Newsletter

Appointments

Otago CS

Brendan McCane PhD James Cook
Lecturer (from January)
Computer vision, machine learning, pattern recognition, and general artificial intelligence.

Otago IS

Robert Kozma PhD
Junior Research Fellow
Development and implementation of connectionist-based information system modules.

Lincoln

Alan McKinnon PhD Canterbury
Aoraki Corporation Professor of Applied Computing
Computer modelling and scientific visualization.

Bill Rosenberg
Acting Director (until 31 August 1997)

Keith Unsworth
Academic Head (until 31 December 1997)
Computer graphics, primarily geometric modelling and scientific visualization.

Waikato

Steve Franks B.Sc., M.Sc. Missouri - Rolla
Lecturer (from February)
3D computer graphics and animation, parallel and distributed systems, graphic design and multimedia.

Malika Mahoui MA, PhD Montpellier
Lecturer (from February)
Databases, transactional systems, distributed systems.

Kai Ming Ting BEE UTM, MCSc Malaya, PhD Sydney
Lecturer (from August 1996)
Maching learning and other aspects of artificial intelligence.

Auckland

Michael Barley PhD Rutgers
Lecturer
Planning and artificial intelligence.

Patricia Riddle PhD Rutgers
Lecturer
Artificial Intelligence, knowledge representation, machine learning.

Visitors

Clark Thomborson from Auckland was the 1996 Computer Science Visiting Lecturer. An announcement on the Visiting Lecturer for 1997 is imminent but not quite available at the time of going to press.

Lincoln

Dr Conrad Heatwole (January - April)
Virginia Tech, Blacksburg, Virginia, USA
Development of computational methodologies to investigate and model the uncertainty in parameters within the context of Agro-ecosystem models.

Canterbury

Prof Slobodanka Djordjevic-Kajan (February - May)
Department of Computer Science, University of Nis, Yugoslavia
Spatial and geographical data structures and databases, intelligent command and control systems, software metrics and software testing.

Victoria

Prof Craig Wills (July '97 - June '98)
Computer Science Department, WPI, Worcester, USA
Systems (operating systems, networking, distributed systems) and user interface areas of computer science. Has been active in curricular research on the application of peer learning to the introductory computer science curriculum.

Contents

Massey

Cecile Germain-Renaud (August - September)
University of Paris Sud
Optimizing the communications for massively parallel architectures: hardware routing and network performance evaluation (MEGA project); co-design of a data-parallel compiler and architecture (PTAH project); data-parallel compilers for general MIMD architectures; communication vectorization for static applications; collaboration with the GMD ADAPTOR project; HPF programming for domain decomposition methods.

Waikato

Russell Beale (February - July)
Computer Science Department, University of Birmingham
Intelligent interactive systems: the use of neural networks and AI to make computer systems easier and more powerful to use.

Martin Henson (February - March)
Computer Science Department, University of Essex
Formal theories of program development; formal methods; logic.

Malcolm Moffat (October '96 - March '97)
Heriot-Watt University, Edinburgh
Digital libraries.

Bernhard Pfahringer (August '96 - August '97)
Austrian Research Institute for Artificial Intelligence, Vienna
Practical applications of the Minimum Description Length Principle in machine learning, genetic algorithms, constraint logic programming, and search and optimization in general.

Auckland

Dr Fridrich Sloboda (January - May)
Academy of Sciences, Bratislava, Slovakia
Geometric and topological topics in image analysis/computer vision.

Departmental Reports

Auckland

This will be the first report for some time which has not been initiated by Bob Doran, who has finally retired as Head of Department after more than 11 years in this position. Bob was appropriately "farewelled" to a strategically chosen remote office on the first floor of our building at a well-attended function at the end of January. We think that he is one of the longest continuously serving HODs at Auckland, but he probably has some way to go to match Brian Cox's tenure at Otago! Bob has been a strong advocate for Computer Science at Auckland, and has made an immense contribution towards the growth and success of our Department. Many of his achievements were recalled at his farewell gathering. One not-so-serious recollection was the time he used, in a memo to a "competitor" department, the phrase "internecine cooperation", thinking it meant something like "interdepartmental", when actually it means "deadly, characterized by great slaughter" or "mutually destructive. Now also, of or pertaining to internal conflict in an organisation".

Bob handed over a very useful HOD "Resource Kit" to his successor (the undersigned). It included many practical aids such as scissors for "trimming departmental budgets", extra strength aspirin for "consumption after senate meetings", chocolate fish for the "staff bonus incentive scheme", jelly beans to "assist with accounting", and worry beads for "trying times". Certainly the new HOD is relying heavily on his advice as he comes to grips with the job.

