Newsletter

NZCSRSC 2012

NZCSRSC (New Zealand Computer Science Research Student Conference) 2012 will be held at the University of Otago on 11-13 Apl 2012. 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, as well as the industry. This is a great opportunity to showcase your ideas and gain feedback from others. Also, the conference will give you a valuable opportunity to meet key organizations in the ICT industry. This gives you a chance to explore your career options after graduation, and share your research outcome with the industry. The call for papers has already gone out; and the paper submission deadline is 9 Dec 2011. 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 will not preclude re-submission of papers to other venues. Furthermore, to facilitate commercialization of ideas developed in academic research, NZCSRSC 2012 introduces a Student Product Demo session to allow students to showcase their products. We invite students from all over the country to present their projects at the event. It will not only offer a platform for exchange of ideas but may also provide the students with an opportunity to attract support from the industry and realize their innovative ideas into products. Each team (up to four members) should submit a one-page proposal about the product, and a CV for each member by 31 Jan, 2012. Successful teams will be notified by 20 Feb, 2012.
More info: http://www.2012.nzcsrsc.ac.nz
Qichang Liang, General Chair

Future NZCSRSCs

Since it began in 1992, the NZCSRSC conference has continued every now and again – and lately from year to year – under loose oversight by me. We have now formed a steering committee comprising (initially) Tim Bell from Canterbury, Robert Amor from Auckland, and myself, who will be responsible for making strategic decisions about where to hold it. The committee will continue to operate informally, and the conference will continue to be run entirely by students.

In recent years the conference has been held at Waikato in 2007, Canterbury in 2008, Auckland in 2009, Victoria in 2010, Massey in 2011, and Otago in 2012 (there was a gap of several years before 2007). It would be nice to continue to move it around. Wherever you're from, if you think you might like to organize it in 2013 and can get a group of students together to help, I'd love to hear from you. Traditionally, the decision of where it will be next year is made at this year's conference, and we need to have input before then.
Ian Witten

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Lincoln

News

On 13 Sep the Lincoln Uni Student IT Club, in conjunction with the Dept, hosted a joint Computing Industry Liaison Group and student meeting. The topic was job opportunities and employer expectations, providing advice to students on finding their first job in industry. It was good to see the students taking the initiative to help run this event and many useful contacts were made. 16 representatives from local industries attended, keen to give their views on what they seek in new graduates and how students should apply for jobs and present for interview. Speakers included **Karen Fordyce** (Human Touch, Montage Business Intelligence) and recent graduate **Michael Trengrove** (Trimble New Zealand). There are definite signs of buoyancy in the job market.

Alan McKinnon, Professor in Applied Computing is retiring. After 30 years service to Lincoln Uni his sagacity will be notably missed by a great many. His care and expertise reaches far beyond the Dept to the wider Uni community, professional bodies and industry. Go well.

Appointments

Mohammad Daredkeh has been appointed as Tutor. Mohammad comes with previous teaching experience in Jordan and is concurrently nearing completion of his PhD within the dept.

Stuart Charters has been promoted to Senior Lecturer.

Awards and Prizes

Hiren Patel, Jade Software, presented the 2011 Jade Prize for Software Engineering at the Computing Industry Liaison Group meeting. It was jointly won by **Mo Yakubu** and **Ali Churcher.**

Visitors

Two visitors to the Dept of Applied Computing reflect a developing interest in the general area of the applications of IT in agriculture, and precision agriculture in particular. **Iain Epps** is the newly appointed CEO of CropLogic, a company that has developed an online crop management system to help potato growers optimise nitrogen and water use. The topic for discussion was the usability issues related to such software given the background of the users and the context in which they might use it on a day-to-day basis.

As well as being the father of a former Lincoln Honours student in IT, **Alastair Frizzell** is the Principal of Frizzell Agricultural Electronics. His company sells, installs and supports electronic measuring equipment for the agricultural community. **Stuart Charters** and **Alan McKinnon** met Alastair at a recent workshop on Precision Agriculture where an issue thrown up was the associated "data rich – information poor" syndrome confronted by the agricultural community. The discussion with Alastair looked at possible practical projects where Dept expertise can be used to address some of these issues.

BS&IT (Hons) Theses

Johari Abdullah—*Investigating interactive visualization in a Cloud environment*
Cameron Soulsby—*Exploring techniques to improve the performance of genetic algorithms in training neural networks*

Sharon Long

Massey

News

CSIT Group Palmerston North

Graham Jenson, a computer science PhD student, and **Alex Gibson**, a fourth-year software engineering student, won the Great NZ Remix & Mashup competition in the Supreme Data Mashup category with a mashup that lets you interactively explore "what if" scenarios. This supreme award was for "the data mashup that best shows the value of open NZ data or content, is well designed, and is insanely great." One of the judges commented that "[he] really liked that there was a clear goal in mind with the project. The creators drew from **Sir Paul Callaghan's** StrategyNZ keynote regarding the future message about what our economy should do to increase its prosperity. The creators then took the time to build something that would communicate this to the general public." More info: http://mash.hashbang.co.nz/

Jens Dietrich, a leader in software engineering at the Manawatu campus, has released the Massey Architecture Explorer – a browser-based application to visualise and analyse complex Java programs. This application is based on a novel graph motif search engine developed at Massey, and is scalable enough to analyse the largest applications including the Java Development Kit itself. The application is free to use. More info: http://xplrarc.massey.ac.nz/

Promotion

Congratulations to **Eva Heinrich** (Palmerston North), **Dave Parsons** (Albany), and **Chris Scogings** (Albany), who were recently promoted to Associate Professor.

