

## Appointments

## Waikato

### Otago CS

**Dr Michael Atkinson**  
 Professor (from July)  
 Theoretical computer science in abstract data types and in combinatorial problems associated with searching and sorting.

**Marjan Lousberg**  
 Teaching Fellow (from January)

**Simon McCallum**  
 Teaching Fellow (from February)

**Raymond Scurr**  
 Teaching Fellow (from January)

**Dr Eibe Frank**  
 Lecturer (from February)  
 Machine learning, data mining, text mining

**Dr Mark Hall**  
 Lecturer (from February)  
 Machine learning, data mining

**Mr Jörg Micheel**  
 Data Network Researcher (from March '99)  
 Network measurements, operating systems, compiler design

**Dr Masood Masoodian**  
 Lecturer (from February)  
 Computer supported cooperative work, human computer interaction, user-centred design, group communication

### Lincoln

**Emma Raymond**  
 Teaching Fellow (from March)  
 Object-oriented design, design of intelligent and interactive multimedia systems

**Nic Smith**  
 Teaching Fellow (from July)  
 Mathematical modelling, visualisation

**Dr Bernhard Pfahringer**  
 Senior Lecturer (from March)  
 Machine Learning, data mining, AI, programming languages (CP + OOP)

**Dr Gordon Paynter**  
 Research Assistant (from March)  
 Programming by demonstration, information retrieval, digital libraries

### Victoria

**Dr Michael Fellows**  
 Senior Lecturer (from July '99)  
 Complexity theory, cryptography, heuristic algorithms, computational biology

**Dr James Noble**  
 Lecturer (from November '99)  
 Software design, design patterns, usability, object-oriented programming

**Frances Rosamond**  
 Senior Lecturer (from July '99)  
 Computer science/mathematical sciences education

**Mr Greg Reeve**  
 Research Assistant (from December '98)  
 Formal specification, Z, micro-charts, denotational semantics, functional programming

**Mr Yong Wang**  
 Part-time Lecturer (from February)  
 Data mining, machine learning, artificial intelligence

### Massey

**Dr Paul Anderson**  
 Associate Professor (from March)  
 Software engineering and human-computer interaction (dialogue modelling, rapid prototyping and distortion oriented displays)

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## Auckland

### Dr Robert Amor

Senior Lecturer (from June 2000)

Integrated systems, data structure mappings, information representation and retrieval, software engineering, object-oriented systems

### Dr Ulrich Günther

Temporary Lecturer (from February 2000)

Coding, Internet technology, signal processing and information theory, technology transfer between cultures

### Ms Ute Loerch

Temporary Lecturer (from January 2000)

Natural language recognition, fuzzy logic, case-based reasoning, educational software, artificial intelligence

### Ms Miriam Walker

Limited Term Tutor (from January 1999)

Human-computer interaction

### Dr Ian Watson

Senior Lecturer (from April 2000)

Case-based reasoning, applications of AI on the Web

## Promotions

### Dr Don Kulasiri

Promoted to Professor in June 1999.

Don is a computational scientist with a special interest in the development of computer models of physical systems. Recent research has involved him in computational modelling of the mechanical and hygro-thermal behaviour of biological materials, such as deformation in timber and composite materials, and simulation and modelling of environmental and engineering systems, such as contaminant transfer in aquifers.

## Lincoln

### Dr Georgy Gimel'farb MSc PhD(Kiev) DSc(Moscow)

Promoted to Associate Professor during 1999. Georgy has more than 135 refereed publications in Russian and Ukrainian (before 1997) and more than 45 refereed publications in English (after 1991) on computational stereo vision, space and aerial image analysis, image texture simulation, segmentation and retrieval, and other topics in computer vision and image processing. In 1999, Georgy published a monograph "Gibbs Random Fields and Image Textures" (Kluwer Academic).

Computational stereo vision, texture modelling and segmenting, query-by-image data retrieval, low-level image processing, 3D scene understanding, space and aerial image analysis.

### Dr Hans Guesgen Dipl.-Inform.(Bonn) Dr. rer. nat.(Kaiserslautern) Dr. habil.(Hamburg)

Promoted to Associate Professor during 1999. Hans has more than 70 refereed publications in spatio-temporal reasoning, constraint satisfaction, and other topics in AI. Since joining our staff in 1992, Hans has co-organized and co-chaired workshops on spatial and temporal reasoning at international, American, and European conferences on artificial intelligence. He serves on the editorial boards for the International Journal of Applied Intelligence and for the Pattern Analysis and Applications Journal.

