

Appointments

Otago CS

Dr Stewart Fleming

Lecturer (from December '98)

Software engineering aspects behind human-computer interaction, design of information systems suitable for deployment in developing countries

Dr Zhiyi Huang

Lecturer (from September '98)

Internet/parallel/distributed computing, computer-supported cooperative work (CSCW), parallel logic programming, parallel hypothetic reasoning, neural network and pattern recognition

Dr Alistair Knott

Lecturer (from November '98)

Computational linguistics; theories of discourse structure and natural language generation

Dr Willem Labuschagne

Lecturer (from January)

Mental models, agents

Nathan Rountree

Assistant Lecturer (from January)

Data mining, software engineering techniques, alternative language paradigms

Otago IS

Dr Peter Whigham

Lecturer (from February)

Applying machine learning techniques to spatial and time series data, especially for the development of ecological models, and the application of evolutionary search techniques for novel approaches to hydrological and geomorphic process understanding

Dr Colin Aldridge

Lecturer

Knowledge theory, knowledge discovery in spatial databases, rough set theory and genetic algorithms

Victoria

Dr Reuven Aviv

Senior Lecturer (from January)

Computer networks

Dr Marcus Frean

Part-time Lecturer (from April)

Cognitive science

Neil Leslie

Lecturer (from February)

Logic and formal methods

Dr Udom Silparcha

Lecturer (from April)

Pattern recognition

Waikato

Dr Mark Hall

Postdoctoral Fellow (from January)

Machine learning, feature selection

Dr Len Trigg

Postdoctoral Fellow (from July '98)

Machine learning, instance-based learning

Auckland

Dr John Grundy

Senior Lecturer (from July)

Software development environments, visual programming, software engineering, software tools, CSCW systems

Dr Emilia Mendes

Lecturer (from May)

Hypermedia authoring tools, database systems, software engineering

Promotions

Nikola Kasabov MSc, DipGrad, PhD(TU, Sofia) MNZCS
 Congratulations to Nikola Kasabov who was pro-

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moted to Professor in Information Science at Otago. Artificial neural networks and fuzzy systems, intelligent information systems and knowledge engineering, speech recognition and human computer interfaces, adaptive systems

Lloyd Smith BMus MS MS PhD(North Texas)

Congratulations to Lloyd Smith who was promoted to Associate Professor at Waikato earlier this year.

Speech analysis, machine learning and computer applications in music

Visitors

Otago IS

Dr Ferrers Clark (June)

Canada Institute for Scientific and Technical Information, National Research Council of Canada

Canterbury

Prof Glen Langdon (July – September)

University of California, Santa Cruz, USA

Prof Allen Tucker (July – August)

Bowdoin College, Brunswick, USA

Victoria

Dr Norm Hutchinson (December '98 – June '99)

UBC Canada

Concurrent and distributed operating systems, soft real-time systems, mobility in distributed systems, programming languages, computer communications and protocols

Waikato

Dr Stan Spzpakowicz (July '98 – June '99)

University of Ottawa, Ottawa, Canada

Natural language processing, text analysis, text summarisation, decision analysis and support

Auckland

Dr Danielle (Danny) Bernstein (March – July)

Kean University of New Jersey, New Jersey, USA

Gender issues in academic computer science

Dr Moshe Porat (July – September)

Technion's Department of Electrical Engineering, Haifa, Israel

Signal theory, image processing, multimedia systems

Departmental News

Otago CS

Department Update: Although you haven't heard from us down here for a couple of years, we do still

exist. May we please plead too much work and too little time to do it in. Our numbers continue to grow, up 13% so far this year on top of our growth of 21% in 1998. Space continues to be an issue with us—we are now spread over six buildings which makes life quite difficult at times. We did however get one new laboratory this year - it has been set up for our new COMP201 paper and contains 32 Pentium II-350 workstations running Windows NT.