Study Leave

Hans Guesgen and **Ruili Wang** have returned from their overseas leave. Hans spent most of his time at the Uni of Bremen, where he worked on research questions related to smart homes and spatio-temporal reasoning. He also attended three major conferences on Artificial Intelligence. At one of them, AAAI in San Francisco, he was granted senior membership status in the Association for the Advancement of Artificial Intelligence (AAAI) "in recognition of [his] achievements and long-standing efforts in the field of artificial intelligence and [his] long-term participation in AAAI". Ruili used his leave to further establish relationships between various Chinese universities and the School of Engineering and Advanced Technology at Massey. He also collaborated with researchers while being overseas.

Stephen Marsland is currently on leave at various research institutions in Europe. As part of his leave, he is working on the MERMAID project, which is a joint project between the Uni of Osnabrück and Massey.

Hans Guesgen

Computer Science at Massey Albany campus

Bruno Chaves, from Uni of Sao Paulo (USP) in Brazil, recently visited the Albany campus to work with **Andre Barczak** on a joint project that involved fuel quality sensors and Machine Learning. The research group at USP developed the physical sensors and Bruno used AdaBoost to train classifiers so he could automate the calibration and the classification of fuel quality.

Ken Hawick is leading a group – including **Martin Johnson, Chris Scogings** and **Daniel Playne** – that is putting in a bid for a Capital Equipment Grant to extend the GPU server infrastructure. This will be a follow-on to last year's successful bid and will allow the group to expand their current work on parallel programming, particularly in the areas of visualisation and computational science. The Complex Systems and Simulations Group (CSSG) is currently producing refereed research publications at around one per fortnight using this facility.

Andrew Gilman successfully launched the new Computer Science FPGA Honours laboratory and over this last semester had a group of very enthusiastic postgraduate students working on FPGA projects.

Daniel Playne, **Teo Susnjak** and **Ken Hawick** led a team of Software Engineers who produced a Student Campus Interaction App for the iPad. Ken also worked with **Victor du Preez** and **Mitchell Johnson** and other CS students to produce some gaming Apps for Android tablets and phones. We are currently repositioning our mobile computing efforts around more code development projects like these.

Martin Johnson has taken the Centre for Parallel Computing to new heights with the successful completion this year of a GPU-based teaching laboratory. CPC is also supporting new computing clusters for our collaborators in Biology, Chemistry and other areas of computational science.

Elena Calude has developed a new postgraduate course on Rapid Application Development (RAD) and is leading a team of postgraduate students developing a computing information system.

Grant

Ian Bond has received a Marsden Grant to further his research into free floating planets. His recent publications include "Unbound or Distant Planetary Mass Population Detected by Gravitational Microlensing".

Scholarships

New Postgraduate Students and Scholarships
Mitchell Johnson, **Alwyn Husselman** and **Tim Lyes** won Doctoral Scholarships and are all working on PhD's supervised by **Ken Hawick** and **Chris Scogings.**

Michael Zhao won a Masters Scholarship and is working with **Ian Bond** on computational astronomy.

PhD Theses

Anton Gerdelan—*Fuzzy Motion Controllers and Hybrids*
> Anton is now working as an academic, teaching advanced graphics in the Blekinge Institute in Sweden

Daniel Playne—*Generative Programming Methods for Parallel Partial Differential Field Equation Solvers*
> Has joined the Albany Computer Science group as a lecturer

Arno Leist—*Data-Parallel Simulation and Analysis of Complex Systems with Irregular Graph Structures.*
> Now working with the Complex Systems Group as a Researcher

Chris Scrogings

Victoria

News

Victoria Uni Teaching Fellow Presents a Workshop at PacNOG Meeting
Victoria Uni Teaching Fellow **Andy Linton** co-presented a workshop with instructors from NSRC (Uni of Oregon) and Google, on DNS operations at the Pacific Network Operators Group (PacNOG). The meeting was held at the Uni of the South Pacific in Suva, Fiji.

Victoria Engineering PhD student Features in Dominion Post Article
A recent article in the Dominion Post features **Craig Anslow**, a PhD student who has developed a 48-inch multi-touch table. Craig is conducting research into applications that help software developers visually map their programs and identify potential bugs. The article, titled "Bright Sparks Dim Futures?" highlighted the difficulties New Zealand scientists face in finding the institutional support and financial backing to develop their inventions into a marketable product.

New Computer Graphics Programme Launched
CUAP has approved a new Computer Graphics programme at Victoria Uni that will support innovation and growth in Wellington's internationally recognised entertainment and digital technologies industries. It blends computer science and design and will be offered from 2012 as a course option for Masters level students in both the School of Design and the School of Engineering and Computer Science, with the computer science and design components weighted differently for the two degrees.

100% of First BE Cohort in Graduate-level Employment or Post-graduate Study
All of our cohort of graduating Bachelor of Engineering students have gone on to find graduate level employment. This illustrates both the need for digitally focused engineers from our specialisations (Software Engineering, Network Engineering, Electronics and Computer Systems Engineering) and their quality.

