

Curriculum Vitae of
Jim Grundy

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PREFERRED NAME: Jim Grundy
FULL NAME: Dr James Douglas Grundy
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GRADUATE EDUCATION:

Degree Doctor of Philosophy
Period October 1990 – November 1993
Institution University of Cambridge
Title A Method of Program Refinement
Supervisor Prof Michael J. C. Gordon
Examiners Prof Clifford B. Jones
Dr Lawrence C. Paulson
Awards – UK Overseas Research Student Award
– DSTO Australia Cadetship
– Commonwealth Scholarship (declined)

UNDERGRADUATE EDUCATION:

Degree Honours in Computer Science (First Class)
Period February 1989 – December 1989
Institution University of Queensland
Performance Grade Point Average: 6.8 out of 7.0
Awards – Arthur Andersen Scholarship and Medal
(awarded to best entrant to honours program)
– University Medal

Degree Bachelor of Science
Period February 1986 – December 1988
Institution University of Queensland
Performance Grade Point Average: 6.5 out of 7.0
Awards – Australian Computer Society Prize
(awarded to best final year computing student)
– IBM Prize in Computer Science
(awarded to best final year computing student)

RESEARCH GRANTS AND CONTRACTS:

Intel Corporation, Research Contract, *Verified Optimisations for the Intel IA-64 Architecture*, A\$30 000 (US\$19 300), 1999–2000.

Australian Research Council, Small Grant, *Verified Code Optimisation for Statically Scheduled Pipelined Processors*, A\$15 700 (US\$9 900), 1999.

Australian Research Council, Special Research Initiative Grant, *Australian Collective for Mathematical Program Construction and Theorem Proving*, A\$20 000 (US\$12 600), 1998. Jointly held with Trevor Vickers.

RESEARCH EXPERIENCE:

Visiting researcher at the Intel Corporation, researching verified optimisations for EPIC architectures. November 1999 – February 2000.

Lecturer at The Australian National University, researching verified optimisations for statically scheduled architectures. July 1998 –

Associate lecturer at The Australian National University, researching proof presentation and the application of formal methods to security properties of mobile code. September 1996 – June 1998.

Postdoctoral researcher at Åbo Akademi, working on software refinement and proof presentation. March 1995 – September 1996.

Research Scientist for the Australian Defence Science and Technology Organisation, working on specification and verification of state machines, and analysis of safety critical software. January 1994 – March 1995.

Doctoral Student at the University of Cambridge working on *A Method of Program Refinement*. October 1990 – December 1993.

Research Assistant for the Australian Defence Science and Technology Organisation, working on software verification. January 1990 – October 1990, and November 1988 – February 1989.

Research Assistant at the University of Queensland, working on the distributed processing of geophysical data. December 1987 – February 1988.

PROFESSIONAL ACTIVITIES, MEMBERSHIPS AND OUTREACH:

Program Committee Member for the 2000, 1999 and 1998 International Conference on Theorem Proving in Higher Order Logics.

Program and Organising Committee Member for the 1998 International Refinement Workshop and Formal Methods Pacific Joint Conference.

Program Committee Member for the 1997 Formal Methods Pacific Conference.

Organising Committee Member for the 1996 and 1998 International Conferences on Theorem Proving in Higher Order Logics.

Member of the Association for Computing Machinery.

Member of the IEEE Computer Society.

Reviews for various journals including *Science of Computer Programming* and *Formal Aspects of Computer Science*.

Member of the Joint Education Committee for the Science, and Engineering and Information Technology Faculties of The Australian National University.

Member of the Faculty of Engineering and Information Technology Curriculum Development Committee.

TEACHING EXPERIENCE:

Lectured a 1st year undergraduate course COMP1110 & ENGN1110: *Foundations of Software Engineering* with Trevor Vickers. The Australian National University, July–November 1999. (The course enrolment was approximately 280.)

Lectured a 2nd year undergraduate course COMP2031 & ENGN2003: *Construction of Program Systems*. The Australian National University, March–July 1997, 1998 and 1999. (The course enrolment was approximately 220, and the standard ANUSET surveys rated my overall effectiveness as a teacher at 6.0, 6.1 and 6.1 out of 7.0 in those three years.)