We were pleased to be able to appoint four new lecturers to our staff during 1998 thereby giving some relief to our overworked staff. We are currently advertising for a second chair in the department.

During 1998 we held a three day display as part of the University's contribution to the 150th celebrations of the province of Otago. Many youngsters (and some not so young) were intrigued as they attempted to program one of our robots, MacHaggis. There was also an open day in May as well as taking part in a three day careers expo in September.

Kaye Saunders

Otago IS

New Head of Department: Dr Stephen MacDonell was appointed the new Head of Department of Information Science following the departure of Professor Sallis from the Department. Dr MacDonell joined the Department in 1994, after completing a Master of Commerce at Otago and a PhD at Cambridge. His main areas of research are in software metrics and effort estimation, analysis methods for software engineering data sets, and quality assessment through process modelling and measurement.

Visiting Speaker: Danielle Bernstein will be visiting the Information Science Department at Otago University on 3-4 June. Danny is from the Department of Mathematics and Computer Science, Kean University in New Jersey and is a distinguished visiting Professor at the University of Wisconsin Women and Science program. Her interests are women in science and technology and gender issues in computing.

William Wong

Canterbury

Building Award: In the 1999 NZ Institute of Architects-Resene national awards for architecture the new building housing Canterbury's Computer Science Department won one of four national awards as well as a regional award. The building was designed by Architectus CHS Royal Associates, and was described by the jury as "heroic in scale and intent". Sounds like a good motto for Computer Science departments everywhere!

Tim Bell

Lincoln

Visiting Speaker: Danielle Bernstein will be visiting Lincoln University on 2 June and will speak on the subject of “Women, Men and the Culture of Computing in the Classroom”. Danny is from Kean University, Union, New Jersey and is currently a visiting researcher at Auckland University.

Elizabeth Post

Auckland

Software Engineering Forum: On 1 July 99 we will host a one-day Forum to “launch” our new degree programme in Software Engineering. Our Forum will be chaired by Sir Ron Carter. It will be an opportunity for industry leaders to acquaint themselves with our new degree, and to discuss ways in which it can best serve their needs.

We have secured an outstanding international keynote speaker, Professor Doris Carver from Louisiana State University. Professor Carver was the 1998 President of the IEEE Computer Society and is a Co-Chair of the IEEE-CS/ACM Joint Task Force on “Defining the Software Engineering Curriculum”. She has had considerable experience at directing Software Engineering programmes and will address the Forum on international trends in this field. In addition Professor Carver will address a meeting of the local Engineering profession and also conduct an open lecture to which we shall invite members of the public, the press, and liaison officers from Auckland schools. The aim of this lecture will be to sell Software Engineering as a new and exciting career opportunity for young people, particularly women.

Immediately after the Forum in July we shall mail out an information brochure to all secondary schools in New Zealand. At the same time a website will be set up for further information about the degree.

Clark Thomborson

CITR Official Formation: On May 31, the Centre for Imaging Technology and Robotics (CITR) will celebrate the official formation of the centre as well as the opening of the new robotics lab. This event is combined with an open day, which includes demonstrations of recent research results in robot soccer, mobile robotics, and 3D reconstruction.

Reinhard Klette

Computer Science Unplugged

In April/May, three workshops were held for teachers (primary and secondary) at Canterbury, Waikato, and Auckland, covering the Computer Science Unplugged activities that have been developed by Tim Bell (Canterbury), Ian Witten (Waikato), and Mike Fellows (soon to arrive at Victoria). The workshops were run by Tim and Ian, and Sally-Jo Cunningham

(Waikato). The aim of the workshops was to generate better communication of computer science to school children, and especially to communicate that a career in computer science does not just involve being a lone programmer. Initial feedback indicates that the teachers got the message, and will be taking the activities to classrooms with enthusiasm. The workshops have generated a lot of interest, and have even been reported (of all places) in the *May Consumer* magazine. Details about the Unplugged project can be found at unplugged.canterbury.ac.nz, including a book of 20 activities that can be ordered from Canterbury for \$30. A one-hour show has also been developed that is suitable for audiences such as schools, family events, and science centres (see unplugged.canterbury.ac.nz/ideas/upshow). Resources for putting on the show can be obtained by contacting Tim Bell (tim@cosc.canterbury.ac.nz).