Spatial and temporal reasoning, constraint satisfaction.

### Dr Richard Lobb MSc PhD(Auckland)

Promoted to Senior Lecturer above the Bar during 1999.

Computer graphics and visualization.

### Dr Sathiamoorthy Manoharan PhD(Edinburgh)

Promoted to Senior Lecturer during 1999.

Parallel and distributed computing, computer architecture, performance modelling and simulation, object-oriented programming, and optimization problems.

### Dr Radu Nicolescu PhD

Promoted to Senior Lecturer during 1999.

Object-oriented computing and its integration with the Web and databases, information coding and complexity, discrete mathematical models.

### Dr Xinfeng Ye BSc(Hua Qiao) MSc PhD(Manchester)

Promoted to Senior Lecturer during 1999.

Internet based computing and distributed systems.

## Waikato

### Dr Geoff Holmes BSc PhD(S'ton)

Promoted to Associate Professor in April.

Machine learning

### Dr Steve Reeves BSc(Hons) PhD(Birm)

Promoted to Associate Professor in April.

Formal methods in software engineering and HCI, functional and logic programming, mathematical foundations of computer science

## Visitors

## Auckland

### Dr Michael Dinneen BSc(Idaho) MSc PhD(Victoria, Canada)

Promoted to Senior Lecturer during 1999.

Combinatorial algorithms, graph theory and network design. Interests in distributive programming, computational complexity, programming trends, computational biology and computer-assisted mathematics.

## Lincoln

### Panama Geer (May – August)

Rensselaer Polytechnic Institute, New York

Computer aided geometric design, interactive curve manipulation

## Waikato

**Barry Blundell** (February – November)  
American University of Sharjah, United Arab Emirates  
3-dimensional visualisation

**David Nichols** (February – December)  
Lancaster University, UK  
Digital libraries, computer supported cooperative work

## Departmental News

### Otago CS

**Chair Available:** We are advertising again for a chair, this time to replace Brian Cox, the Department's foundation professor, who is retiring at the end of 2000 after 17 years as Head of Department and some 38 years at the University of Otago. Suitable ceremonies are planned to mark this event later in the year.

**Student Numbers:** While the University of Otago has not grown significantly in the year 2000, the Department of Computer Science has seen a further major growth of some 16% over 1999 figures. While some of this growth has been at 100-level, the largest increase has been nearly 60% in some 200-level classes, and a return to significant numbers at 400-level. On the other hand, the number of MSc and PhD students has declined, as new students have not replaced those completing in 1999 or early 2000.

**Significant Events:** The most significant event in 1999 was a small fire in our main building Archway West in the early hours of 7 July 1999, in a laboratory just refurbished for the second semester. Structural damage was contained by prompt action by the Fire Service, and without the sprinklers being triggered, but the smoke damage throughout the building was considerable. Some 80 units had to be sent away for specialist cleaning, and a few older systems were simply replaced. Dislocation to departmental services was substantial, but was minimised by heroic efforts of technical and programming staff. Restoring original services a month or so later was even more difficult being within a teaching period. Smoke detectors to get earlier warning of such events have been installed, and can be strongly recommended to any installation with substantial groups of computers. The one benefit of it all was a trial run of some of our contingency planning for the Y2K problem!

At the end of 1999 we converted yet another house in Castle Street from a student flat to departmental use, and again added a small annex at the rear with a covered courtyard between the house and the annex. This is providing a comfortable base for the AI group, and the Robotics Group. We are now in seven locations, and fear that we shall be in even more places before we get into any form of new building.

**Funded Research:** Work continues on the Marsden project "Computer Assisted Surface Design" under the direction of Geoff Wyvill, and is starting on the recently approved NERF project "Visualisation and Semantic Analysis of Information Webs" under Albert Yeap. Our Applied Research Centre (The Black Albatross) continues its work with industrial clients.

*Brian Cox*

## Lincoln

**Teaching Fellows:** Lincoln University has established two teaching fellowships in Applied Computing to reflect the funding support received from Aoraki Corporation for the JADE Chair in Applied Computing.

The holders of the fellowships will contribute to the teaching activities of the group on a half time basis while at the same time they undertake a research degree.

Emma Raymond, who has a masters degree in Computer Science and undergraduate qualifications in Mathematics and Computer Science took up her fellowship in March.