Lectured a 4th year (honours level) course COMP8033: *Mechanical Verification*. The Australian National University, July–November 1997 and 1998, and March–July 1999.

Presented a five-hour tutorial over five days on *Formal Methods in Higher Order Logic* to a logic summer school. The Australian National University, January 1999.

Lectured a graduate course on *Mechanical Verification* with Joakim von Wright. Åbo Akademi, Autumn 1995.

Presented a two day tutorial entitled *Introduction to Program Semantics and Refinement Using the HOL Theorem Prover* with Tom Melham and Joakim von Wright. University of Glasgow, August 1995.

Invited lectures for the following institutions:

- Oregon Graduate Institute. Portland, USA, 2000.
- Intel. Santa Clara, USA, 2000.
- Nokia Research and Development. Salo, Finland, 1995.
- University of Queensland. Brisbane, Australia. 1993.
- Åbo Akademi. Turku, Finland. 1993.
- Chalmers Tekniska Högskola. Göteborg, Sweden. 1993.
- INRIA. Sophia Antipolis, France. 1993.
- HP Research Laboratories. Bristol, England. 1992.
- ICL Secure Systems. Reading, England. 1991.

Presentations at the following conferences:

- Algebraic Methodology and Software Technology, Sydney, Australia. December 1997.
- Formal Methods Pacific, Wellington, New Zealand. July 1997.
- The Symposium on Logic, Mathematics and the Computer — Foundations: History Philosophy, and Applications, Helsinki, Finland. June 1996.
- Australasian Refinement Workshop. Canberra, Australia. March 1994.
- Formal Methods in Programming and Their Applications. Novosibirsk, Russia. June 1993.
- The 5th Refinement Workshop (invited speaker). London, England. January 1992.
- The International Tutorial and Workshop on the HOL Theorem Proving System and Its Applications. Davis, United States. August 1991.

Research student supervision:

- Peter Buckingham, an honours student, on the topic *Verified Code Optimisation*. The Australian National University, 1999.
- Andrew Rae, external supervision for a PhD student on the topic, *Automated Fault Tree Analysis for Computer Controlled Systems*. The University of Queensland, 1998.

PUBLICATIONS (important work marked ‘*’):

JOURNAL ARTICLES

- * Ralph Back, Jim Grundy & Joakim von Wright. *Structured Computational Proof. Formal Aspects of Computing*. 9 (5–6), 1998.
- * Jim Grundy. *Transformational Hierarchical Reasoning. The Computer Journal*. 39(4), May 1996.
- Jim Grundy. *A Browsable Format for Proof Presentation. Mathesis Universalis*. 1(2), Spring 1996.

INVITED CONFERENCE PAPERS

- * Jim Grundy. *A Window Inference Tool for Refinement*. In Jones *et al.* eds. *Proceedings of the 5th Refinement Workshop, Workshops in Computing*, Lloyd’s Register, London, January 1992. Springer-Verlag.

REFEREED CONFERENCE PAPERS

- Jim Grundy & Thomas Långbacka. *Recording HOL Proofs in a Structured Browsable Format*. In Johnson, ed. *Algebraic Methodology and Software Technology, 6th International Conference, AMAST ’97*, volume 1349 of *Lecture Notes in Computer Science*, Sydney, Australia, December 1997. Springer-Verlag.
- Michael Butler, Jim Grundy, Thomas Långbacka, Rimvydas Rukšėnas & Joakim von Wright. *The Refinement Calculator: Proof Support for Program Refinement*. In Groves & Reeves, eds. *Formal Methods Pacific ’97: Proceedings of FMP’97, Discrete Mathematics and Theoretical Computer Science*, July 1997. Springer-Verlag.

FMP is the premier formal methods conference in Australasia.

- Jim Grundy. *Predicative Programming—A Survey*. In Bjørner *et al.* eds. *Formal Methods in Programming and Their Applications: Proceedings of the International Conference*, volume 735 of *Lecture Notes in Computer Science*, Novosibirsk, Russia, June 1993. Springer-Verlag.
- Jim Grundy. *A Three-Valued Logic for Refinement*. In Bjørner *et al.* eds. *Formal Methods in Programming and Their Applications: Proceedings of the International Conference*, volume 735 of *Lecture Notes in Computer Science*, Novosibirsk, Russia, June 1993. Springer-Verlag.
- * Jim Grundy. *Window Inference in the HOL System*. In Archer *et al.* eds. *Proceedings of the International Workshop on the HOL Theorem Proving System and its Applications*, University of California at Davis, August 1991. IEEE Computer Society Press.