Awards and Prizes

Wellington Team Comes 2nd in NZ at the ACM South Pacific Regional
On Saturday, 10 Sep, 2011, ECS hosted the "Lower North Island" site for the Association for Computing Machinery International Collegiate Programming Contest's South Pacific Regionals. The winner of the Lower North Island (Wellington) site – **DJ Tomato** – came close second behind the New Zealand winning team from Christchurch. DJ Tomato consists of ECS PhD student, **Roma Klapaukh**, GradDipSci in Physics student **Joshua Baker**, and ECS 2nd year student **Fergus Whyte**.

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

Newsletter

November 2011
Number 19

New Zealand Wins Engineering Contest At Solar Decathlon

We congratulate the Faculty of Architecture and Design for their third place success in the Solar Decathlon competition and are glad that we could contribute to their triumph in the Engineering category. Engineering from Victoria Uni of Wellington was judged top in the US Dept of Energy Solar Decathlon competition.

Victoria ECS Students Triumph in IET Competition

Three post-graduate students from the School of Engineering and Computer Science achieved success in the Wellington Institution of Engineering and Technology (IET) 'Present around the World Competition' on 9 Oct. **Abigail Arulandu** was placed first, **Dayna-Maree Kivell** third, and **Juan Rada-Vilella** was fourth. Abigail will go on to compete in the national competition later this year, in which the winner will then compete in the Asia-Pacific Regional Finals with a chance to win £1,000. Abigail's topic was magneto-rheological compliant actuator for stroke rehabilitation, Dayna's topic was ZnO films for ultrasonic transducers, and Juan gave a presentation on swarm intelligence for swarm robotics.

Scholarships

Victoria PhD / Doctoral Scholarships
- **Refik Ustok**
- **Soha Ahmed**
- **Arezou Moussavi-Khalkhali**
- **Syed Naqvi**
- **Wenyu Jin**

Seminars

Allan Tabilog, Victoria Uni of Wellington
Mechanical Verification of Linearisability of Non-Blocking Algorithms
Brijesh Dongol, Uni of Queensland
Reasoning about Teleo-Reactive Programs that Operate over Multiple Time Bands
Peter Andreae, Victoria Uni of Wellington
Teaching COMP 102: Innovations in a Core Course for Computer Science & Engineering
Sudhir Singh, Victoria Uni of Wellington
Limited Feedback Techniques in MIMO Systems
Craig Taube-Schock, Uni of Waikato
Can We Avoid High Coupling?
Chang-chun Bao, Beijing Uni of Technology
Waveform Interpolation Speech Coder at Low Bit Rates
Axel Hoffmann
Pure Spin Currents: Discharging Spintronics
Josh Bailey
Google Measurement Lab
Syahaneim Marzukhi, Victoria Uni of Wellington
Cornered Coevolution Learning Classifier Systems for Pattern Classification

Joe Letteri, Weta Digital
Rise of the Planet of the Apes
Ahmed Khalifa, Victoria Uni of Wellington
Ownership and Immutability: Performance Assessment and Programming Experience
Paul Watters, Internet Commerce Security Laboratory (ICSL), and Uni of Ballarat
Situational Sybercrime Prevention through Attack Attribution
Dale Carnegie, Victoria Uni of Wellington
Strategies to Improve Recruitment and Retention for Engineering Study at VUW
Dave ten Have
MESA Entrepreneur Failure Seminar
Matthias Hauswirth & Dmitrijs Zaparanuks
Software: Design and Performance

PhD Theses

Daniel Crabtree—*Techniques for Improving Web Search by Understanding Queries*
Maciej Wojnar—Acting and Learning with Goal and Task Decomposition
Praneel Chand—*Development of an Artificial Intelligence System for the Instruction and Control of Cooperating Mobile Robots*
Will Smart—*Empirical Analysis of Schemata*

MSc Theses

Adam Clarke—*Representing Qualitative Models for Learning in Complex Virtual Worlds*
Carlton Downey—*Explorations in parallel Linear Genetic Programming*
Ben Haughey—*Simulation and Optimisation of a Two Degree Freedom, Planar, Parallel Manipulator*
Paul Radford—*Improving Salience Retention and Identification in the Automated Filtering of Event Log Messages*
Deb Shepherd—*Developing the Fringe Routing Protocol*

Amanda Holdaway

Auckland

Appointments, Staff changes

It is with sadness that we farewell **Emilia Mendes**, **John Hosking** and **John Hamer** from our academic staff.

We are delighted to welcome **David Welch** as academic staff.

Giovanni Russello and **Sebastian Link** will be joining the academic staff in the New Year.

Mark Gahegan and his Centre of eResearch team **Nick Jones Will Smart, Markus Binsteiner** and **Gene Soudlenkov** have transferred to the Dept from the School of Environment.

Richard Barker, Je Ahn and **Hong Yul Yang** left the research programming team.

We welcome **Habib Naderi** to the research programming team. **Wannes van der Mark**, **Arturo Jiménez** and **Aniruddh Gandhi** have accepted offers to do the same.

Awards, Scholarships, Successes

Joseph Heled was commended for his PhD and placed on the Dean's List.

The 2011 Akira Nakamura Award went to **Mahdi Rezaei** for the paper "3D Cascade of Classifiers for Open and Closed Eye Detection in Driver Distraction Monitoring" at CAIP 2001 in Sevilla, Spain.

Mahdi Rezaei and **Reinhard Klette** won a Uniservices Prize in the Spark Ideas Challenge for their work IntelliEye (driver behaviour monitoring focusing on drivers' eyes – open, closed or diverted – to detect drivers' level of alertness).