The other fellowship has been awarded to Nic Smith who will complete his undergraduate degree in Commerce and Applied Computing in June. We are delighted to have these people appointed and look forward to the contribution they will make to the research and teaching activities of the group.

**Awards:** Peter Johnson won the best student paper award in the general systems category at the MODSIM99 conference in December 1999 in Hamilton. (MODSIM is a biannual conference organised by Modelling and Simulation Society of Australia and NZ)

Peter's paper on the development of a simulation model of the Air New Zealand Remanufacturing plant was among 196 papers presented and published in the refereed proceedings. Many students mainly from Australia, New Zealand, USA and Germany presented their work, and there was an impressive array of papers in the conference.

Don Kulasiri and Peter have been invited to expand the paper to be included in a special edition of the "Mathematical and Computer Modelling" journal published by Elsevier.

**Textbook Published:** Elizabeth Post recently published a textbook "Jade for Developers". This textbook is intended both for professional software developers and for senior students wanting to learn JADE. Intended readers are expected to have some programming experience, but this need not be object-oriented. The book also includes introductory material on object-oriented analysis and design.

This book was launched in April at a function at the JADE Development Centre attended by the CEO of

Aoraki Corporation, Sir Gil Simpson, the Chancellor and Vice Chancellor of Lincoln University, the Hon. Margaret Austin and Dr Frank Wood, the JADE Professor of Applied Computing, Alan Mckinnon, and other guests.

**Publications Website:** <http://www.lincoln.ac.nz/amac/research/acms/acmspub.htm>

*Elizabeth Post*

## Massey

**NERF Project:** Prof Jesshope and a team at Massey University have recently secured a NERF project in the area of Technology for Teaching, entitled Technology Integrated Learning Environments (TILE). This project is expected to run over 4 years and is funded at \$400K per annum. Because of this support from NERF, NZEdSoft, the Massey University centre responsible for commercialising our teaching software will be giving away V1.2 of the AudioGraph Multimedia authoring tool for the Macintosh. This will be released sometime in April 2000. Visit our web site and download the software. <http://www.nzedsoft.com/>

This project brings together a range of researchers with complementary skills to develop a complete, client-server based solution for the delivery of education at a distance. The delivery will be web-based and will exploit multimedia that streams over 14K modems. The content will be annotated and integrated into a comprehensive knowledge base that answers students' questions and monitors their progress, thus providing a flexible and adaptive tutoring environment. Teachers will create content through easy-to-use authoring tools making the system applicable for school, university and continuing education. The project blends ambitious research goals with close-to-market prototyping, giving a progression of outputs that could be commercialised from its first year. The basic research will be in the areas of easy-to-use multimedia authoring tools, streaming, natural-language interfaces to the courseware, and the development of sophisticated student models and monitoring processes. Demonstration and evaluation of the system will be an important part of the project at both universities and schools. Human capital development will be achieved through the active use of the project's outputs.

*Chris Jesshope*

## Auckland

**New HOD:** Associate Professor John Hosking took over as Head of Department from Associate Professor Peter Gibbons as of 1 February.

**Student Numbers:** Our Department continues to have strong demand from students and high student growth. Our student numbers seem likely to grow this year by approximately 20%, to be close to 1000 EFTS.

This makes the department one of the three largest in our University.

**New Bachelor of Engineering:** The departments of Computer Science and Electrical and Electronic Engineering are jointly offering a Bachelor of Engineering in Software Engineering. The new programme got off to a promising start this year. The quality and number of applicants were higher than expected, with 62 accepted into Part I. Bursary marks of those accepted ranged from 330 to 465. We plan to accept 100 students into Part I in 2001, with guaranteed entry for those with bursary marks 360 and over. A Chair in Software Engineering has been advertised, and several other academic positions will be advertised in the next few weeks. The curriculum for the programme will evolve as staff are appointed and as international subject definition efforts mature. Software Engineering students enrol for a common Part I, so that they have some familiarity with other programmes, with their elective being a Stage I Computer Science paper. Project work will be an important component of the programme, with teams working on industry-sponsored projects in Part IV.