Tim Bell

ACM International Collegiate Programming Contest

Just after Easter (to quote the Web site), “62 teams chosen from 1457 from 92 different countries competed for glory and bragging rights” in the 1999 World Finals of the ACM International Collegiate Programming Contest, held at TUE (formerly THE), Eindhoven, Netherlands. A team of 300-level students from Otago University Computer Science department (Geoff Bolton, Malcolm Handley and Michael Bevin) assisted by coach Chris Handley attended as representatives of New Zealand and the South Pacific region.

The contest, sponsored by IBM (and the first to be held outside the US) was an enormous success, possibly inspired by the memories of Edsger Dijkstra still haunting the environs. After 5 hours of hard slog, pitting their brains against the 8 problems the Otago team finished team tied for 11th place with five solutions, ahead of institutions such as Cornell, National University of Singapore and Moscow University. The winning teams had six solutions to the eight problems. Our team were awarded a prize as South Pacific Champions for 1999. All in all a very creditable effort and we look forward to their being in Orlando, Florida next year where we should do even better.

Kaye Saunders

Events

ISESS—International Symposium on Environmental Software Systems

Dunedin (Otago IS) 30 August–2 September '99
Due to increasing practical needs, the software support of environmental protection and research tasks is growing in importance and scope. Environmental Information Systems (EIS) are an important factor in

environmental research, decision support, management and policy. The subject is still growing in a multi-disciplinary work environment which changes quickly. Perhaps this is the major challenge we face as the practical need for the software support of environmental protection and research tasks continues to grow. ISESS, the International Symposium on Environmental Software Systems, was initiated in 1995 as a forum in which to present and discuss the fundamentals, progress and actual trends in this area in terms of methods, tools and state-of-the-art applications. Over the years, it has also evolved into an important networking tool for academics, environmental professionals, and other interested parties. Now in its fourth incarnation, these conferences on Environmental Informatics continue to be co-sponsored by the International Federation for Information Processing (IFIP), the world's umbrella organization of computer societies. The upcoming ISESS 1999 conference is being held at the University of Otago, in Dunedin, New Zealand. Its three predecessors were held at Penn State University, USA (1995), at Whistler Resort, Canada (1997), and in the Nature Parc Soelk Valleys in Styria, Austria (1998). For more information and programme details see isess.crle.uoguelph.ca/1999-scope.html.

ICONIP'99 Post Conference and Workshop

Dunedin (Otago IS) 22–23 November '99
 A two-day workshop and expo will be held in Dunedin, New Zealand, following the Annual Conference of the Asian Pacific Neural Network Assembly (APNNA), International Conference on Neural Information Processing (ICONIP'99), to be held in Perth, Australia. The conference, workshop and expo will be held jointly with the Australian and New Zealand International Conference on Intelligent Information Processing (ANZIIS'99) and the New Zealand International Conference on Artificial Neural Networks and Expert System (ANNES'99).

The expo will present the latest developments in information systems and software systems that include new software releases, speech technologies, image processing, robotics, computing systems for genetic engineering, expert systems, knowledge-based systems, decision support systems in agriculture, horticulture, medicine, environment, education, business and finance. Presentations are invited for both software demonstrations and poster papers.

For more information see divcom.otago.ac.nz/infosci/kel/iconip99-workshop.htm.