Burkhard Wuensche, **Justin Nguyen, Christof Lutteroth** and **Patrice Delmas** then won the 2011 Spark $100K Challenge and the Uniservices commercialization prize. The project, ClickWorld, creates 3D models from 2D photographs.

Bingchen (**Burkhard Wuensche's** student) with V-Card (reducing membership cards to one smartphone application) won the Computer Science award in the Spark Ideas Challenge.

Celine Duwig, Georgy Gimel'farb and **Patrice Delmas** were awarded INPG (Grenoble Institute of Technology) research funding for post-doctoral support and project support.

Team SkyEye won third place in Microsoft Imagine Cup NZ 2011 with a software solution designed to prevent car accidents and improve road safety globally.

Maintainability Predictors for Relational Database-Driven Software Applications: Results from a Survey, **Mehwish Riaz**, **Emilia Mendes, Ewan Tempero** was awarded 2nd place in SEKE2011 Best Paper Awards

Jonathan Rubin (PhD) has improved on his good 2010 results in the 2011 Annual Computer Poker Competition.

Jonathan Rubin and **Ian Watson** were awarded a best paper prize at the International Case-Based Reasoning Conference ICCBR-11 in London.

Rachel Blagojevic has received a Rutherford Foundation Postdoctoral Fellowship.

PhD student **Mohammad Abdullatif** won the Open Government prize in the 'mix and mash' competition.

Seminars and Events

Andrew Luxton-Reilly, Uni of Auckland
Supporting student-generated free-response questions
Robert Sheehan, Uni of Auckland
Two hands to rule them all
Etuate Cocker, Uni of Auckland
Voice over Internet Protocol for Low Bandwidth and High Latency Networks
Noreen Jamil, Uni of Auckland
Extending Linear Relaxation for Non-Square Matrices and Soft Constraints
M. Asif Naeem, Uni of Auckland
X-HYBRIDJOIN for Near-Real-Time Data Warehousing
David Abramson, Uni of Auckland
Assertion based parallel debugging
Jing Sun, Uni of Auckland
Design Software Architecture Models using Ontology
Simon Hermann, Uni of Auckland
Report on IV 2011 & Accumulation strategies for semi-global stereo matching (SGM)
Burkhard Wuensche
New Technologies for 3D Content Creation
Kai Fehrs, Hamburg Uni of Technology
Wide-angle vision for driver assistance
Reinhard Klette, Uni of Auckland
Rubberband Algorithms - A General Strategy for Efficient Solutions of Euclidean Shortest Path Problems
Shuang (Anne) An, Uni of Auckland
Animated 3D Visualization of Stereo and Motion Analysis
Andrew Meads, Uni of Auckland
OdinTools - Model-Driven Development of Mobile Services
Mahdi Rezaei, Uni of Auckland
Driver Drowsiness and Distraction Detection
Ewan Tempero, Uni of Auckland
Use of Inheritance in Java (Reprise)
Rajalaxmi Chandran and **Sathiamoorthy Manoharan,** Uni of Auckland
Performance Analysis of New Zealand Websites
Sidney Tsang, Uni of Auckland
Mining Rare Association Rules using Rare-Pattern Tree
Khurram Jawed, Uni of Auckland
Verging Axis Stereophotogrammetry
Prasant Mohapatra, Uni of California/Uni of Auckland
Securing Wireless Networks by Exploiting Wireless Characteristics
Yun Sing Koh, Uni of Auckland
Efficient Single Pass Ordered Incremental Pattern Mining
Yun-Bum Kim, PhD student at CITR, Uni of Auckland
Synchronization in membrane systems
Safurah Abdul Jalil, Uni of Auckland
Deconstructing User Interfaces for Learning Visual Aesthetics

Paul Schmieder, Uni of Auckland
Magnified Sketching Using Intelligent Distortion Lenses
Jeremy R. Cooperstock, McGill Uni, Montreal, Canada
Shared Reality: Toward perceptually convincing computed-mediated environments
John Hosking, Uni of Auckland
Technology Roadmapping with Software Engineering Students
Jamie Diprose, Uni of Auckland
Ruru: A spatial and interactive visual programming language for novice robot programming
Paul Denny, Uni of Auckland
All syntax errors not equal
Yanfeng Li, (MSc student), Uni of Auckland
An Incentive-driven Information Delivery Scheme
Beryl Plimmer, Uni of Auckland, **Christof Lutteroth, Michael Connolly**
A Tool for Automating the Resizing of Microsoft Word Documents
Burkhard Wuensche, Uni of Auckland
Web-Based Visualisations Supporting Rehabilitation of Heart Failure Patients by Promoting Behavioural Change
Paul Harper, Cardiff Uni
Modelling for Effective and Efficient Health Services Delivery: An Operational Research Approach
Bowan Pan, Co-founder of TreatMe
Web technology entrepreneurship
Andrew Luxton-Reilly, Uni of Auckland
Does question-generation help students to learn?
Robert Amor, Uni of Auckland
Research Challenges for Construction Informatics
Sandino Morales, PhD student, Uni of Auckland
Performance evaluation of stereo algorithms for vision-based DAS
Robert Amor, Uni of Auckland
Deployment and Analysis of Reference Data Models
Waqar Khan, Uni of Auckland
Safety of stereo based driver assistance system
Burkhard Wuensche, Uni of Auckland
A Novel Web-Based Extendable Telehealth System
Jeremy Gibbons, Uni of Oxford
Just do it: Simple monadic equational reasoning
Jeremy Gibbons, Uni of Oxford
Model-Driven Engineering for Clinical Trials
Gabriel Hartmann, Uni of Auckland
Camera Localization via Kalman Filter Sensor Fusion for 3D Scene Reconstruction
Giuseppe Destefanis, Uni of Cagliari
An Analysis of Micro-Anti-Pattern Effects on Fault-Proneness in Large Java Systems
Juan Lin, 789 project student, Uni of Auckland
Artistic-style rendering of human portraits from photographs
Michael J. Dinneen, Uni of Auckland
Using OpenCL for Implementing Simple Parallel Graph Algorithms
John Rugis, Uni of Auckland

