

## The professional writings of Robert W Doran

*List compiled from various sources by Brian E Carpenter in December 2018, updated May 2019 and December 2023. A BibTex version is available on request.*

*Hard copies of the underlined titles were donated to the library of the Museum of Transport and Technology, Auckland, NZ. The Amdahl reports were donated to the Computer History Museum, Mountain View, California, USA.*

Design of the Programmer Interface for a Transformational Grammar Programming System, RW Doran, (technical report), Stanford University Computer Science Department, Computational Linguistics Project, AF-9, May 1967.

External Formats Accepted by Transformational Grammar Testing System, RW Doran, (technical report), Stanford University Computer Science Department, Computational Linguistics Project, AF-12, 1967.

360 OS FORTRAN IV Free Field Input/Output Subroutine Package, RW Doran, (technical report), Stanford University Computer Science Department, Computational Linguistics Project, CS-TR-67-79, AF-14, October 1967.

A Formal Syntax for Transformational Grammar, J Friedman, RW Doran, (technical report), Stanford University Computer Science Department, Computational Linguistics Project, CS-TR-68-95, AF-24, March 1968.

Programmers Manual for a Computer System for Transformational Grammar, Joyce Friedman, Thomas H. Bredt, Robert W. Doran, Theodore S. Martner, Bary W. Pollack, (technical report), Stanford University Computer Science Department, Computational Linguistics Project, CS-TR-68-115, AF-36, August 1968.

Simulator for a Stack Machine plus Phrase Structure Compiler, R. Doran, D. White, (technical report), Mathematics Department, The City University, London, May 1970.

Machine Organization for Algorithmic Languages, RW Doran, Proceedings of the International Computing Symposium, Bonn, Germany, May 1970 pp 364-376.

A Computer Model of Transformational Grammar, J. Friedman, with T.H. Bredt, R.W. Doran, B.W. Pollack, T.S. Martner, No. 9 in the series Mathematical Linguistics and Automatic Language Processing, Elsevier, 1971.

The Internal Organisation of a Simple Tree Machine, R. Doran, (technical report), Mathematics Department, The City University, London, ca. 1971.

Structured Computer Architecture - the Tree Machine, RW Doran, typescript, ca. 1971.

A Systems Programming Project, RW Doran, D White, The Computer Bulletin, February 1971, pp 70-72.

Structural Programming, RW Doran, Computer Education, October 1971, pp 25-28.

A Computer Organisation with an Explicitly Tree-Structured Machine Language, RW Doran, Australian Computer Journal 4(1), February 1972, pp 21-30.

IBM 1130 Batch Processing Use's Introduction & Guide, RW Doran, CR Boswell, Massey University Computer Unit, Publication 4, 1972.

Teaching Structured Programming Using an Unstructured Programming Language, RW Doran, Massey University Computer Unit, Publication 5, 1972.

An Approach to Structured Programming - Part I, RW Doran, G Tate, Massey University Computer Unit, Publication 6, 1972.

Designing High-Level/Low-Level Computer Languages, RW Doran, T Navankasattusas, Massey University Computer Unit, Publication 7, 1972.

An Approach to Structured Programming - Part II, RW Doran, G Tate, Massey University Computer Unit, Publication 9, 1972.

An Approach to Structured Programming - Solutions to Exercises, RW Doran, G Tate, Massey University Computer Unit, Publication 10, 1972.

Introduction to Stack Machines, RW Doran, Massey University Computer Unit, Report 11, 1973.

Recursive Algorithms in Combinational Circuit Design, RW Doran, LK Thomas, Massey University Computer Unit, Report 13, 1974.

The Lord of the Disks, RW Doran, Massey University Computer Unit, Report 16, 1974.

Virtual Memory and Display Registers, RW Doran, Massey University Computer Unit, Report 14, 1975.

Architecture of Stack Machines, RW Doran, book chapter in Y Chu (ed), *High-Level Language Computer Architecture*, Academic Press, 1975, pp 63-108.

The ICL2900 Computer Architecture, RW Doran, Massey University Computer Unit, Report 20, 1975.

The International Computers Ltd. ICL2900 computer architecture, RW Doran, ACM SIGARCH Computer Architecture News, 4(3), September 1975, pp 24-47.

The other Turing machine, BE Carpenter, RW Doran, Massey University Computer Unit, Report 23, 1975.

Two heads are better than one, RW Doran, LK Thomas, Massey University Computer Unit, Report 24, 1975.

Virtual memory, RW Doran, Computer 9(10), October 1976, pp 27-37.

The other Turing machine, BE Carpenter, RW Doran, The Computer Journal, 20(3), 1977, pp 269-279.

Non-recursive recursion, BE Carpenter, RW Doran, K. Hopper, Software: Practice and Experience, 7(2), 1977, pp 263-269.

Computer Architecture: A Structured Approach, RW Doran, Academic Press, 1979.

Variants of the software solution to mutual exclusion, RW Doran, LK Thomas, Information Processing Letters, 10(4,5), July 1980, pp 206-208.

System/370 Instruction Codes, Amdahl Architecture Report<sup>1</sup> AR-82-101, January 1982.

Logic Gate Power Tailoring, Amdahl Architecture Report AR-82-103, January 1982.

Observations on the Next Generation of Amdahl Mainframes, Amdahl Architecture Report AR-82-104, March 1982.

