Bubendorfer** recently featured in the *IEEE Spectrum Magazine* on the development of a "social cloud," which would facilitate the sharing of information, hardware, and services by using the computing resources of a person's online network "friends."
The researchers say that existing friendships on social media sites like Facebook could provide a reliable framework for long-term, regulated resource sharing. However, social networking would have to be combined with certain market controls like financial payments, social ranking, or credit trading to encourage appropriate behavior in such a setup, they say. Sharing within a network of friends, according to the researchers, could cut down on privacy concerns and certain inefficiencies inherent to conventional cloud computing.
Full article:
http://spectrum.ieee.org/computing/networks/how-facebook-could-make-cloud-computing-better

Seminars

Kate Kaiser, Macquette University, Milwaukee, USA
Information Technology Workforce Skills for the Future
Felix Leder, Giraffe Chapter of the Honeynet Project
Take a Deep Breath and Join in for a Dive into Conficker
Phillipe Kruchten, University of British Columbia, Canada
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
Rashina Hoda
Organising Self-Organising Agile Teams
Robert O'Callahan, Mozilla Corporation
API Design for the Masses
Rustan Leino, Microsoft Research
The Dafney Program Verifier
Van Lam Le
Improving the Performance of Client Honeypot
Urvesh Bhowan
Genetic Programming for Classification with Unbalanced Data
David Pearce
Whiley: a Language with Extended Static Checking
Winston Seah
Wireless Communication Networks in Extreme Environments
James Hill, Indiana University / Purdue Uni, Indianapolis
Model-Driven Engineering Techniques for Continuously Validating Enterprise Distributed Realtime and Embedded (DRE) System Quality of Service
Bastiann Kleijn, Massey University
Flexible Source Coding
Nicholas Erdody
Open Parallel, a NZ Start Up in Open Source, Multicore and Parallel Computing
Lichun Bao
Enabling Spectrum Sharing Using Software Defined Radios
Allan Weeks
Wireless Monitoring and Control
Benjamin Palmer
PhD Proposal Seminar: A Protocol for Anonymously Establishing Digital Provenance in Reseller Chains
Peter Whighan, University of Otago
Evolving a Trader for a Limit-Order Driven Market
Jinho Choi
Wireless Research in the Future
Rossouw Von Solms
Integrating Information Security into the Software Development Life Cycle
Nigel Fine, IET Chief Executive
Meet the IET
Bastiaan Kleijn, Massey University
Modelling for Manalysis, Coding, and Synthesis
Stephen Cheng, CEO Innaworks Ltd
Compiler is Dead. Long live the Compiler.
Syed Jafar
Inteference Alignment

Scholarships

Victoria PhD/Doctoral Scholarships
Stephanie Reid

Su Nguyen
Shubhashis Shil

BuildIT PhD Travel Grant
Urvesh Bhowan

PhD Theses

Sergio Hernandez—*State Estimation and Smoothing for the Probability Hypothesis Density Filter*
Kourosh Neshatian—*Feature Manipulation with Genetic Programming*
Christian Seifert—*Cost-effective Detection of Drive-by-Download Attacks with Hybrid Client Honeypots*
Kok-Lim Yau—*Context Awareness and Intelligence in Cognitive Radio Networks: Design and Applications*

MSc Theses

Charles Tsui—*Modelling Wireless Robots for Urban Search and Rescue in Artificial Rubble*
Yu Ren—*Analysis and Implementation of Reinforcement Learning on a GNU Radio Cognitive Radio Platform*
Stephen Winch—*The Redesign and Implementation of A Reliable Robotic Pipe Inspection System*

Suzan Hall

Canterbury

Awards and Prizes

Students
Dominic Winker, CSSE Masters student, has been awarded the G B Battersby-Trimble Scholarship in Computer Science 2010.

Stephen Fitchett, a PhD student was awarded a Research Intern Award to do a three month internship at Microsoft Research Asia in Beijing (starting in Oct).

Mohammad Obaid, PhD student, presented his work at the most prestigious computer graphics conference, SIGGRAPH.

A very successful two day Departmental Postgraduate Conference was held on 31 Aug and 1 Sep.

There was a prize for the best paper, which was awarded as follows:

Honours:	**Oliver Cardwell**
Masters:	**Chunhui (Brenda) Zheng**
PhD:	**Jaco Fourie**

NZ Programming Contest
A total of 46 teams from around NZ competed in the annual NZ Programming Contest in Oct in five different categories. Our UoC teams came away with the top three places both in their section (Tertiary Open) and overall. Team Beginners

(**Brendan Bycroft**, **Tho Dinh and Robert King**) took first place with 182 points, closely followed by Chimera (**Stephen Fitchett, Janina Voigt** and **Michael McGee**) on 172 points and Team JET (**Joey Scarr, Edwin Flores** and **Thomas Steinke**) on 143 points. The fourth "team", aptly named Embarrassingly Unparallel, was uniprocessor **Josh Oosterman**, who competed impressively against all the 3-cores, coming home in seventh position in the Tertiary Open category with 82 points.

South Pacific Regional contest of the ACM's International Collegiate Programming Contest
In Sep, 58 teams of three students competed in the Contest. Congratulations to Team Chimera - **Janina Voigt, Stephen Fitchett and Michael McGee** who were sixth overall but finished up as the top New Zealand team (out of 14 teams) and have won themselves a trip to the World Finals in Egypt in Feb 2011.