Visualizing 3D Geophysical Data

Visitors

Bok Suk Shin, Jan11-Jul12, Busan National Uni
Ferran Diego, May-Aug11, PhD student from Universitat Autonoma de Barcelona
Pat Langley, May-Jun, Arizona State Uni
Jeremy R. Cooperstock, Jul11-Jun12, McGill Uni, Montreal
Vincent Amaudric du Chaffaut, Sep-Dec11, Ecole Speciale Militaire de Saint-Cyr
Fabien Raoux, Sep-Dec11, Ecole Speciale Militaire de Saint-Cyr
Giuseppe Destefanis, Oct-Jan, Electrical Engineering and Electronics at the Uni of Cagliari, Italy
Jeppe Jensen, Oct-Nov11, PhD student from The Maersk McKinney Moller Institute, Odense
Gem Stapleton, 10-14 Oct, Uni of Brighton
Zhiwei Yu, Nov11-May12, PhD student from China

PhD Theses

Geng, Ke —*Semantic Query Optimisation for XML documents*
Marks, Stefan —*Game Engines as a Training Tool for Virtual Surgery*
Blagojevic (nee Patel), Rachel —*Development of Techniques for Sketched Diagram Recognition*
Khosravani, Masoud —*Crossing Numbers and Representing Graphs of Bounded Tree-Width*
Ahmad, Zulfiqar —*A Quranic Security Analysis of Pakistan's Identity Management System*
Hirsch, Christian —T*he Visual Wiki: A New Metaphor for Knowledge Access and Management*

Heather Armstrong

Canterbury

News

The Computer Science and Software Engineering department at Canterbury has had an extraordinary year, with two major earthquakes closing the uni down for many days, and several days of closure in the second semester due to heavy snow. It has been very hard to communicate to people outside of the region how we've got back to a normal teaching programme, yet things aren't normal here.

For the second semester we have had partial use of our building, thankfully including all computing labs, while staff offices are repaired. Staff have been sharing rooms with the post-grad students – this has had a lot of positives, although everyone is also looking forward to having more privacy when we move back to our newly-refurbished offices (scheduled for January).

Nearly all lecture theatres and computer labs on campus have

been operational for the second semester, which has felt like a luxury after having several weeks of teaching in tents and temporary spaces in semester one.

Most staff members' homes are relatively unaffected, although a few have suffered major damage, which has been another distraction.

We are grateful for the offers of help we have had from other departments, and for Victoria in particular who have provided temporary lecturers to support one of our courses and Auckland who helped host a conference that was to be at Canterbury.

Also very grateful for the commitment from **Milton Baar** who travelled each week from Australia to teach into our Postgraduate courses in both semester one and two. At the start of 2012 we look forward to starting the year with full facilities, in newly refurbished offices.

Computer Science in High Schools

This year new achievement standards on Computer Science and Programming were introduced for high schools at year 11, and have attracted a reasonable number of "early adopters", with over 3000 students doing at least one of the three standards on Programming and CS, including nearly 1500 students doing the standard specifically on Computer Science. The CS standard at year 11 covers a basic introduction to algorithm analysis, programming languages and Human-Computer Interaction; the programming standards are an introduction to programming that can be in any language, using simple constructs.

In 2012 new standards will be available to year 12 students, with year 13 available the following year. A significant amount of training has been needed for teachers for whom much of this is new material. Much of this has been done through local contacts (each Uni has one person who is available to help local teachers), and over the coming summer there will be some national training events sponsored by Google through their "Computer Science for High Schools" (CS4HS.com) program, as well as other events such as the PC4G.org.nz event.

Much of the Uni input to the standards has been through **Peter Andreae** (Victoria), **Anthony Robins** (Otago) and **Tim Bell** (Canterbury), although many teachers and other academics have also been involved.

Once the year 13 standards have been confirmed, Uni CS departments will need to think about their recommendations to future students, since in 2014 we will potentially have students arriving who have done the equivalent of much of a first year CS course. The respective CS department reps will be discussing this to see if we can come up with a recommendation that applies to all universities.

The standards can be viewed here (note that the level 2 standards are not yet official, and level 3 are not yet finalised): www.nzqa.govt.nz/ncea/assessment/search.do?query=Digital+Technologies

Appointments

Arrivals
Dong Seong Kim has taken up a continuing lecturing position. His research interests include Dependable and Secure systems, Computer and Network Security, Analytic Modeling and Simulation, Wireless Ad hoc and Sensor Networks, Virtualization, Cloud computing.

Post-Doctoral Positions:
Velibor Ilic, Intelligent Computer Tutoring Group.
Sylvain Malacaria, HCI and Multimedia group.
Ludger Bischofs, Network Management, Performance and Simulation group

Departures
Wolfgang Kreutzer retires at the end of this year. Wolfgang is currently the longest serving member of staff, including taking on a stint as HOD.