We have had a busy start to the academic year with a rather unexpected 20% increase in student numbers at all levels. This has created pressure on all parts of our Department, particularly after a budget cut for 1997. Academic and resource planning is already underway for 1998 and beyond, so we hope this cutback will only be temporary. The University will undergo an academic audit in July, and the Department itself will be reviewed toward the end of the year, so there is more paper work to come.

Various research activities within the Department are flourishing, with a boost provided by the arrival of the new professors Reinhard Klette and Clark Thomborson in 1996. The Computing and Information Technology Research Group has been established under Reinhard's leadership at Tamaki with emphasis on the areas of computer vision, artificial intelligence, data communications, computer architecture and cryptology. Clark has recently visited most Computer Science departments as visiting lecturer and is busy establishing the area of computer performance analysis within the Department.

Among other highlights, the Centre for Discrete Mathematics and Theoretical Computer Science, a joint venture between Auckland and Waikato under the leadership of Cris Calude and Douglas Bridges, is flourishing. A most successful conference was held in December 1996, and another conference on "Unconventional Models of Computation" will be held in January 1998. The Hypermedia Unit, under the direction of Jennifer Lennon, has continued its contracted work with outside organisations such as the Museum of New Zealand and the National Library of New Zealand. Jennifer's multimedia and hypermedia systems paper continues to be the most popular at Stage 4 level, with an enrolment of over 70 students this year. John Hosking and Ric Mugridge have secured a TBG contract to develop software for the design of aluminium frames for the building industry.

Peter Gibbons   4 April 1997

Victoria

At the beginning of March, the Department of Computer Science at Victoria was merged with the Department of Mathematics and the Institute for Statistics and Operations Research to form the School of Mathematical and Computing Sciences. Professor Rob Goldblatt is the new head of the School. This change was part of the restructuring process at Victoria which has replaced departments by larger schools. The Department of Computer Science no longer exists as a department, but the Computer Science staff, research, and teaching will continue as a group within the new school. It is too early to identify the effects of the new structure, but the gains that we hope for will be increased cooperation, especially in terms of research, between the disciplines, and a reduced administrative load on staff.

Peter Andreae   8 April 1997

Enrolments

Otago CS

Enrolments were up again in 1997 compared with 1996, though not as large an increase as last year. The department has effectively doubled in size over three years from 125 to an estimated 250 efts this year, when second semester enrolments are added. We have yet to analysis the pattern of enrolments, but suspect that we have obtained a slightly higher percentage of women in our first year classes. Our percentage of female students at higher levels is still very low. I am hoping that Clark Thomborson will follow up his seminar here, by seeking comment from each university to see if the same pattern is occuring at all universities. Has anyone got a percentage of female students anywhere near their University average?

Brian Cox

Otago IS

Number of enrolments in Information Science 1995-1997

	1995	1996	1997
First year (with Comp Sci since 1996)	770	1257	1400
Second year	281	408	684
Third year	178	351	442
Fourth year	113	158	116
Masters/PhD	28	48	55

Stephen MacDonell

Lincoln

Enrolments for the B.Appl.Comp. degree are up in 1997, but enrolments of students for other service courses are slightly down this year.

Elizabeth Post

Canterbury

At Canterbury enrolments in the mainstream first year computer science courses have jumped by about 30% after limitation of entry was removed this year. Stage two numbers are also up, but third and fourth year numbers are down. The financial pressures on students appears to be one of the reasons that students are leaving earlier.

Tim Bell

Victoria

Enrolments are significantly up in Computer Science at Victoria. Early figures (always over optimistic) shows a 24% increase in total computer science EFTS over the same time last year. There has been some growth at first year (on the order of 10%) in students doing our first course for majors. Our biggest growth is at second year, with our enrolments running on the order of 40% up on last year. Part of this is a result of offering our first year courses over the summer as four week, intensive courses. Third year has seen a smaller flow-through effect of last year's growth at second year, and our new graduate enrolments are up very significantly after a marked lull in 1996.

Peter Andreae

Massey

Enrolments for us are up. We have a pretty flat graduate enrolment but have made up numbers on new intake and especially in newly resident overseas students who need to update their qualifications by taking an accelerated diploma in CS.

Chris Jesshope

Waikato

Overall Computer Science EFTS are up by approximately 20% at Waikato. This in part reflects a dip experienced in 1996, and also the introduction of Summer School courses this year.

