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Personal:

- Born July 5, 1936, Caldwell, New Jersey
- U.S. Citizenship
- Married, two grown children

Education:

- B.A., 1958, Carleton College (in Mathematics)
- Ph.D., 1961, Princeton University (in Mathematics)
Thesis: “Three Person Cooperative Games without Side Payments”

Employment:

- June 1961 to September 1978: General Electric Company
- September 1978 to August 2000: University at Albany – State University of New York
- September 2000 to present: Retired

Professional Societies:

- Association for Computing Machinery
- SIGACT

Honors:

- ACM Alan M. Turing Award, 1993
- ACM Fellow, 2014
- Promoted to Distinguished Professor, University at Albany – State University of New York, 1994

Other:

- Editor of the SIAM Journal on Computing, 1972 to 1988
- Member-at-Large, SIGACT Executive Committee, 1973 to 1975
- Visiting Professor, Hebrew University, Jerusalem, Israel, Spring 1975
- Adjunct Professor, Rensselaer Polytechnic Institute (RPI), Troy, NY, 1977 to 1978
- Visitor, Mathematical Science Research Institute, Berkeley, CA, Fall 1985
- Chair, Computer Science Department, University at Albany – State University of New York, Albany, NY, January 1982 to August 1989

Turing Award Citation

To Juris Hartmanis and Richard E. Stearns, in recognition of their seminal joint research which established the foundations for the field of computational complexity theory. In their paper “On the Computational Complexity of Algorithms,” (Transactions of the American Mathematical Society, Vol. 117, No. 5, May, 1965, pp. 285–306) they provided a precise definition of the complexity measure defined by computation time on Turing machines and developed a theory of complexity classes. The paper sparked the imagination of many computer scientists and led to the establishment of complexity theory as a fundamental part of the discipline.

Books Published

1. Hartmanis, J. and Stearns, R.E., *Algebraic Structure Theory of Sequential Machines*, Prentice-Hall, Englewood Cliffs, NJ, 1966.
2. Lewis, P.M., Rosenkrantz, D.J. and Stearns, R.E., *Compiler Design Theory*, Addison-Wesley, Reading, MA, 1976.
3. Aumann, R.J. and Maschler, M.B. with the collaboration of Stearns, R.E., *Repeated Games with Incomplete Information* MIT Press, 1995.
This book won the 1995 Lanchester Prize for the best contribution of the year to Operations Research.

Publications

1. Stearns, R.E., The Voting Problem, *Amer. Math. Monthly*, 66(9), 761–763, Nov. 1959.
2. Stearns, R.E. and Hartmanis, J., On the State Assignment Problem for Sequential Machines II, *IRE Transactions on Electronic Computers*, EC-10 (4), 593–603, Dec. 1961.
3. Hartmanis, J. and Stearns, R.E., Some Dangers in State Reduction of Sequential Machines, *Information & Control*, 5(3), 252–260, Sept. 1962.
4. Hartmanis, J. and Stearns, R.E., A Study of Feedback and Errors in Sequential Machines, *IEEE Transactions on Electronic Computers*, EC-12(3), 223–232, June 1963.
5. Stearns, R.E. and Hartmanis, J., Regularity Preserving Modifications of Regular Expressions, *Information & Control*, 6(1), 55–69, Sept. 1963.
6. Stearns, R.E., Three-Person Cooperative Games Without Side Payments, *Annals of Math Studies* #52, Advances in Game Theory, Princeton University Press, Princeton, NJ, 1964.
7. Stearns, R.E., On the Axioms for a Cooperative Game Without Side Payments, *Proc. Amer. Math. Soc.*, 6(1), 82–86, Feb. 1964.
8. Hartmanis, J. and Stearns, R.E., Pair Algebra and Its Application to Automata Theory, *Information & Control*, 7(4), 485–507, Dec. 1964. (Also presented in FOCS 5 (1964), 192–196.)
9. Hartmanis, J. and Stearns, R.E., On the Computational Complexity of Algorithms, *Trans. Am. Math. Soc.*, 117(5), 285–306, May 1965. (Also presented in FOCS 5 (1964), 82–90.)
10. Hartmanis, J., Lewis, P.M. and Stearns, R.E., Classification of Computations by Time and Memory Requirements, *Proc. of IFIP Congress*, 31–35, May 1965.
11. Lewis, P.M., Stearns, R.E. and Hartmanis, J., Memory Bounds for Recognition of Context Free and Context Sensitive Languages, *Proc. 6th Annual Symp. on Switching Circuit Theory & Logical Design*, 191–202, Oct. 1965.
12. Stearns, R.E., Hartmanis, J. and Lewis, P.M., Hierarchies of Memory Limited Computations, *Proc. 6th Annual Symp. on Switching Circuit Theory & Logical Design*, 179–190, Oct. 1965.
13. Hartmanis, J. and Stearns, R.E., *Algebraic Structure Theory of Sequential Machines*, Prentice-Hall, Englewood Cliffs, NJ, 1966.