Staff
Two groups have won Marsden grants, led by **Andy Cockburn** and **Tanja Mitrovic** respectively. The projects are:
1. Understanding and improving the transition from novice to expert performance with user interfaces **Andy Cockburn**, **Carl Gutwin** (University of Saskatchewan).
2. Adaptive computer-based cognitive training for post-stroke rehabilitation Professor **Tanja Mitrovic**, **S Ohlsson** (University of Illinois at Chicago), **A McKinlay**, **Moffat Mathews**.

Richard Green and his research team have won a FRST grant to develop an intelligent vision-based pruning system that could save New Zealand's horticulture industry $27.5 million a year. They received almost $3 million in funding from the Foundation for Research, Science and Technology.
More info:
http://www.comsdev.canterbury.ac.nz/news/2010/100712a.shtml

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

Tim Bell won a 2010 BuildIT Research Publicity Prize, recognising his achievements in publicising ICT research in the NZ media, in particular with respect to being a featured guest on the "Nine-to-Noon" programme of Radio NZ National.

PhD Theses

Adrian Clark—*OPIRA: The Optical-flow Perspective Invariant Registration Augmentation and Other Improvements for Natural Feature Registration*
MinKyung Lee—*Multimodal Interfaces in Augmented Reality Environments*

MSc Thesis

Chien-Wei Lee—*A Novel Design and Implementation of DoS-Resistant Authentication and Seamless Handoff Scheme for Enterprise WLANs*

Gillian Clinton

Waikato

News

Bernhard Phafringer and **Geoff Holmes** were program chairs at Discovery Science 2010 Conference in Canberra in Oct.

In Jun **Te Taka Keegan** travelled with the Māori Recruitment team and went to two local schools to talk about our department/school/faculty; Rakau Mangamanga in Huntly, Ngā Taiātea in Hamilton. The following week he went with the group to Rotorua schools Te Koutu and Raumata. He was using some of the exercises from the Computer Science Unplugged program and the children seemed to really enjoy it.

Iwi Based Digital Library Development
In Sep the digital library group led by **David Bainbridge** ran the workshop "Iwi Based Digital Library Development" in partnership with the Hauraki Maori Trust Board. Participants hailed from Maniapoto FM, Maniapoto the Ministry of Education, Ngati Hikairo, Te tini o Kawhia, Te Whakatohea Maori Authority Trust Board, and the Tuhoe Education Authority.

During the year **Ian Witten** gave keynote talks at the Joint ACM Web Intelligence/Intelligent Agent Technology conference in Toronto; the International Conference on Rough Set and Knowledge Technology Conference in Beijing, and the Conference on eLearning and Technical Documentation for the Developing World in Aizu Japan. He conducted a 4-day Greenstone Workshop at the national Library of Trinidad, and gave talks at the Library of the Chinese Academy of Sciences, Peking University, Yunnan University, and Kunming University in China and Aizu university in Japan.

Congratulations to **Claire Timpany** and her partner Gordon Sims who became engaged while on holiday in Tonga in May. Claire and Gordon plan to get married in Jan.

David Milne gave presentation on the Hōpara (Māori for "explore") interface at the NZCS 50th anniversary conference in Rotorua.

Appointments and Departures

Congratulations to **Hazel Gamec**, who has been appointed to the Advisory Group to INDIGO (the International Indigenous Design Network). The Advisory Group plays a key role in supporting INDIGO's strategic development, policy, and outreach. Hazel was appointed to Professor UoW in March 2008 when she retired from Wanganui School of Design, which Hazel established under the umbrella of the Wanganui Polytechnic and later Ucol.

Perry Lorier was head hunted by Google and went to Dublin as a Senior Site Reliability Engineer. He started with a seventh form scholarship 13 years ago and since 2001 has worked with the WAND group as a research assistant.

Gina Roberts has accepted the challenge of stepping into the role of Academic Support Officer. She has a New Zealand Diploma in Business, has spent approx 14 years in New Zealand's Defence Force, and worked in various industries in Administrative and Accounts roles.

David Milne, Veronica Liesaputra and Shaoqun Wu have all accepted Postdoctoral positions as Research Felllows.

Jessica Thompson and **Sam McIntosh** have been employed as Research Programmers under the supervision of **David Bainbridge.**

Gabe Young has been offered a google summer internship in Sydney. **Jeffrey Brown** and **Eru Penkman** have both been offered summer internships at Orion Health.

A number of our students have been hired by Orion Health, including: **Lisa Quayle, William Campbell, Laura Bocock** and **Sandeep Mala Setia**. **Rachel Francis** has accepted a position with Datacom.

Research Grants

Annika Hinze received an ISAT grant for collaboration with the University of Minho in Portugal, and also an ISAT/Brap grant for collaboration with the Freie Universitaet Berlin, Germany.

Awards and Prizes

UoW Thesis-in-Three Competition
Michael Walmsley won the People's Choice award and was runner up for the main award in University of Waikato's Thesis-in-Three Competition, with a talk entitled "Leisurely Language Learning – Computer Assisted Reading in a Foreign Language".