The Amdahl 470V/8 and the IBM 3033: A Comparison of Processor Designs, RW Doran, Computer, 15(4), April 1982.

Logical Processor Facility Description, Amdahl Architecture Report AR-82-107, December 1982.

Variations on the High-speed Adder, RW Doran, University of Auckland, Department of Computer Science Report 29, May 1983.

Helm Preliminary Assessment, Amdahl Architecture Report AR-83-101, May 1983.

System/370 Instruction Codes, Amdahl Architecture Report (unnumbered update of AR-82-101), August 1984.

AM Turing's ACE Report of 1946 and Other Papers, Vol. 10 of Charles Babbage Institute Reprint Series for the History of Computing, BE Carpenter, RW Doran (eds), MIT Press, 1986.

Parallel Division Circuits for Small Divisors, RW Doran, University of Auckland, Department of Computer Science Report 38, February 1987.

Simulation in Computer Science Education, RW Doran, NZCS Conference, 1987, pp G248-G257.

Use of a Simulator for Teaching Logic Circuits, RW Doran, University of Auckland, Department of Computer Science Report 39, May 1987.

Gray Code Incrementors, RW Doran, University of Auckland, Department of Computer Science, typescript, January 1988.

Amdahl Multiple Domain Architecture, Amdahl Architecture Report AR-88-101, April 1988.

---

<sup>1</sup> Amdahl technical reports by RW Doran are in the collection expected to be sent to the Computer History Museum in Mountain View, CA, US. Some of them were completed after he left Amdahl for the University of Auckland.

Variants of an improved carry look-ahead adder, RW Doran, IEEE Transactions on Computers, **37**(9), September 1988.

Amdahl multiple-domain architecture, RW Doran, Computer, **21**(10), October 1988, pp 20-28.

The IBM System/370 Architecture - Its Development over 25 Years, RW Doran, CERN, DD Division, September 1988.

Programming For Multiprocessing (on The Cray X-MP), RW Doran, CERN-DD-89-1, CERN, 1989.

Adding multiprocessing to Fortran, RW Doran, CERN-DD-89-2, CERN, 1989.

Multiprocessing via Microtasking, RW Doran, 11th New Zealand Computer Conference, August 1989, p 335.

Introduction to Logic Circuits, RW Doran, The AUCS Desk Top Press, 1990.

Adapting "Single Algorithm Multiple Data" Programs for Multiprocessing Vector Computers, RW Doran, University of Auckland, Department of Computer Science Report 45, July 1990.

The Status of Computer Science in New Zealand Universities, RW Doran, University of Auckland, Department of Computer Science Report 51, 1991.

Virtual Registers, RW Doran, PM Fenwick, Z. Qun, University of Auckland, Department of Computer Science Report 57, October 1991.

The Circuit Model for Parallel Algorithms, RW Doran, I Thomas, University of Auckland, Department of Computer Science Report 72, June 1993.

Does God play dice?, C Calude, RW Doran, EATCS Bulletin **50**, 1993, pp 338-341.

Special cases of division, RW Doran, Research report 93-42, Ecole Normale Supérieure de Lyon, 1993.

Quicksort on a PRAM, RW Doran, Foundations of Computing and Decision Sciences, **19**(3), 1994.

Special cases of division, RW Doran, J. UCS The Journal of Universal Computer Science, **1**(3), 1995, pp 176-194.

The Gray Code, RW Doran, University of Auckland, Department of Computer Science Report 131, March 1996.

Incredible Codes, RW Doran, CD Thomborson, in A. Brook (ed.), *Incredible Science: Explore the Wonderful World of Science*, Penguin Books, New Zealand, 2005, pp 16-17.

Computer Architecture and the ACE Computers, RW Doran, chapter in *Alan Turing's Automatic Computing Engine*, BJ Copeland (ed), OUP, 2005.

The Gray Code, RW Doran, J. UCS The Journal of Universal Computer Science, **13**(11), 2007, pp 1573-1597.

The First Automatic Totalisator, RW Doran, *The Rutherford*, **2**, 2007  
(<https://www.rutherfordjournal.org/article020109.html>)

John Womersley: Applied Mathematician and Pioneer of Modern Computing, BE Carpenter, RW Doran, *IEEE Annals of the History of Computing*, **36**(2), April 2014, pp 60-70.

Bibliography of Publications by John R. Womersley: Pioneer of Modern Computing and Applied Mathematician, BE Carpenter, RW Doran, Centre for Discrete Mathematics and Theoretical Computer Science, University of Auckland, Report CDMTCS-490, October 2015.

Turing's Zeitgeist, BE Carpenter, RW Doran, Chapter 22 in *The Turing Guide*, Jack Copeland et al (ed.), ISBN 978-0-19-874783-3, Oxford University Press, 2017, 223-231

Henry Hodsdon and his 'Marble' Totalisators, RW Doran, *The Rutherford*, **5**, 2018  
(<https://www.rutherfordjournal.org/article050105.html>)

Preserving Our Heritage: New Zealand-Made Computers, RW Doran, A.Trotman, *The Rutherford*, **5**, 2018 (<https://www.rutherfordjournal.org/article050106.html>)

-----  
RW Doran is a listed inventor on the following US patents assigned to Amdahl Corporation:  
4503512 (1985), 4967342 (1990), 5109522 (1992).