Now known as TPHOLs, this is the premier conference for higher order logic research.

BOOKS AND THESES

- * Jim Grundy & Malcolm Newey (eds). *Theorem Proving in Higher Order Logics: Proceedings of 11th International Conference, TPHOLs'98*, volume 1479 of *Lecture Notes in Computer Science*, Canberra, Australia, September 1998. Springer-Verlag.
- * Jim Grundy, Martin Schwenke & Trevor Vickers (eds). *International Refinement Workshop and Formal Methods Pacific: Proceedings of the 1998 International Conference. Discrete Mathematics and Theoretical Computer Science*, Canberra, Australia, September 1998. Springer-Verlag.
- * Joakim von Wright, Jim Grundy & John Harrison (eds). *Theorem Proving in Higher Order Logics: 9th International Conference, TPHOLs'96*. volume 1125 of *Lecture Notes in Computer Science*, Turku, Finland, August 1996. Springer-Verlag.
- * Jim Grundy. *A Method of Program Refinement*. PhD Thesis. Technical Report 318, University of Cambridge, Computer Laboratory, New Museums Site, Pembroke Street, Cambridge CB2 3QG, England. November 1993.

TECHNICAL REPORTS AND MANUALS

- Jim Grundy. *Trustworthy Storage and Exchange of Theorems*. Technical Report 1, Turku Centre for Computer Science, Lemminkäisenkatu 14A, 20520 Turku, Finland. April 1996.
- Jim Grundy & Thomas Långbacka. *Towards a Browsable Record of HOL Proofs*. Technical Report 7, Turku Centre for Computer Science, Lemminkäisenkatu 14A, 20520 Turku, Finland. April 1996.
- Jim Grundy. *The HOL window Library*. In SRI International, Cambridge Research Center, Millers Yard, Mill Lane, Cambridge CB2 1RQ, England. *The HOL System*, 2nd edition. March 1994.
- Jim Grundy. *The HOL pair Library*. In SRI International, Cambridge Research Center, Millers Yard, Mill Lane, Cambridge CB2 1RQ, England. *The HOL System*, 2nd edition. March 1994.
- Jim Grundy. *Report on m-EVES*. ERL Research Report ERL-0545-RR, Information Technology Division, Defence Science & Technology Organisation, PO Box 1500, Salisbury SA 5108, Australia. March 1991.

EMPLOYMENT HISTORY:

Organisation The Intel Corporation
Address 5200 NE Elam Young Parkway, Hillsboro OR 97124, USA
Position Visiting Researcher
Duties Research on verified optimisation
Period of Employment November 1999 – February 2000

Organisation The Australian National University
Address Canberra ACT 0200, Australia
Position Lecturer
Duties Teaching and research
Period of Employment July 1998 –

Position Associate Lecturer
Duties Teaching and research
Period of Employment September 1996 – June 1998

Organisation Åbo Akademi
Address Lemminkäisenkatu 14A, 20520 Turku, Finland
Position Postdoctoral Researcher
Duties Software refinement research and teaching
Period of Employment March 1995 – September 1996

Organisation Defence Science & Technology Organisation
Address PO Box 1500, Salisbury SA 5108, Australia
Position Research Scientist
Duties Hardware verification research
Period of Employment January 1994 – March 1995

Position Research Assistant
Duties Software verification research
Period of Employment January – October 1990, November 1988 – February 1989

Organisation University of Queensland
Address St Lucia QLD 4067, Australia
Position Research Assistant
Duties Distributed systems development
Period of Employment December 1987 – February 1988

Organisation MU Systems
Address 512 Milton Road, Toowong QLD 4066, Australia
Position Programmer
Duties Software development
Period of Employment December 1987 – February 1988

Organisation Creative Computing
Address 5 Cribb Street, Milton QLD 4064, Australia
Position Programmer
Duties Software development
Period of Employment December 1986 – January 1987