Quan Sun is, once again, one of the winners of the UCSD Data Mining Contest.

Marc McHardy, a 2009 BCGD won a bronze prize at the DINZ Best Awards, category "Graphic Interactive Product Spatial".

Beverly Landry (nee Rogers) won Best Student Paper at CHI-NZ 2010.

David Bainbridge and **Sam McIntosh** won the Best Paper or Demonstration prize at the combined JCDL and

ICADL conferences, in Surfers Paradise. Their demonstration was "Integrating Greenstone with an Interactive Map Visualizer".

Steve Reeves and Judy Bowen won best late breaking results paper award at ACM EICS 2000 for their paper "Developing Usability Studies via Formal Models of UIs".

Most Influential Paper was awarded to **Lindsay Groves, Ray Nickson, Greg Reeve**, **Steve Reeves** (UoW) and **Mark Utting** (UoW) for the Australian Software Engineering Conference 2000 Paper "A Survey of Software Development Practices in the New Zealand Software Industry".

Craig Nevill-Manning, of Google USA (UoW ex student), received a University of Waikato Distinguished Alumni award.

Masood Masoodian is a participant in a German grant application that's receiving 160,000 Euros from the German Ministry of Research and Education (BMBF) for a joint project with the University of Augsburg and the Augsburg University of Applied Sciences. The project aims to further scientific and technical exchange between Germany and New Zealand.

Scholarships

Technology New Zealand MSc (Capability Funding)
    Ignatius Tsai

Internship

A clever idea won Computer Graphic Design student **Marc McHardy** an iPod and an inaugural web development internship with e-design company Digital Stream.

Seminars

Greg Butler, Computer Science & Engineering, Concordia University, Montreal. Oct.
Analysis and mining of transcriptome data
Laura Bocock, Honours Student University of Waikato. Oct.
There's something about Lean
Stefan Kramer, Computer Science, Technical University of Munich. Oct.
Learning Real-Time Automata from Multi-Attribute Event Logs
Data Mining Methods for Predictive Toxicology
Beryl Plimmer, University of Auckland. Oct.
Why we need better digital ink recognizers
Subana Shanmuganathan, Geoinformatics Research Centre Auckland University of Technology. Sep.
Eno-Humanas: An Introduction to Research at GRC
Peter Andreae, Victoria University, Wellington. Sep.
NCEA achievement standards for computing.
Craig Nevill-Manning, Google, USA. Aug.

Public lecture: *Nerds in crisis: using technology to respond to disasters*
Tech talk: *Search, Research, Show and Tell*
James Curran, School of Information Technologies, University of Sydney. Aug.
Efficient Statistical Parsing with Combinatory Categorial Grammar
Glen Newton, Carlton University, Ottawa, Canada. Jul.
Journals in Semantic Land: The visualization of a large-scale research article collection for use in search refinement
Wendy Osborn, University of Lethbridge, Alberta, Canada. Jul.
Spatial data support in Greenstone and context-aware mobile systems.
Bob Doran, University of Auckland. Jul.
The Totalisator – the Algorithm that led to an Industry
Roland Backhouse, University of Nottingham. Jul.
Algorithmic Problem Solving
The Algorithmics of Solitaire-Like Games
Hussein Sulemann, University of Cape Town. Jul.
Preserving African Cultural Heritage
Caleb Phillips, University of Colorado, USA. Jul-Aug.
Analysing the efficacy of existing predictive path loss models for coverage mapping and planning of 2.4 GHz wireless networks in urban (microcell) environments
Alex Shafarenko, University of Hertfordshire. May.
Coordination Language S-Net
Adrian Dorrington, University of Waikato. May.
Advances in time-of- flight 3D range imaging

Visitors

Jonathan Bowen, Chair of Museophile Limited, Nov.
Michael Twidale, University of Illinois. Oct-Dec.
Sahar Mohajerani, Chalmers University of Technology in Göteborg/Sweden. Oct-Dec.
Borja Balle, Barcelona UPC-Tech. Oct.
James Curran, School of Information Technologies, University of Sydney. Aug.
James Mansell, of Child, Youth and Family Wellington. Jul.
Michael Rinck, Humboldt University Berlin, Germany. May-Sep.
Edie Rasmussen, University of British Columbia, Vancouver, Jul-Aug.
Caleb Phillips, University of Colorado, USA. Jul-Aug.
Roland Backhouse, Nottingham University. Jul.
Célia Biguzzi, Montpellier. Jun.
Beniot Donnet, Université catholique de Louvain (UCL) in Belgium (uclouvain.be.). May
Andy Rauber, Vienna University of Technology, Austria. May.

PhD Theses

    Jesse Read—*Scalable multi-label classification*

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CSANZ
Computer Science Association of New Zealand
http://www.cs.waikato.ac.nz/csanz

David Milne—*Applying Wikipedia to interactive information retrieval*
Veronica Liesaputra—*Realistic electronic books*

MSc Theses

Alistair King—*Efficient internet topology discovery techniques*
Samuel McIntosh—*Integrating interactive digital maps into a digital library*
Brook Novak—*Seamlessly editing the Web*
Gian Perrone—*Bigraph metaprogramming for distributed computation*

Lincoln

News

Industry Connections
The Department of Applied Computing hosted a Computer Industry Liaison Group meeting on 12 Oct. The theme of the meeting was industry based projects involving our students. The projects presented included current projects that post-graduate and under-graduate students are involved with as well as an overview of past projects. The meeting was well attended by a variety of industry people as well as Lincoln's employment liaison representative, **Michelle Ash**, who gave a thorough presentation of her role including ways industry can make contact with current students and recent graduates.