*Clark Thomborson*

## Events

### IWALT2000—International Workshop on Advanced Learning Technologies

Palmerston North (Massey) 4–6 December '00  
An IEEE Computer Society sponsored event to bring together researchers academics and industry practitioners who are involved or interested in the design and development of advanced and emerging learning technologies. Understanding of the challenges faced in providing technology tools to support learning process and ease the creation of instruction material will help building a direction for further research and implementation work. Call for papers and further details are available at: <http://lutf.ieee.org/iwalt2000/>

## Conference Reports

### PAM2000—The First Passive and Active Measurement Workshop

Hamilton (Waikato) 3–4 April '00  
The Passive and Active Measurement Workshop, PAM2000, was held at the Novatel Tainui in Hamilton in Hamilton on April 3 and 4, this year. The workshop was sponsored by the University of Waikato Applied Network Dynamics Group (WAND) research group to provide an opportunity for the Measurement community to meet and share research and measurement plans. The workshop was timed to be immediately after the Adelaide IETF and it attracted good representation from the international measurement community, with about 70 people attending. Sadly New

Zealand was only lightly represented. The proceedings can be found at [http://pam2000.cs.waikato.ac.nz/final\\_program.html](http://pam2000.cs.waikato.ac.nz/final_program.html).

## Masters Theses

### Otago CS

1999

- Anita Burhan—*A computational theory of language*
- Clint Cooper—*Atomic recoverable locking*
- Chris Haig—*Octree creation and traversal for CSG scenes*
- Hugh Malan—*Visual editing of procedural models*
- Tomasz Piatek—*Motion capture through silhouette-based pose estimation*
- Steven Smithies—*Freehand formula entry system*
- Tricya Widagdo—*Managing bi-temporal databases using active environments*
- Rembrandt Wolpert—*Coding medieval Japanese musical notations*

### Lincoln

1999

- Eleanor Hay—*User perceptions of computer speed*
- Peter Johnson—*Development of a simulation model for an Air New Zealand aircraft materials remanufacturing system*
- Joe Prachuabmoh—*Production strategies for newspaper press layout configurations*

### Victoria

1999

- Stuart Marshall—*Understanding code for reuse*
- Ben Wong—*Bigram model generalisation using singular value decomposition*

### Waikato

1999

- Zane Bray—*Using compression models of text for text mining*
- Xing Deng—*Short term behaviour of Ping measurements*
- Boyd Ludlow—*The browser/searcher: an investigation into dynamic querying in the New Zealand Digital Library using Starfield displays*
- Bin Meng—*Collaborative work through the World Wide Web*
- Phillip Tree—*Network simulation of IP and ATM over IP using a discrete event simulator*

2000

- Xiangjun Chen—*GroupFlow: a Web-based workflow system*

Lanying Cheng—*Fast similarity search of time series databases (MPhil)*

Mark Staveley—*Using keyphrases in automatic hypertext generation*

Joy Wang—*The development of a Java version client programme for network traffic measurement*

### Auckland

1999

- Michael Chen—*Generating strings with specified information rates*
- Yeung Wah William Choi—*A further study in ATM queue prediction*
- Vincent Chung—*3DComposer - A visual builder for 3D notations*
- Fu Cheong Fong—*Calculation of features of 3D objects*
- Yongyi Hu—*Information-theoretic incompleteness*
- Matthew Kearse—*Computational methods for chess-board problems*
- Joshua Lawrence—*High quality volume renderer using ray casting*
- Yuping Li—*Estimation of fundamental matrix in computational stereo*
- Jin Luo—*A new integration technique for gradient fields in polar coordinates*
- Petrus Mursanto—*Automatic detection of vehicular axle distances at tollgates*
- Daniel Nixon—*Simulating amoeboid objects*
- Yanlan Pan—*Uncalibrated 3D reconstruction by multi-views*
- See Wong—*Business simulation modelling language*
- Man Hon Wong—*Evaluation of algorithms for 3D volume analysis*
- Feng Wu—*Evaluation of 3D feature calculations for digital objects*

## PhD Theses

### Otago CS

1999

- Wolfgang Siebold—*Near optimal adaptive triangulations*

### Waikato

1999

- Len Trigg—*Designing similarity functions*

2000

- Eibe Frank—*Pruning decision trees and lists*
- Gordon Paynter—*Automating iterative tasks with programming by demonstration*

## Auckland

**1999**

**Xiaosong Li**—*A Petri net based technique for graphical user interface design*

**T Rajkumar**—*A hybrid risk assessment model using artificial intelligence techniques*

**2000**

**Jenny Shearer**—*Cyber ethics: communication principles and policies of the Internet*