SIRC'99—11th Annual Colloquium of the Spatial Information Research Centre

Dunedin (Otago IS) 13–15 December '99
 The theme of this Colloquium is "Our Safe Living Environment: The Changing Face of Spatial Systems". The colloquium is divided into 3 major themes; Health, Business and the Environment. The increased use of spatial systems for analysis, support, research and education within each of these themes demonstrates

the changing face of spatial systems. This colloquium aims to bring people together from each of these evolving areas to promote new techniques and a greater understanding of the possible applications for spatial systems in the future. For more information see divcom.otago.ac.nz/sirc/webpages/Conferences/SIRC99/sirc99.htm.

Conference Reports

Computer Science Subject Conference

Christchurch (Canterbury) 10–12 November '98
 In preparation for the subject conference, departments were polled for discussion items. On the basis of these the programme was chosen and each department prepared a position paper on the following topics.

- Undergraduate Curriculum
- Workload Issues
- Research Issues
- First Programming Language
- Pre University issues
- Computer Science Association of NZ

These were made available for all participants via the WWW.

There were 45 attendees representing the following:

<i>Institution</i>	<i>Department</i>	<i>No</i>
Auckland Uni	Computer Science	3
Canterbury Uni	Computer Science	11
Canterbury Uni	CUAP representative	1
Lincoln Uni	Applied Computing	6
Massey Uni	Computer Science	3
Otago Uni	Computer Science	9
Victoria Uni	Computer Science	5
Waikato Uni	Computer Science	5
Tait Electronics	Industry representatives	2

Having only one day for the subject conference meant that the chairs of each session needed to keep the discussion focused. This was greatly helped by having previously distributed the position papers which meant that participants already had a reasonably clear idea of the situation in other institutions. If a longer time had been available it is not at all clear that significantly more would have been accomplished.

Each session chair produced a final report that summarised the discussion and decisions made.

I would like to express my thanks to Dr Krishnan who did much of the local organisation to the session chairs who kept things to time and wrote the final reports, those who contributed to the initial position papers and all those who attended to make this a successful conference.

If you would like to learn more about the conference visit the conference Web-site at: www.cocs.canterbury.ac.nz/SubjectConference.

Bruce McKenzie

ACSW'99—Australasian Computer Science Week
 Auckland 18–21 January '99
 From 18 through 21 Jan '99, we hosted the “Australasian Computer Science Week” with four separate conferences, many impressive keynote speeches, and dozens of fine papers presented both orally and in the printed conference proceedings. Please see www.tcs.auckland.ac.nz/~acsw99/ for more details.

Clark Thomborson

NZCSRS—3rd New Zealand Computer Science Research Students' Conference
 Hamilton (Waikato) 6–9 April '99
 “Research, Computer Science, Fun—can I really put them all in the same sentence?” is how graduate students nationwide were introduced to the launch of the Third New Zealand Computer Science Research Students' Conference; and feedback from the 50 or so attendees who gathered for the conference suggests we did indeed hit upon the right mix of formal and informal events.

Held in the welcoming atmosphere of the Waikato University campus marae, Te Kohinga Mārama Marae, attendees arrived on an overcast and rainy Tuesday afternoon to be formally welcomed on to the marae through the *pōwhiri* ceremony. Speaking on behalf of the visitors, Simon McCallum (Otago), Stuart Yeates (Waikato), Stan Szpakowicz (Ottawa, Canada), and Te Taka Keegan (Waikato) gave eloquent speeches that were both humorous and moving at times, helping set the mood for the following days. On completion of the ceremony a *hāngi* was served, followed by an outing into town for anyone not too exhausted by their trip to Hamilton.

With the arrival of Wednesday came a brighter day, and the serious task of presenting research work. The general structure to each conference day was a mixture of student presentations and guest speakers during the morning and afternoon, and a social event organised for the evening.

The five guest speakers all gave excellent presentations on topics pertinent to graduate research: Bruce McKenzie, *How to choose a research topic*; Jacky Baltes, *Time and project management as a graduate student*; Sally Jo Cunningham, *How to use a library effectively for research purposes*; Ian Witten, *How to write to be published*; and Mark Hall, *How to write a thesis*.