Shirley Gibbs and **Theresa McLennan** attended the CITRENZ conference in Dunedin and presented a paper on the difference in computing skills between the different age-groups of students entering our introductory computing subject.

Stuart Charters and **Clare Churcher** attended the NZ Computer Society 50 years of ICT Innovation Conference in Rotorua.

Lincoln was well represented at the first NZ eResearch Symposium in Auckland. **Stuart Charters** presented a workshop on education and outreach for HPC and eResearch as well as presenting and co-presenting three posters, including one with **Walt Abell** and current Postgraduate student **Johari Abdullah**.

In late Aug **Shirley Gibbs** participated in a writing session for the Digital Information strand of the new Digital Technology curriculum for NCEA level 1. The purpose of this session was to write the study material for the database segment of the Digital Information Strand. This material will be taught to NCEA level 1 classes from 2011.

Other News
The Department of Applied Computing was relocated in Jun to the newly refurbished fourth floor of the **George Forbes** Building. Luckily our new offices survived the Christchurch earthquake on 4 Sep quite well, aside from some relatively minor plaster cracks. Unfortunately one of the University's oldest buildings, Memorial Hall, suffered more damage and is now closed awaiting refurbishment.

Appointments/Staff

After 24 years of service to Lincoln University **Theresa McLennan**, Senior Lecturer in Applied Computing, retired on 25 Jun. Her expertise in end-user computing is being sorely missed.

Awards

The 2010 JADE prize was awarded to current undergraduate student **Gareth Falkingham**. The prize is awarded to the student who receives the top mark in Comp314 Software Engineering. The presentation was by **John Ascroft** from JADE, with speeches by **Debby Hutchison**, lecturer of Comp314, and **Roger Field**, Vice Chancellor of Lincoln University. The presentation was attended by Gareth's parents, members of the Applied Computing group and representatives of the ACG Industry Liaison group.

Shirley Gibbs

Otago CS

News

Michael Albert is acting Head of Department while Professor **Brendan McCane** is on sabbatical until Dec 2010.

Robocup
Three of the Department's staff are now involved in supporting RoboCup Junior in Otago, a robotics competition for schools (http://robocupjunior.org.nz/). Students from high schools, intermediates, or even primary schools take part annually. The competition consists of three events: Soccer, where teams of two robots each play using an infrared emitting ball; Search and Rescue, where a robot navigates an obstacle course; and Dance, where robots (and students!) show off their moves on the dance floor. Most teams build their robots using Lego Mindstorms NXT kits.

Regional RoboCup competitions are held all round the country (including Dunedin for the Otago and Southland region). Winning teams from the regions can participate in the national finals every year. This year's national final was to have been held in Christchurch on the weekend of the earthquake, but has been rescheduled to Wellington in early Dec.

The RoboCup events are a great way to introduce students to programming and simple engineering in a context that is practical, applied, challenging, and a lot of fun. We get a great

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CSANZ

Computer Science Association of New Zealand
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range of students participating every year. It's hard to think of a better introduction to programming!

SIGIR Secretary

Andrew Trotman has been elected ACM SIGIR Secretary, a three year appointment. SIGIR is the leading academic Special Interest Group on Information Retrieval. It supports research into all aspects of IR research, including theory, HCI, efficiency, and accuracy.

Student success

Ikarus Security Software, Austria's leading IT Security company, offered **Natascha Chrobok** a position after reading her recent paper "Advantages and Vulnerabilities of Pull-Based Email-Delivery" published in the Proceedings of the 2010 Australasian Information Security Conference. Natascha studied email spam prevention under the guidance of **Andrew Trotman** and **Richard O'Keefe**.

Appointments

New lecturers **David Eyers** and **Haibo Zhang** will be joining the department, Haibo in Nov and David in Feb 2011.

Conference

Brendan McCane is General chair of the ACCV2010 (Asian Conference on Computer Vision) conference in Queenstown in Nov, which the Department is helping to organize.
More info: http://www.accv2010.org/index.html

Awards

Best Ambassador

In Sep **Lubica Benuskova** won the 'Best Ambassador' award by Tourism Dunedin for her work in promoting the city.
More info: http://www.odt.co.nz/news/dunedin/127683/best-ambassador-named

Exceptional Thesis Award

Student **Hayden Walles** won a 2010 University of Otago Division of Sciences Exceptional Thesis award for his thesis "A perceptual basis for noun phrase syntax" (primary supervisor **Alistair Knott**. A thesis is of exceptional quality when all three examiners agree that the thesis is of an exceptional standard in every respect - research content, originality, quality of expression and accuracy of presentation and is amongst the top 10% of theses examined.

Internships

The Artificial Intelligence lab had two internship students from University of Paul Sabatier in Toulouse, France, during Apl and Jun. **Nicolas Wazylezuck** and **Adrian Sibilla** worked with **Alistair Knott** and **Lubica Benuskova**, respectively, on neural networks.