	1995 (EFTS)	1996 (EFTS)	1997 (EFTS)
Part 1	153	133	170
Part 2	103	101	121
Part 3	73	60	82
Part 4	47	47	39
Masters/DPhil	31	21	27

Mark Apperley

Student Programming Competition

The New Zealand Programming Contest is an Annual Event for Teams of three people from Polytechnics and Universities throughout New Zealand. There are three divisions Year1, Year2 and Year3+ which correspond

to the years of programming experience of the team members.

The contestants are provided with a set of problems graded as 5 point, 20 point, 50 point and 150 point problems and have to collaborate using one PC between them to produce a program which will give the same output as the judge's program when run against a data file.

This years contest was run a little later in the year than is normally the case and entries were correspondingly down. There were twelve Auckland entries, two from Otago and one each from Waikato and Palmerston North.

The overall winners were the Megamagic Team from Auckland University with a huge score of 420 points. Second was a Stuart Inglis in a one man 'Team' from Waikato with 150 points.

The Manukau Institute of Technology team WTZ won the Year one division.

The full results are:

Institution	Team Name	Year	Score
Auckland Uni	Megamagic	3	420
Waikato Uni	Just Stu's	3	150
Massey Uni	Dirk Gentley's Holistic Coding Agency	3	125
Otago Uni	Pentium Tricarbonate	3	105
Auckland Uni	Fooptr returns	3	100
Auckland Uni	14641	3	65
Manukau Inst Tech	WTZ	1	55
Auckland Uni	Krogon Poppa's Boys Dropping off the Lip	2	50
Auckland Uni	Da Gals	3	45
Manukau Inst Tech	Creative Logic	1	30
Manukau Inst Tech	Win	1	15
Manukau Inst Tech	Software	1	10
Southland Polytech	Usual Suspects	2	10
Auckland Uni	No Code	2	10
Manukau Inst Tech	Driving Clowns	1	5
Manukau Inst Tech	QwikByte	1	5

Bob Gibbons   7 Feb 1997
Manakau Institute of Technology

Events

Formal Methods Pacific '97
Wellington (Victoria)   9-11 July '97
This is an umbrella conference, incorporating the 6th Australasian Refinement Workshop and the 3rd New Zealand Formal Program Development Colloquium. The conference will provide a forum for discussion of current research on mathematically-based techniques for design and development of computer systems, and will feature speakers from New Zealand, Australia,

UK, USA, France, Germany and Brazil. For details, contact Lindsay Groves (lindsay@mcs.vua.ac.nz) or see http://www.comp.vuw.ac.nz/FMP97/.

The Australasian Refinement Workshops (formerly the Australian Refinement Workshops) have been held every 12 to 18 months since 1991. The New Zealand Formal Program Development Colloquia have been run since 1994. Both workshops have aimed to facilitate discussion and advancement of current research by focussing on work in progress, and both have attracted many active researchers from within Australasia and abroad. The two will be run together as a combined workshop for the first time in 1997. In recognition of the quality of papers presented at recent workshops, we will be refereeing papers and publishing proceedings for FMP'97. We will, however, still aim to provide the opportunity for authors to present work in progress and to encourage active discussion. We especially wish to encourage post-graduate students to participate.

GeoComputation '97—9th Annual SIRC Colloquium
Dunedin (IS Otago)   26-29 August '97
The 2nd International Conference on GeoComputation is to be held in Dunedin from August 26 to 29 incorporating research relating to all aspects of computational geography, the convergence of computer science, geography, geomatics, information science, mathematics and statistics.

ENZCon'97
Auckland (Massey)   1-2 September '97
There is no theme for ENZCon'97, it is however a stock take of electronics research, education and industry in New Zealand. Papers can be of any type, eg: application, tutorial, poster, etc. ENZCon conferences consider papers for acceptance relating to electronics, mechatronics, robotics, and related physics, technology, and educational subjects. If uncertain as to appropriateness, please enquire or submit an abstract. A papers committee will moderate and review submitted abstracts. In the event of there being more acceptable papers submitted than can be presented in the time available, the Papers Committee will make a further selection. It is hoped to arrange prizes for the best paper and poster.

For more information see http://www.massey.ac.nz/~ENZCon97.

ICONIP'97 jointly with ANZIIS'97 and ANNES'97
Dunedin (IS Otago)   24-28 November '97
Featured in November 1996 Newsletter.

Unconventional Models of Computation Conference
Auckland (Auckland, Waikato)   5-11 January '98
The aim of this conference is to bring together all areas of unconventional computation, especially quantum computing, computing using organic molecules (DNA), and various proposals for computation that go beyond the Turing model. Papers are being sought in these and related areas. The refereed proceedings

will be published by Springer-Verlag, and copies will be available for participants at the conference.