Brent Martin is moving to full-time work at Jade Software at the end of the year, although will continue at Canterbury in an adjunct role.

Awards and Prizes

Tanja Mitrovic has been awarded the Asia-Pacific Society for Computers in Education (APSCE) Distinguished Researcher Award.

Congratulations to our PhD students **Joey Scarr** and **Stephen Fitchett** who both received awards in this year's "PhD in 3" competition, where students are given three minutes and a single slide to present their PhD research. Joey came first and Stephen third in the College round; Joey proceeded to the University round, coming second and receiving a $3000 prize. Staff have noted that $1000/minute is a pretty good pay rate!

NZ Programming Context
The NZ Programming Contest was held on Sat 6 Aug. 61 teams competed at five sites around the country. There were five sections: Secondary School, Tertiary Junior, Tertiary Intermediate, Tertiary Open and Open. At the Christchurch site there were three teams from Burnside High and five teams from CSSE, covering all sections except Tertiary Intermediate. The Christchurch teams took first place in all the sections in which they competed!
More info: http://www.nzpc.otago.ac.nz/

Conferences

International Conference on Artificial Intelligence in Education (chaired by **Tanja Mitrovic**; local arrangements by **Moffat Matthews**). This conference was moved to Auckland due to the loss of venues in Christchurch (and was further disrupted by snow and ash clouds!) We are grateful to

Auckland University's assistance with what turned out to be a very successful conference despite so many hurdles.

Visitors

Byoung Rae Han from Chinju National University of Education is visiting until the end of the year, working on Computer Science Education.

Paul Wagner from Uni of Wisconsin-Eau Claire has been visiting on an Erskine fellowship, teaching into our Security and Forensics programme.

Franco Davoli from Uni of Genoa, Italy, visiting on an Erskine Fellowship and teaching into our networks courses.

PhD Theses

Robert Grant—*Signal-linear representations of colour for computer vision*
Hongzhi Gao—*Real Time Human Tracking in Unconstrained Environments*
Tom Botterill—*Visual navigation for Mobile Robots using the Bag-of-Words Algorithm*
Jaco Fourie—*The Application of Harmony Search in Computer Vision*

Tim Bell

Waikato

News

The Waikato HCI group hosted the annual CHI-NZ conference in Jul. The keynotes were delivered by our former BCMS student **Trent Mankelow** (now co-founder and CEO of Optimal Usability, an interaction and usability firm in New Zealand) and **Holger Regenbrecht** (AP in Information Science at Otago).

BookieMonster Imagine Cup project
This project, supervised by **Angela Martin**, is hitting the international press. It has been featured in The Hindu Times, The Economic Times, and other publications around the world, even managing to make it into ACM TechNews.

The Software Engineering programme on the BE degree has won five more years of accreditation from IPENZ.

Modelling safety-critical devices
Judy Bowen and **Steve Reeves** attended, and Judy presented a paper at, EICS2011 in Pisa on their work on modelling safety-critical devices.

Together with Judy and **David Streader**, Steve attended FM2011 at the Uni of Limerick. Judy gave a paper on her work with **Annika Hinze** on context-aware systems, and David gave a paper on the probabilistic systems work.

Tony McGregor has been recognized as an exemplary reviewer by the *IEEE Communications Letters* Editorial Board.

Sally Jo Cunningham visited Swinburne Uni to kick off a collaborative research project looking at academic e-books. The team consisting of **Annika Hinze**, **Dave Nichols, Lyn Hunt**, and **Dana McKay** (Melbourne), will be working with several members of the Swinburne Uni library, in the first instance to analyze e-book usage logs.

Three Brothers Project
Two staff members**, Shaoqun Wu** and **Xiaofeng Yu** visited our partners in "The Three Brothers project" that was signed in May this year between Yunnan and Fudan Unis in China and Waikato Uni. Shaoqun gave several presentations, including an unexpected "Weka for dummies" tutorial which she had only 20 minutes to prepare. They also visited ZUCC Uni which has a joint teaching program with Waikato.

CS PhD Students Conference
The Internal CS PhD Students Conference was held on Friday 11 Nov. Fifteen Computer Science students gave presentations on their research.

Gabe Young will take up a position with Microsoft at the end of the year, after finishing his BSc.

Scholarships

Paora Mato (PhD student) received a Pae o te Māramatanga Doctoral scholarship. He is working on the role of computer technology within a Māori language regeneration strategy.

Sabbatical

Steve Reeves was on sabbatical in the first half of the year. He visited **John Derrick** at the Uni of Sheffield where they worked together on a simulation formulation of refinement for the probabilistic process semantics that Steve and **David Streader** have been working on for some time. Steve also had invitations for seminars at UCLIC (Uni College Interaction Centre, Uni of London)–seminar on his and **Judy Bowen's** work on modelling and deriving tests for safety-critical systems, Teeside Uni and Queen Mary, Uni of London – both seminars on Steve's and David's work on probabilistic systems.

Appointments

Judy Bowen, was appointed full-time Lecturer with the usual teaching/research mix, also travelling to Tauranga for a portion of the lecturing to deliver some of the third year papers to the BSc Applied Computing students in Tauranga.

Grants

Cathy Legg (from Philosophy) and **Ian Witten** have been awarded a Marsden Fund grant to design and implement a

new model of automated knowledge integration, with funding over three years.