Zhiyi Huang currently has an intern PhD student, **Quan Chen** from Shanghai Jiao Tong University, who is working at the Systems research group between Jun and Nov 2010.

PhD Thesis

Fausal Hasab—*Protocol Support for Adaptive Streaming Media*

Visitors

Robert Brignall (Open University) will be visiting the department for two weeks in Nov to work with **Mike Atkinson** and Associate **Michael Albert**.

Seminars

Jul 2010
Steven Mills, Areograph Limited.
Seeing through Many Eyes
Chris Edwards, Teaching Fellow, Department of Information Science.
Networking Audio
Michael Albert, Department of Computer Science.
Touring Hanoi

Aug 2010
Grant Dick, Department of Information Science.
Niching methods for evolutionary algorithms – where to from here?
Richard O'Keefe, Department of Computer Science.
Finding out what patents are like
Michael Winikoff, Department of Information Science.
Supporting Change Propogation in UML Models
Willem Labuschagne, Department of Computer Science.
Everything you ever wanted to know about nonmonotonic logic

Sep 2010
Alec Holt, Department of Information Science.
Health care - moving to a consumer-centered model: information access, generating and sharing
Ali Knott, Department of Computer Science.
Some ideas about a neural network model of mental states
Vivian Yong, PhD Student, Department of Information Science.
Semantic Representation of Scenes in Image and Video Retrieval

Oct 2010
Hayden Walles, Department of Computer Science.
Cardinality Blindness in Visual Classification and its Implications
Tobias Langlotz, Christian Doppler, Lab for Handheld Augmented Reality, Graz University of Technology.
User generated annotations for augmented reality
Geoff Wyvill, Department of Computer Science.
Prior Art and Computer Animation

Robert Pollock

Auckland

News

The Peter Gibbons Memnoriual Lecture Series was well attended. The theme was "Facing the Data Mountain".

5 May: **Ian Witten**: *How the dragons work*
12 May **Gillian Dobbie**: *There's gold in them thar mountains*
19 May: **Alec Holt**: *The Health Care Revolution*
26 May: **Nevil Brownlee** *Internet Challenges*

Archives of the talks:
http://www.cs.auckland.ac.nz/our_department/Gibbons_Lecturers/

School's events such as Incredible Science (primary and secondary) and Courses & Caree6rs Day (Year 12-13) were well attended this year.

Finalists have been identified for the inaugural $10,000 Clinton Bedogni Prize in open systems. The winner will be announced at the NZ Open Source Awards 2010 gala event in Wellington in Nov.

The Computer Science Department is now offering student Summer School Scholarships for the summer of 2010/2011.

Invited Talks
Brian Carpenter was an invited keynote speaker at the Irish IPv6 Summit meeting in Dublin, Ireland on 19 May 2010 (http://www.ipv6.ie/summit2010/).
Andre Nies was an invited speaker at the International Congress of Mathematicians, Hyderabad, India.

Elections
John Hosking and **Andre Nies** have been elected fellows of the Royal Society of New Zealand.
Cris Calude was elected to serve as a member on the Informatics Section committee of Academia Europaea, a European non-governmental scientific academy founded in 1988. Its members are scientists and scholars who collectively aim to promote learning, education and research.

Appointments

Aaliya Ahmed took up a permanent position as Research Programmer.
YeoJin Jo (Tamaki administration) returned from maternity leave.

Awards, Scholarships, Prizes

DongJin Lee, Nevil Brownlee and **Brian Carpenter** won an award for one of the top papers at the ICIMP 2010 conference with the paper "Observations of UDP to TCP Ratio and Port Numbers", Barcelona, May 2010.

David MacDonald, student, received a Fulbright Award. He is heading to University of California, Berkeley to undertake a Masters of Science in Computer Science.

Georgy Gimel'farb, Patrice Delmas, John Morris and Burkhard Wuensche are part of a team of 17 staff from Engineering that have obtained "International Research Team Development Awards".

Konstantin Schauwecker and **Simon Hermann** received the Akira Nakamura Award in 2010 for their accepted paper at the ACCV workshop on "Computer Vision in Vehicle Technology: From Earth to Mars". **Akira Nakamura** (Professor Emeritus of Hiroshima University) provided this award for supporting the presentation of this accepted paper at the ACCV workshop.

Mark Wilson, with **Arkadii Slinko** (Maths), **Matthew Ryan** (Economics), **Patrick Gerard** (Philosophy), received a cross-faculty research initiative award for a project entitled "Mathematical, logical and algorithmic aspects of decision making".

Georgy Gimel'farb and **Patrice Delmas** with **Heide Friedrich** (Civil and Environmental Engineering) received a cross-faculty research initiative award for a project entitled "What lies beneath: Developing a low cost in situ underwater dynamic stereo photogrammetry system for engineering and environmental science applications".

Cris Calude received a London Mathematical Society fellowship awarded to visit the universities of Leeds, Oxford and Edinburgh in Oct.

PhD student **Yulong (Helen) Gu** received the Branko Cesnik Award for Best Student Accepted Scientific Paper at the Australian Health Informatics Conference. The paper was Gu, H., Warren, J. & Day, K., "Helping Clinicians Identify the Clinical Utility of Genetic Tests."