Submissions Due:	15 July 1997
Notification:	15 September 1997
Final Copies Due:	1 November 1997

For more information see the conference home page at http://www.cs.auckland.ac.nz/CDMTCS/docs/news.html, or contact the secretary M. Dinneen at mjd@cs.auckland.ac.nz.

TFCV'98

(Auckland)   16–20 March '98
Featured in November 1996 Newsletter.

Australasian Computer Science Conference

Auckland (Auckland)   1999
The Australiasian Computer Science Conferences will be held in Auckland in early 1999. It was generally agreed by those at the conference just finished at Macquarie University in Sydney that the conference held in Christchurch in 1994 was the best ever. We plan to at least maintain that standard in Auckland in 1999.

From past experience, there will be at least four conferences held around that time. At Macquarie, they introduced the term "Australasian Computer Sciences Week" for the following 3 conferences held this year—

ACAC Australasian Computer Architecture Conference   Monday, Tuesday

CATS Computing—Australasian Theory Symposium   Monday, Tuesday

ACSC Australasian Computer Science Conference   Wednesday-Friday

There is usually a Database conference as well, but it was cancelled in favour of an international Database Conference in Melbourne later this year. There is also talk of a possible conference on Logic Programming as well for 1999. Institutions near the conference venue are also encouraged to hold specialist seminars, workshops etc before or after the main conferences (this is how the Architecture Conference started). The time is not yet decided, but many Australians spoke in favour of the week before Australia day (18 - 22 January).

Please note that all conferences include the word "Australasian" in their titles. It is our responsibility to maintain sufficient New Zealand interest to justify retaining this title, instead of the previous "Australian". So please everybody prepare to submit lots of papers and then attend the conference. For 1997, papers were submitted as

NSW	27
Vic	23
Qld	19
SA	11
NZ	10
WA	4
Tas	1
Other	18

So our paper submission numbers are already well up among the Australian states, but on a population basis we could well double the number of submissions—how about it?

As preparation for the wonderful week in Auckland, you should consider attending the 1998 conference in Perth, 2-6 Feb 1998. (And of course submitting papers.) Perth is a very pleasant city, much less hectic than East Coast cities. (I spent about 3 months of my 1995 Study Leave there.) While West Australia is a VERY big place with lots of very interesting scenery further north, there is good sightseeing with day-trip distance of Perth. Train enthusiasts might like to consider too the "Indian-Pacific" train Sydney-Perth (or Adelaide-Perth), regarded as one of the world's best railway journeys, but ensure that you book well in advance. However you get there, it would be good to have plenty of New Zealanders there, preferably presenting LOTS of papers.

For information on the Perth conference see http://www.cs.uwa.edu.au/acsw98.

Peter Fenwick
University of Auckland

Postgraduate News

Lincoln

Peter Johnson, a Masters student, has recently been awarded a Graduate Research in Industry Fellowship (GRIF). In collaboration with Dr Don Kulasiri, Dr. Richard Sedcole and Dr. Glen Harrison, Peter is developing a simulation model for jet engine repair process for Air New Zealand.

Dr Kulasiri also has another Masters student with a GRIF. He is Mike Youngman, who is working with Lincoln Technology and Painters Timber Ltd to develop a moisture measurement technique for timber using AquaFlex technology developed by Lincoln Technology.

Masters Theses

Otago CS

1996
  B M Lowther—*An Image Matching Scheme*
  W N Mein—*Shape Classification of Red Blood Cells*

Victoria

1996
  James Noble—*Abstract Program Visualisation*

Waikato

1996
  Jing Deng—*Groupmodel: a case tool supporting distrib-*

uted cooperative data modelling

Rodger McNab—*Interactive applications of music transcription*

1997

Simon Gianoutsos—*Exploring groupware capabilities for World Wide Web browsers*

Auckland

1996

Burkhard Claus Wuensche—*A Fast Polygonization Method for Quasi-Convolutionally Smoothed Polyhedra*

Jun Jae Lee—*Physically Based Rigid Body Animation System*

Peter Dansted—*Convolutional Smoothing of Polyhedra*

PhD Theses

Canterbury

1996

David Bainbridge—*Extensible Optical Music Recognition*

V Yaui—*WDM Networks Design and Destination Conflicts*

Waikato

1997

Masood Masoodian—*Human-to-Human Communication Support for Computer-based Shared Workspace Collaboration*