Awards

The *Toi o Matariki* conference was held in the Academy of Performing Arts 17–18 October. Three Māori computer science students, **Billy Ross**, **Nathan Smith** and **Michael Walmsley,** presented their research. Michael won the Peoples' Choice award.

Sally Jo Cunningham has been elected chair and **Doris Jung** treasurer of the NZ Chapter of the ACM's SIGCHI Group.

Gabe Young received a Distinguished Performance Award at the NZ Uni Blues presentation in Wellington, celebrating students who excel at sport while also succeeding at Uni.

Sally Jo Cunningham received the Best Poster Award at JCDL 2011.

Seminars

Manuel Cesario, Uni of Franca, Brazil.
Using Telemedicine to Face Emerging Infectious Diseases in the Tri-National South-Western Amazon Region
Anna Huang, PhD Student, UoW.
Concept-based text clustering
Brent Martin, Senior Lecturer, UoC.
Machine learning in the wild: some successes and failures
Fouad Shiblaq, PhD Student.
Localization provision in NZ: Arabic speakers preference on different paralingual website layouts

Visitors

Manuel Cesario, Environmental Change and Sustainability, Uni of Franca, Brazil. 12-13 July.
Ralph Heese, Freie Uni, Berlin, Germany. Mar-Apl.
Kevin Schlieper, Uni of Augsburg, Germany. Feb-Sep.
Florian Reinhart, Uni of Augsburg, Germany. Feb- Sep.
Jason Pascoe, Uni of Minho, Portugal. Jan-Mar.
Adrian Paschke, Freie Uni, Berlin, Germany. Mar-Apl.
Michael Kugler, Uni of Augsburg, Germany. Feb-Oct.
Stefan Kramer, Tech. Uni of Munich, Germany. Feb-Mar.

PhD Thesis

Matthew Jervis—*Supporting tangible user interaction with integrated paper and electronic document management systems*

MCGD Theses

Mary Faber—*Modernity in the margins: a study of the introduction of typographic modernity in New Zealand, 1920-1940*

Emily Mikaere—*How favourable attitudes are formed when the semantic associations of a logotype are congruent with brand personality*

MCGD Thesis

Jehan Allah—*Capturing situational context in an augmented memory system*
Su-Ping (Carole) Chang—*Questions and answers: exploring mobile user needs*
Stephen Eichler—*Measuring TCP congestion control behaviour in the Internet a*
Zhimeng (Allen) Han—*Smoothing in probability estimation trees*
Yi-Na (Iggy) Tsai—*Vocal detection: an evaluation between general versus focused models*

Otago CS

News

Head of Department **Brendan McCane** has written an article in the *Computerworld NZ*'s "Industry-ready Graduate" issue on why employers should really be thinking long term: http://computerworld.co.nz/news.nsf/careers/opinion-why-universities-are-training-industry-ready-graduates

Appointments

Lecturer **Steven Mills** started work in Oct. Steven is a graduate of the Dept, having completed his BSc and then his PhD with us in the year 2000. He has worked since then on commercial research and development. His area of interest is computer vision.

We welcomed **Helen Mulholland** as our new departmental secretary in July.

Awards

Anthony Robins won a best paper award at the International Computing Education Research (ICER2011) conference.

Visitors

Michael E Wall, Center for Nonlinear Studies, Computer, Computational, and Statistical Sciences Division, Theoretical Division, Los Alamos National Laboratory (June-July).

Seminars

Brendon Woodford, Dept of Information Science
To prune or not to prune? An alternative approach to pruning in evolving connectionist systems.
Anthony Robins, Dept of Computer Science
The school computing curriculum
Munir Shah, Dept of Information Science

Moving objects detection from video using a background modeling approach
Quan Chen, Dept of Computer Science
CAB: Cache Aware Bi-tier Task-stealing In Multi-socket Multi-core Architecture
Holger Regenbrecht, Dept of Information Science
Out of reach? - A novel AR interface approach for motor rehabilitation
Haibo Zhang, Dept of Computer Science
Delay-Constrained Maximum Reliability Routing in Lossy Networks
Ken Moody. Uni of Cambridge
TIME - Transport Information Monitoring Environment
Maryam Purvis, Dept of Information Science
The Energy Crisis & Global Warming: How Can ICT Help?
Wamberto Vasconcelos, Uni of Aberdeen
Knowledge for Agents: Three Ways to Achieve Intelligent Autonomy
Michael Albert, Dept of Computer Science
Michael's adventures in Permutationland. A tale of software non-engineering
Robin Gauld, Dept of Preventive and Social Medicine
Health care and internet use amongst Australians and New Zealanders
Geoff Wyvill - Dept of Computer Science
Conversation with Computers
Jeremiah Deng , Dept of Information Science
Teaching Network Design - efforts, observation, and (non-surprises)

PhD Thesis

Rob Visser—*Physics-Based Simulation of Canine Gait*

MSc Theses

Matthew Crane—*The Cold-Start Problem in Collaborative Filtering*
Andrew Cahill—*Lifelong Learning in Reinforcement Environments*.

Robert Pollock

AUT

News

The new Master of Service–Oriented Computing (MSOC) will commence in 2012. This is a one-year programme focused on the interdisciplinary area of service-oriented computing. This will build on professional experience in the information technology sector and prepare graduates for the growing cloud computing, service science and service-oriented computing sectors.