FP7-PEOPLE-2010-IRSES application RANPHYS (EU: Ecole Normale Superieure, Paris, Ecole Politechnique, Paris, Technical University Vienna; NZ: UoA team including **A. Abbott, C. Calude, M. Dinneen**; general coordinator **K. Svozil**) has been approved.

2010 Computer Poker Competition
The results of the 2010 Computer Poker Competition were announced last month at the AAAI-10 Conference in Atalanta. This year we submitted a new version of Sartre as our entry for the heads-up limit competition and SartreNL as our entry for the heads-up no limit competition. Both Sartre and SartreNL achieved a top three spot in one of the divisions. Sartre placed third in the limit bankroll division out of 13 competitors. SartreNL placed second in the no limit bankroll instant run-off division out of five competitors. This is a significant improvement on our sixth & seventh placings in

the 2009 competition. Competitors included 11 University teams (e.g., Alberta, CMU, University of Texas at Austin) and hobbyists from around the world.

Beryl Plimmer won the BuildIT Publicity Prize for ICT in Research, for an article entitled "Computers and Hand-Drawn Design".

PhD student **Daniel Bertinshaw** has received a travel fellowship from the Semantic Web Science Association to attend International Semantic Web Conference 2010 in Shanghai in Nov.

Clark Thomborson appeared on Jim Mora's show on 9 Jun, for a discussion of "BP Buys 'Oil' Search Terms to Redirect Users to Official Company Website".

Seminars and Events

Jiamou Liu, University of Auckland & Leipzig University.
The isomorphism problem on classes of automatic structures
Konstantin Schauwecker, University of Auckland.
Ground manifold approximation
Ewan Tempero, University of Auckland.
Use of Inheritance in Java
Aniruddh Gandhi, University of Auckland.
Efficient algorithms that solve games on trees
Ralf Haeusler, University of Auckland.
Evaluating image sequence data (independent of stereo or motion algorithm performance evaluation)
Se-young Yu, Lei Qian and Jiangfeng (Jerry) Ren, University of Auckland.
Efficiency of IPv4 - IPv6 Translators
André Nies, University of Auckland.
Borel structures
Yun-Bum Kim, University of Auckland.
Synchronization of P Systems
Fuad Tabba, University of Auckland.
Adding Concurrency in Python Using Transactional Memory
Moon Ting Su, University of Auckland.
Capturing exploration to improve software architecture documentation
Rosemary Ke, University of Auckland.
State complexity of regular languages
Reinhard Klette, University of Auckland.
Efficient Solutions of Euclidean Shortest Path Problems in Euclidean Space
Rosemary Ke, University of Auckland.
State complexity of regular languages, Part 2
Haokun Geng, University of Auckland.
On-line Database for Tracks of Footprints of Small Species
Mutsuhiro Terauchi, Hiroshima International University.
An evaluation of motorcycle riding skills from image sequences AND An experimental study on audio representation of spatial information
Bob Doran, University of Auckland.
What I Did On My Holidays – aspects of computer history

Richard Taylor, University of California at Irvine.
Architectural Styles for Runtime Software Adaptation
Simon Hermann, University of Auckland.
Studies on semi-global matching in stereo image analysis
Helmut Schwichtenberg, Ludwig-*Maximilians Universitaet Muenchen.*
Proofs and computations
Gisela Klette, Bio-Medical Engineering Institute, TOTAL SOFT BANK Ltd., Busan, Korea.
A New Algorithm for Calculating the Relative Convex Hull
Muhammad Asif Naeem, University of Auckland.
R-MESHJOIN for Near- Real-Time Data Warehousing
Ali Al-Sarraf, The .enpeda.. Project, University of Auckland.
Multiple object tracking using tracking by detection and object categorization
Brian Carpenter, University of Auckland.
Journey to the Centre of the Internet
Hui Ma, Victoria University of Wellington.
A Geometrically Enhanced Conceptual Model and Query Language
Michael J. Dinneen, University of Auckland.
The Evolution of P Systems, to Hyperdag P Systems, to P Modules
Thomas Forster, Cambridge University, UK.
Yablo's Paradox
Alexander Melnikov, University of Auckland.
Exotic properties of computable abelian groups
Mark Wilson, University of Auckland.
What is Computational Social Choice?
Daniel Bertinshaw, University 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, University of Auckland.
Edge- and node-disjoint paths in P systems
Frank Stephan, National University of Singapore.
Automatic Structures and Model Theory
Masoud Khosravni, University of Auckland.
Hardness of Approximation and Integer Programming Framework for the Spanning Caterpillar Problem

Visitor

Mutsuhiro Terauchi, Hiroshima International University, visiting **Reinhard Klette.**

PhD Theses

Shorin, Sergei (A1)—*Modelling Inhomogeneous Noise and Large Occlusions for Robust Image Matching* (supervisor **Pat Riddle/Georgy Gimel'farb**)
Schultz, Carl—*Applied Qualitative Reasoning Framework* (supervisor **Robert Amor**)

Uthus, David Carl—*Reinforcement Learning in Dynamic Environments* (supervisor **Pat Riddle**)
Thusitha Mabotuwana—*ChronoMedit – a Computational Quality Audit Framework for Better Management of Patients with Chronic Disease* (supervisor **Jim Warren**)

Heather Armstrong

Massey

News

NZCSRS Conference

Next year the New Zealand Computer Science Research Student Conference will come to Palmerston North for the first time. Two of our PhD students, **Graham Jenson** and **Ayesha Hakim**, are already deeply involved in the planning for this event.