The main social events were a trip to a local hot spring (Wednesday evening), where the hydro-slides and the king of the pole competition proved extremely popular; and a barbecue (Thursday evening) where the poster session and the ability to play free pool featured strongly.

At the end of the conference, attendees voted on the best student paper. Results are as follows:

1st Aaron Roydhouse, Victoria
Discovering regularities in sequential data

2nd Simon McCallum, Otago
Mechanisms for memory consolidation
 3rd Steven Mills, Otago
Graph-based object hypothesis
 4th= Brent Martin, Canterbury
Constraint-based student modelling: representing student knowledge
 4th= Sasha Rubin, Auckland
Finite automata and well ordered sets
 6th Richard Littin, Waikato
Data and control speculative execution

These six papers are due to appear in a special issue of NZCJ later this year.

If you would like to learn more about the conference visit the conference Web-site at: www.cs.waikato.ac.nz/cs/GradConf.

David Bainbridge

Masters Theses

Canterbury

1998/99
 Brendon Harris—*Firewalls and virtual private networks*
 Kahn Mason—*Notes on the parallel decomposition theory of finite state machines*
 Elizabeth Ng—*Development of the Presto Pen-based music editor*

Otago CS

1997
 Michael Keeley—*Animation from motion capture*
 Michael Mundy—*Neural networks model of localisation*
 Brendon Woodford—*An intelligent knitwear design aid*
 Justin Wright—*Co-operative access to a temporal database*

1998
 Chris Butcher—*Growing and animating visually realistic trees*
 Jason Butler—*Further studies of the pixel-independent ray tracer*
 Tracy Mason—*Virtual display case*
 Julian Peterson—*An interactive application for texture synthesis*

Lincoln

1998
 Mike Youngman—*The determination of moisture gradients in pinus radiata timber during kiln drying*

Waikato

1998

Niann-Tsuu Chiang—*Optical music recognition: processing the Sacred Harp*

Michael Williams—*An evaluation of passage-level indexing strategies for a full-text document archive*

1999

Kirsten Thomson—*The analysis and evaluation of collaborative systems*

Kadir Wijaya—*Extending CANTOR: an optical music recognition system*

Auckland

1998

Gordon Alford—*DNA computations: from Turing machines to H systems*

Sanjoy Banik—*Interactive computer vision course*

Wing Kai Chan—*Synchronisation Library for PVM*

Ling Chen—*Telephony over the Internet*

Sunny Daniels—*State-based model of parallel computation*

Morteza Khomami—*Study of queue prediction, a fast cell scheduling algorithm*

Jeong Koo—*DermatExpert: a knowledge based system for dermatological diagnosis through the Internet*

Douglas Low—*Java control flow obfuscation*

Angela Ng—*Towards 3D model reconstruction from photometric stereo*

Grant Ng—*Fitting surfaces to multiple orthogonal contour sets*

Kirubalaratnam Nithyaganesh—*Talk-net project: real-time speech communications using T-codes*

Ben Noonan—*Distributed event controller*

John Pearson—*Heuristic search in route finding*

Jarno van der Linden—*Querying in program visualisation*

Richard Westera—*Interactive machine translation using an Interlingua*

PhD Theses

Otago CS

1998

Chris Handley—*Analysis and synthesis of visual texture*

1999

Margaret Jefferies—*Cognitive maps: understanding how local environments are computed*

Otago IS

1999

Colin Aldridge—*A theory of empirical spatial knowledge supporting rough set based knowledge discovery in geographic databases*

William Wong—*Information portrayal in dynamic decision making environments*

Waikato

1999

Mark Hall—*Adaptive prediction from multi-dimensional data*

Stuart Inglis—*Document image compression*

Auckland

1998

Asat Arslanov—*Topics in algorithmic information theory*

Elena Calude—*Automata-theoretic models for computational complementarity*

Ulrich Guenther—*Robust source coding with generalised T-codes*