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Ottawa, Ontario, Canada

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PERSONAL:

Born: 10 February 1941

Citizen of Canada

AREAS OF INTEREST:

Software: Design, Documentation, Quality Assurance

The term “software engineering” was coined to suggest that those who design and build software should work with the professional knowledge and discipline that is expected of engineers in other fields. Engineers have been taught a well developed set of problem-solving skills, analytical methods, mathematics, and scientific knowledge that allows them to apply sound methods to the design of trustworthy useful devices. They need not rely exclusively on intuition and natural ability. Software development is now supported by a similar body of knowledge but not by an appropriate educational and licensing system. Expanding the body of knowledge, and assisting in the development of appropriate educational and licensing systems, are my professional goals.

I have been studying the problems of software development since 1965. By combining system construction, consultation, and academic research I have been able to develop principles and methods that are both of academic interest and applicable to real-world problems. My work, much of which is listed below, has received wide recognition. It includes a number of papers on modularity, specifications, documentation and concurrency that are considered fundamental contributions.

It is my intent to continue confronting the problems of software development, taking time to identify the fundamental causes of those problems, experimenting with better methods and ideas, writing papers, and teaching what I have learned. In designing systems, developing theories, and writing papers, I am challenged by Albert Einstein's, “*Everything should be as simple as possible, but not simpler*”.

EDUCATION:1954-1957 Bronx High School of Science, New York, New York1957-1961 B.S. Electrical Engineering (honors), Carnegie Institute of Technology, Pittsburgh, Pa.Fall 1961 Graduate student (Math) at University of Michigan, Ann Arbor, MI; “A” average.1964 M.S. Electrical Engineering Carnegie Institute of Technology1965 Ph.D., Electrical Engineering, -Systems & Communications Sciences, Carnegie-Mellon University**LICENSE:**

Professional Engineer in the Province of Ontario

PROFESSIONAL EXPERIENCE:

- 1960-1965 Teaching, Electrical Engineering, Carnegie Institute of Technology.
- 1965-1966 Assistant Professor, Computer Science, Univ. of Maryland, College Park, Md.
- 1965-1969 Assistant Professor of Computer Science and Electrical Engineering, Carnegie-Mellon University, Pittsburgh, Pa. USA
- 1969-1970 Advisor to Philips-Electrologica, Apeldoorn, The Netherlands
- Summer 1970 Visiting Scientist, Lecturer, MBLE (Philips) Research Laboratory Brussels, Belgium.
- 1970-1973 Assoc. Professor of Computer Science, Carnegie Mellon Univ., Pittsburgh, PA., USA
- 1972-1979 Consultant to the Naval Research Laboratory.
- 1973-1976 Professor and Head of the Research Group on Operating Systems at the Technical University of Darmstadt, Germany.
- 1976-1982 Professor of Computer Science at University of North Carolina at Chapel Hill.
- 1979-1982 Visiting Scientist at IBM, Federal Systems Division (half-time), Bethesda MD.
- 1979-1982 Half-time employee, Head of the Software Engineering Research Section, US Naval Research Laboratory, Washington D.C
- 1982-1986 Professor of Computer Science, University of Victoria, British Columbia, Canada.
- 1982-1986 Investigator, Software Cost Reduction Project, US Naval Research Laboratory, Washington D.C. USA
- 1986 - 1991 Professor of Computer Science at Queen's, Kingston, Canada.
- 1991- 1997 Professor of Electrical and Computer Engineering, McMaster University, Canada
- 1995 - 2000 NSERC/Bell Industrial Research Chair in Software Engineering at McMaster
- 1998 - 2002 Director of the Software Engineering Programme at McMaster University,
- 1998 - 2006 Professor of Computing and Software, McMaster **(now Professor Emeritus)**
- 2001 - 2001 Acting Chair, Department of Computing and Software (1.10 → 30 12)
- 2002- 2008 Director of the Software Quality Research Laboratory, Professor of Software Engineering, SFI Fellow, University of Limerick, Ireland (→ 31.03.2008)
(now Professor Emeritus)

OTHER OFFICES HELD:

- President, Science for Peace. (1990 - 1993)
- Deputy Chairman, Canadian Pugwash Group. (1991 - 1993)

HONOURS:

- 1979: “Best Paper” award of the Association for Computing Machinery (for 60).
- 1986: “Eminent Lecturer” Institution of Engineers, Australia
- 1986: Honorary Doctor of Technical Science, (“Doktors der technischen Wissenschaften - ehrenhalber”), granted by the Federal Institute of Technology (ETH) in Zurich Switzerland,
- 1987: Norbert Wiener Award for Professional and Social Responsibility from Computing Professionals for Social Responsibility
- 1991: “Most Influential Paper from ICSE 3” - awarded at ICSE 13 (13th International Conference on Software Engineering), (for 60)
- 1992: Elected a Fellow of the Royal Society of Canada
- 1994: Elected a Fellow of the Association for Computing Machinery
- 1995: “Best Paper from ICSE 7” (with David Weiss and Paul Clements) - awarded at the 17th International Conference on Software Engineering.(for 79)
- 1996: Doctorate Honoris Causa, granted by Catholic University of Louvain (Belgium)
- 1998: “Outstanding Research Award” of the Association for Computing Machinery Special Interest Group on Software Engineering
- 1998: Merit Award, Carnegie Mellon University - Alumni Association.
- 1999: “Practical Visionary Award” presented at a symposium in honour of the late Dr. Harlan Mills at the International Conference on Software Engineering in Los Angeles Ca.
- 1999: “Component and Object Technology Award” “TOOLS 99" Santa Barbara Ca.
- 2001: Elected a Fellow of the Canadian Academy of Engineering
- 2001: Winner of the Fiff (Forum Informatiker für Frieden und Verantwortung) Prize
- 2006: Elected a Member of the Royal Irish Academy
- 2006 Honorary Professor at Ji Lin University, China
- 2007 Co-winner of IEEE Computer Society 60th Anniversary Award (one-time award shared with Prof. Maurice Wilkes of Cambridge University)
- 2008 Dottore Honoris Causa in Scienza Informatiche, granted by L’Universita’ della Svizzera Italiana (Lugano, Switzerland).
- 2008 Honorary Professor at Chan Chung University, China
- 2008 Fellow der Gesellschaft für Informatik e.V. (GI)
- 2008 ACM SIGSOFT Impact Paper Award (for 79)
- 2009 Fellow of the Institute of Electrical and Electronics Engineers (IEEE)
- 2010 ACM SIGSOFT Impact Paper Award (for [166](#))
- 2011 Ehrendoktorwürde der Technische Universität Wien (Dr. Tech.H.C.), Vienna Austria
- 2011 Outstanding Achievement Award, WORLDCOMP’11, 18.07.2011, Las Vegas Nevada.
- 2015 ACM SIGOPS Hall of Fame Award(for 26)

PUBLICATIONS:

1. Parnas, D.L., "Kirchhoff's Laws", Programmed Text, Electrical Engineering Department, Carnegie Institute of Technology, Pittsburgh PA., 1960, 43 pgs.
2. Parnas, D.L., "Elementary Calculus: Programmed Study Material", Computation Center, Carnegie-Mellon University, Pittsburgh PA., 1962.
3. Strauss, J.C., Parnas, D.L., Snelsire, R., Wallach, Y., "A Design-Emphasis Problem Solving Experience", Electrical Engineering Department, Carnegie Institute of Technology, Pittsburgh PA., 1963, 129 pgs.
4. Parnas, D.L., "System Function Description-Algol", (Ph.D. Thesis), Computation Center, Carnegie-Mellon University, Pittsburgh PA., February 1965, 100 pgs.
5. Parnas, D.L., "A Language for Describing the Functions of Synchronous Systems", *Communications of the ACM*, 9, 2, February 1966, pp. 72-75.
6. Parnas, D.L., "On the Use of the Computer in Engineering Education without a Programming Prerequisite", *Journal of Engineering Education*, April 1966, pp. 313-315.
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9. Parnas, D.L., Richardson, L.C., Kohl, W.H., "Preliminary Version--An Introduction to Boole-66", Computation Center, Carnegie -Mellon University, Pittsburgh PA., September 1966, 23 pgs.
10. Parnas, D.L., "State Table Analysis of Programs in an Algol-Like Language", *Proceedings of the 1966 National ACM Conference*, Thompson Book Co., Washington, D.C., pp. 391-400.
11. Parnas, D.L., "Sequential Equivalents of Parallel Processes", Carnegie Institute of Technology, Pittsburgh PA., February 1967, 38 pgs.
12. Parnas, D.L., Darringer, J.A., "SODAS and a Methodology for System Design", *Proceedings of AFIPS 1967 Fall Joint Computing Conference*, pp. 449-474.
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20. Parnas, D.L., review of "Dynamic Protection Structures", (B. W. Lampson, *Proceedings AFIPS 1969 FJCC*), *Computing Reviews*, 12, 1, January 1971, pp. 29-30.
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 - Republished in *Writings of the Revolution*, edited by Edward Nash Yourdon, Yourdon Press, 1982, pp. 5-18.
 - Also in *Software Specification Techniques* edited by N. Gehani & A.D. McGettrick, AT&T Bell Telephone Laboratories, Addison Welsey, 1985, pp. 75-88 (QA 76.7 S6437).
 - Translated into Russian - book "*Danniye v yazykach programmirovania*" Moscow, Mir (Publishing House), 1984, pp. 9-24.
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 - Translated into Japanese - *BIT*, vol. 14, no. 3, 1982, pp. 54-60.
 - Republished in *Classics in Software Engineering*, edited by Edward Nash Yourdon, Yourdon Press, 1979, pp. 141-150.
 - Republished in *Great Papers in Computer Science*, edited by Phillip Laplante, West Publishing Co, Minneapolis/St. Paul 1996, pp. 433-441.
 - Republished as Chapter 7 in item 222
 - Republished in *Software Pioneers: Contributions to Software Engineering*, Manfred Broy and Ernst Denert (Eds.), Springer Verlag, Berlin - Heidelberg, 2002, pp. 481 - 498, ISBN 3-540-43081-4.

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 - Reprinted with improvements in Yeh, R., *Current Trends in Programming Methodology (I)*, Prentice Hall, 1977.
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57. Bartussek, W., Parnas, D.L., "Using Assertions About Traces to Write Abstract Specifications for Software Modules", UNC Report No. TR77-012, Dec. 1977, 26 pgs.
 - Also in Lecture Notes in Computer Science (65), *Information Systems Methodology, Proceedings ICS*, Venice, 1978, Springer Verlag, pp. 211-236.
 - Also in *Software Specification Techniques* edited by N. Gehani & A.D. McGettrick, AT&T Bell Telephone Laboratories, 1985, pp. 111-130 (QA 76.6 S6437).
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 - Reprinted in Infotech State of the Art Report, Structured System Development, Infotech International, 1979.
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 - Also in *Proceedings of the Third International Conference on Software Engineering*, May 1978, pp. 264-277.
 - Reprinted as Chapter 14 in item 222
61. Parnas, D.L. et al., "Software Engineering Principles", NRL Course Notes, 1976, 7, 8, 9, 80, 1, 3 (available from NTIS)
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63. Parnas, D.L., "Another View of the Dijkstra-DMLP Controversy", *ACM Software Engineering Notes*, 3, 4, October 1978, pp. 20-21.

64. Heninger, K., Kallander, J., Parnas, D.L., Shore, J., "Software Requirements for the A-7E Aircraft", NRL Report 3876, November 1978, 523 pgs.
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66. Parnas, D.L., "Research Problems in Programming Methodology, In Research Directions in Software Technology", Peter Wegner (Ed.), The MIT Press, 1979, pp. 352-385.
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71. Hester, S.D., Parnas, D.L., Utter, D.F., "Using Documentation as a Software Design Medium", *Bell System Technical Journal*, 60, 8, October 1981, pp. 1941-1977.
72. Britton, K.H., Parnas, D.L., "A-7E Software Module Guide", NRL Report 4702, Dec. 1981, 35 pgs.
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 - Translated into Japanese - *SEKAI*, no. 6, 1986, pp. 298-319.
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Also a partial translation "Wie Kunstliche Blumen", in *Frontal*, May/June 1986, p. 46.
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 - Reprinted in *Computerization & Controversy: Value Conflicts & Social Choices*, edited by Charles Dunlop & Rob Kling, Academic Press, Boston, March, 1991.
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