Appointments

In the recent promotions round, **Jens Dietrich** was made Associate Professor, while **Ruili Wang** was promoted to Senior Lecturer range 2.

Travel

Russell Johnson is part of a Massey collaboration with colleagues from Sukhothai Thammathirat Open University (STOU), Bangkok, to develop an online system for teaching English for Speakers of Other Languages (ESOL) to Thai distance students using tutors located at Massey's Palmerston North campus. Russell visited STOU earlier this year, and noted that many STOU's 200,000-strong student body showed significant demand for interactive online ESOL courses that emphasise practising speaking and listening skills with native English-speaking tutors. The biggest software engineering challenges have proved to be developing an easy to install and use system that supports interactive conversation across a variety of internet connection conditions, and how to automatically translate and reconfigure an interface originally developed in English into Thai (or the language of any other target group) in a meaningful and culturally appropriate manner.

Visitors

In Mar we were visited by **Daniela Rus** from CSAIL at MIT, who visited **Catherine McCartin**, and gave a talk on distributed robotics.

In Jul and Aug **Hans Guesgen** and **Stephen Marsland** were visited by **Joachim Hertzberg** from Osnabruck to work on temporal and spatial mapping. The project is funded by the RSNZ under the ISAT Linkages program, and both Hans and

Stephen will be making return visits to Osnabruch over the next couple of years.

PhD Theses

Jingli Liu—*CASTLE: A Computer-Assisted sentence Teaching and Learning Environment*
Frina Albertyn–*e-Process Selection using decision making methods*
Elisabeth Todd–*Learning about User Interface Design through the use of User Interface Pattern Languages*
Rosanne Hawarden–*Glass Network Theory: The origin and structure of gendered small-world and scale-free networks*

Stephen Marsland

AUT

News

Manukau Campus
The School of Computing and Mathematical Sciences will be introducing the Bachelor of Computer and Information Sciences (BCIS) at AUT's campus in Manukau from semester one 2011. This is in response to the local community's call for university education to be delivered locally and cater for Manukau's thriving young population and the needs of the local employees. Initially, only two of the five majors from the BCIS will be offered at the Manukau campus: IT Service Science and Networks and Security.

There are also plans to progressively introduce post graduate studies in Computer and Information Sciences from semester two 2011 onwards.

BRACElet workshop
The final BRACElet workshop was held 9-10 Sep at AUT University, convened by **Tony Clear** and **Jacqueline Whalley**. The BRACElet project has been a longitudinal multi-institutional, multinational investigation into the code reading, code comprehension and code writing skills of novice programmers.
The purpose of the workshop was to extend the work on theory initiated at the Paris ITiCSE Working group in 2009, and to launch a new programme of research into the novice to expert programmer continuum. The scope extends from 'programming in the small' to 'programming in the large', and the work of professional programmers.
The workshop was attended by participants from four institutions in New Zealand, two institutions in Australia, one in Finland and one in Sweden. Keynotes were given by **Anna Eckerdal**: "The delicate art of connecting theory and practice: A variation theory study in programming education", and by **Raymond Lister**: "Eliciting some of the Different Types of Reasoning Skills Used by the Novice Programmer".

Institute for Radio Astronomy and Space Research (IRASR)

AUT's 12-metre radio telescope near Warkworth is now globally networked through KAREN. (see weathermap. karen.net.nz). A 1 Gbps connectivity was successfully tested both nation-wide and internationally.
More info: http://arxiv.org/abs/1011.0227

The first radio-interferometric observations were conducted between the first Australian SKA Pathfinder radio telescope (ASKAP) and the AUT radio telescope in Warkworth with participation of leading radio telescopes of the Australia Long Baseline Array (LBA). Data from Warkworth radio telescope was transferred via the new KAREN link. The result of this observational session was reported in the International SKA Forum 2010 in the Netherlands and published in a prestigious Astronomical Journal: "Evolution of the parsec-scale structure of PKS1934-638 revisited: First science with the ASKAP and New Zealand telescopes", v. 140, p. 1506-1510, Nov 2010.
More info: http://arxiv.org/abs/1009.4339

Knowledge Engineering and Discovery Research Institute (KEDRI)

Nikola Kasabov visited China in the second week of Oct, accompanied by **Valery Feigin**, as part of the NZ research delegation headed by the Minister Hon **Wayne Mapp**. This delegation also included six top managers from MORST and FORST and two other professors from Lincoln and Massey Universities.
In a very official ceremony in the Chinese Academy of Sciences (CAS), attended by the Vice-President of CAS and the Minister Wayne Mapp, along with the whole NZ delegation, the Vice-President of the CAS Institute of Automation (CASIA) in Beijing signed a MoU with AUT on 15 Oct 2010.
Nikolo Kasabov also signed a working Agreement on behalf of KEDRI with the Key Laboratory for Complex and Intelligent Systems of the CASIA headed by **Zeng-Guang Hou** – Director of CASIA. The topic of the joint research was 'Advanced neural network methods for personalised brain data modelling and applications for personalised brain disease risk analysis, prevention, outcome prognosis and best treatment rehabilitation, with prospective case studies of spinal cord-, stroke-, and traumatic brain injuries'.