The new Master of Science (Mathematical Science) will also commence in 2012. This programme is designed for students with mathematical skills gained in an undergraduate degree enhanced with an exposure to advanced computational, statistical and analytical methods.

SKANZ 2012 International Conference: "Pathways to SKA Science in Australasia"
AUT Uni will again play host to the international SKANZ Conference at its city (Wellesley) campus 14-16 Feb 2012 in Auckland, which aims to foster interaction and collaboration between Australian and New Zealand scientists and engineers. The Square Kilometre Array (SKA-telescope) is the future of radio astronomy. It will enable imaging the radio Universe with very high angular resolution. With its enormous sensitivity it is likely to uncover new classes of objects not even dreamt of by today's astronomers. Western Australia is an ideal site for the SKA with its wide expanses of sparsely populated territory and very low levels of man-made radio interference. Combining this site with SKA antennas in New Zealand gives 6000-km baselines and fantastic milli-arcsecond resolution at cm wavelengths. The SKA provides wonderful opportunities not only for advancement of science but also for technological development and innovation.
More info: www.aut.ac.nz/skanz2012

New Zealand World Landspeed Record project - JetBlack
Robert Wellington, Director of the Human Computer Interaction (HCI) laboratory, is working with Wing Commander **Stephen Hunt** on conducting research into cockpit design that will inform design decisions of the physical JetBlack vehicle. A cockpit pod has been built in the HCI lab, where different design ideas can be tried and data collected about driver interaction. The project has already gone through some major changes, the latest being the announcement that it will be a World Landspeed record attempt, and that puts our target speed up to approximately 2000 km/h. Everything will be drive by wire, so HCI is an important aspect of the project and involves many research activities.
More info: http://www.jetblack.co.nz/home

Grant

Royal Marsden Fast Track grant
Jiamou Liu has been awarded a Royal Marsden Fast Track grant for his project: "Games and automaticity" for the period 2012-2015. The research will explore some well-known foundational problems in the field of mathematical logic and theoretical computer science. In particular, Jiamou will study the interactions between games played on graph and automatic structures. Games are a foundational concept in descriptive set theory and have been heavily investigated in recent years in the computer science community due to its connection with model checking, verification of reactive system and logic. Automatic structures investigate algorithmic and logical properties of structures represented by finite state automata.

Appointments

Tony Clear has been promoted to Associate Professor.

Visitors

Abdul Sattar from Griffith Uni visited the School and presented a seminar on "Local Search for Computationally Hard Constraint Satisfaction Problems".

Franco Davoli from the Uni of Geno visited the School for green networking projects and presented a seminar on "Green Future Internet and Green Energy: a profitable liaison".

Salvador Garcia-Ferreira, who is from the National Uni of Mexico, visited the School between 9 and 29 Oct. During his visit, Salvador and **Jiling Cao** continued their joint research work on Mathematical Analysis and Topology. Also, accompanying with Salvador's visit, a one-day mini-conference on "Infinite-dimensional Analysis and Topology" was held in AUT on 27 Oct.

Fanon Ellwood from Uni of Cambridge will visit the School and to discuss collaborative research.

Hanh Nguyen from HoChiMinh Uni of Sciences (Vietnam) visited the School and for collaboration and familiarisation.

Jean-Nicolas Mastin, Godefroy Burlot, and **Adrien Boillot** from ENSTA ParisTech (École Nationale Supérieure des Techniques Avancées ParisTech have arrived recently and are doing their internship on robotics at CAIR with **Albert Yeap** for three months. These students have been trained in Mechatronics and Computer Science and some have had some experience working with robots.

Research & Study Leave

Andrew Ensor is currently on sabbatical leave. In Aug he represented AUT at the Precision Agritech Forum in Christchurch. During Sep and Oct he was in Europe at the insideAR conference and the Mirage 2011 conference, as well as visiting the Uni di Siena, Lund Uni, and Sony Ericsson's head research facility in Sweden. In Nov he will visit the Uni Catolica del Maule in Chile to collaborate with his former student **Felipe Lillo**, and return to Auckland to present a paper at the IVCNZ 2011 conference in Dec.

Awards

Quan Bai has been awarded a visit to China under the NZ-China Scientist Exchange Programme, Ministry of Science and Technology (MOST).

PhD Thesis

Felipe Eduadro Lillo Viedma—*Optimization of Interconnected Distribution Networks*

MSc Theses

Ar Kar Kyaw—*Digital Forensics in Small Devices: RFID Tag Investigation*

Wan Chung Cary Ho—*E-Mail Forensic: Tracing & Mapping Digital Evidences from IP Address.*

Junewon Park—*Acquiring digital evidence from botnet attacks: procedures and methods*

Vishal Bulland—*Cracking Passwords in Forensic Investigations: Cost Implications*

Monica Zhu—Mobile cloud computing: Implications to smartphone forensic procedures and methodologies.

Rojaa Matlakunta—*Web traffic prediction for online advertising*

Yiming Peng—*Boosting Performance of incremental IDR/QR LDA – from sequential to chunk*

Alison Talbot—*An Investigation into requirements engineering current practice and capability in small and medium software development enterprises in New Zealand*

Erik Bast—*Exploring technology acceptance aspects of an NFC enabled mobile shopping system: perceptions of German grocery consumers*

Thomas Brunner—*Testing cognitive mapping ideas on a mobile robot*

Johannes Buchner—*Dynamic Scheduling and planning parallel observations on large radio telescope arrays with the square kilometre array in mind*

Saide Lo