Appointments and Departure

Ana Jagui Perez Kuroki is the newest researcher of GRC. Ana specialises in hydrological simulations (tool for watershed management). She will assist in the irrigation and control aspects of our work with both vineyard and orchard research domains.
Guy Kloss has been appointed as a fixed term lecturer in Mathematical Sciences.
William Liu has been appointed as a fixed term lecturer in Computing Information Sciences.

Research and Study Leave

Dave Parry is a senior lecturer and director of the AUT RFID laboratory and associate director of the centre for bioinformatics/ health informatics institute at KEDRI. He is particularly interested in health informatics and the application of RFID in healthcare. He recently spent three months working with the Centre for Health Systems and Safety research, part of The Australian Institute of Health Innovation (AIHI) based at the University of New South Wales, Sydney. In fact for the first month the unit was part of the University of Sydney, but the whole group, led by **Johanna Westbrook** moved across during the time he was there. The centre has done a wide range of observational work in healthcare settings, especially in the area of use and abuse of healthcare IT systems. AIHI is an extremely large and influential institute (around 70 researchers), with a great deal of work being carried out to answer clinically and politically important questions. Dave was involved in some analysis work involving drug-dispensing, and possible markers for potential errors. They are an extremely welcoming and open group, and Prof. Westbrook and indeed the whole of UNSW made him very welcome, and he gained some valuable contacts, as well as an increased appreciation of the sporting prowess of Australians.

Awards

Sergei Gulyaev, Director, Institute for Radio Astronomy and Space Research (IRASR), was awarded by REANNZ a "KAREN Champion" title and sign for his "ongoing contribution towards making KAREN essential infrastructure."
More info: http://karen.net.nz/karen-awards-hall-of-fame/.

Visitors

Martin Shepperd from Brunel University in the UK, an associate of Stephen MacDonell's, is working in the school off and on for the next few weeks.

Oleg Titov from GeoScience Australia, Canberra, visited IRASR in Jun to work on joint projects and software development for radio astronomy research.

Sergio Hernandez, a post doctoral fellow jointly funded by AUT and Universidad Catolicá del Maule in Chile, is visiting GRC from early Jul to mid Sep. He was awarded a Chilean Government PhD Scholarship, which he took and recently completed in Computer Science at VUW in NZ. He works closely with researchers in GRC on the Enometrica project.

Francisco de Assis Scannavino Junior has been visiting GRC since Jun. Francisco is funded by his home university in Brazil and will be with GRC for six months. He has a Master's degree in Electrical and Electronic Engineering and is a doctoral student in computational physics at the Physics

Institute of São Carlos, University of São Paulo, Brazil. He is working in a research partnership with the Brazilian Enterprise for Agriculture Research, called EMBRAPA. Francisco will be working with soil sampling data, and utilizing geostatistics and some geovisualisation techniques.

PhD Theses

Janette Hamilton Pearce —*The experiences of Maori women in IT professions*

Stefan Schliebs—*Quantum inspired Neurocomputation*

Xin (Jessie) Zhang—*Audio database querying & navigation by video textures*

Paulo Gottgtroy—*Data Mining and Knowledge Discovery through building Ontology from large databases in Dynamic Environments*

Farai Mbira—*Understanding the location-based services requirements of tourists visiting Auckland New Zealand*

Yingjie (Raphael) Hu—*Evolving intelligent methods & systems for gene data analysis & knowledge discovery*

MSc Theses

Song Lei—*Modelling Correlation Aided Predication For Intelligence Finance Data Analysis And Decision Support*

Cristache Alex—*Hybrid Recommender Systems Using Item-To-Item Collaborative Filtering*

Mehra Ridhima—*Enabling Mobile Commerce Applications Adoption: A NZ Study*

Omkar Kadam—*Novel Applications of Association Rules: Data Stream Mining*

Yang Wang—*Motivation, Barriers and Impacts of Mobile Technology in Four OECD Countries: A Systematic Literature Review of E-Government Services Development*

Rory Shimmin—*Soft Issues In IS Project: Lessons from a Not-For-Profit in New Zealand*

Kshitij Dhoble—*Discrimination-Based Active Learning For Outliner Detection And Classification.*

Qiao Ma—*The Effectiveness of Requirements Prioritization Techniques for Medium to Large Numbers of Requirements: A Systematic Literature Review*

Frederik Schmidt—*Current User Directed Search Based Reverse Engineering*

Matthew Bai—*RFID Support for Activity Detection for The Elderly*

AnKuo (Angus) Lin—*Characterisation of High Precision Frequency Standards Performance for Radio Astronomy and Industrial Applications*

Nat Viriyatanaporn—*Using Closed Frequent Itemsets to Accelerate the Generation Of Association Rules In A Data Stream Environment*

Doug Hunt—*Reinforcing Good Riding Habits Using an Active Feedback Wrist Pronation Sensor and Feedback Device*

Saide Lo