14. Hennie, F.C. and Stearns, R.E., Two-tape Simulation of Multitape Turing Machines, *J. ACM*, 13(4), 533–546, Oct. 1966.
15. Hartmanis, J. and Stearns, R.E., Sets of Numbers Defined by Finite Automata, *Amer. Math. Monthly*, 74(5), 539–542, May 1967.
16. Stearns, R.E., A Regularity Test for Pushdown Machines, *Information & Control*, 11(1), 323–340, Sept. 1967.
17. Stearns, R.E., A Formal Information Concept for Games with Incomplete Information, *Models of Gradual Reduction of Arms*, vol. 11, US ACDA report ST-116, 405–434, Sept. 1967. (Appears as Chapter 3 in *Repeated Games with Incomplete Information* by R. J. Aumann and M. B. Maschler with the collaboration of R. E. Stearns, MIT Press, Cambridge, MA, 1995.)
18. Lewis, P.M. and Stearns, R.E., Syntax-Directed Transduction, *J. ACM*, 15(3), 465–488, July 1968. (Also presented in FOCS 7 (1966), 21–35.)
19. Aumann, R.J., Maschler, M., and Stearns, R.E., Repeated Games of Incomplete Information: An Approach to the Non-Zero-Sum Case, *The Indirect Measurement of Utility*, vol. 11, US ACDA Report ST-143, 117–216, Nov. 1968. (Appears as Chapter 5 in *Repeated Games with Incomplete Information* by R. J. Aumann and M. B. Maschler with the collaboration of R. E. Stearns, MIT Press, Cambridge, MA, 1995.)
20. Stearns, R.E., Convergent Transfer Schemes for N-Person Games, *Trans. Am. Math. Soc.*, 134(3), 449–459, Dec. 1968.
21. Stearns, R.E. and Lewis, P.M., Property Grammars and Table Machines, *Information & Control*, 14(6), 524–549, June 1969. (Also presented in FOCS 9 (1968), 106–119.)
22. Stearns, R.E. and Rosenkrantz, D.J., Table Machine Simulation, *Conference Record of 10th Annual Symp. on Switching & Automata Theory*, 118–128, Oct. 1969.
23. Hartmanis, J. and Stearns, R.E., Automata-Based Computational Complexity, *Information Sciences*, 1(2), 173–184, 1969.
24. Foster, W.H., Gans, R., Stearns, E.I. and Stearns, R.E., Weights for Calculation of Tristimulus Values from Sixteen Reflectance Values, *Color Engineering*, 8(3), 35–47, June 1970.
25. Rosenkrantz, D.J. and Stearns, R.E., Properties of Deterministic Top-Down Grammars, *Information & Control*, 17(3), 226–256, Oct. 1970. (Also presented in STOC 1 (1969), 165–180.)
26. Stearns, R.E., Deterministic Top-Down Parsing, *Proc. 5th Annual Princeton Conf. on Inf. Sciences & Systems*, 182–188, Mar. 1971.

27. Lewis, P.M., Rosenkrantz, D.J. and Stearns, R.E., Attributed Translations, *J. Computer & System Sciences*, 9(3), 279–307, Dec. 1974. (Also presented in STOC 5 (1973), 160–171.)
28. Lewis, P.M., Rosenkrantz, D.J. and Stearns, R.E., *Compiler Design Theory*, Addison Wesley Publishing Co., Reading, MA, 1976.
29. Stearns, R.E., Lewis, P.M. and Rosenkrantz, D.J., Concurrency Control for Database Systems, *Proc. 17th IEEE Annual Symp. on Foundations of Computer Science*, 19–32, Oct. 1976.
30. Rosenkrantz, D.J., Stearns, R.E. and Lewis, P.M., An Analysis of Several Heuristics for the Traveling Salesman Problem, *SIAM J. Computing*, 6(3), 563–581, Sept. 1977. (Also presented in FOCS 15 (1974), 33–42.)
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33. Stearns, R.E. and Rosenkrantz, D.J., Distributed Concurrency Controls Using Before-Values, *Proc. ACM SIGMOD 1981 Int. Conf. on Manag. Data*, 74–83, Apr.-May 1981.
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36. Hunt, III, H.B. and Stearns, R.E., Monotone Boolean Formulas, Distributive Lattices, and the Complexities of Logics, Algebraic Structures and Computation Structures (Preliminary Report), *Proc. Third Annual Symposium on Theoretical Aspects of Computer Science (STACS 1986)*, Lecture Notes in Computer Science, vol. 210, Springer-Verlag (Editors: B. Monien and G. Vidal-Naquet), 277–291, 1986.
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51. Hunt III, H.B., Marathe, M.V., Radhakrishnan, V., Ravi, S.S., Rosenkrantz, D.J. and Stearns, R.E., Every Problem in MAX SNP has a Parallel Approximation Algorithm, Technical Report No. 93-8, *Dept. of Computer Science, SUNY at Albany*, Albany, NY, May 1993.
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54. Hunt III, H.B., Marathe, M.V., Radhakrishnan, V., Ravi, S.S., Rosenkrantz, D.J. and Stearns, R.E., A Unified Approach to Approximation Schemes for NP- and PSPACE-Hard Problems for Geometric Graphs, *Proc. 2nd Annual European Symposium on Algorithms* (ESA 1994), Lecture Notes in Computer Science, vol. 855, Springer-Verlag, 468–477, June 1994.
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63. Shukla, S.K., Rosenkrantz, D.J., Hunt III, H.B., Ravi, S.S. and Stearns, R.E., I/O Automata-Based Verification of Distributed Systems: Complexity Issues, *Proc. 15th Annual ACM Symposium on Principles of Distributed Computing (PODC 1996)*, page 122, May 1996.
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65. Marathe, M.V., Hunt III, H.B. and Stearns, R.E., Level Treewidth Property: Exact Algorithms and Approximation Schemes, Technical Report No. LA-UR-97-479, Los Alamos National Laboratory, Jan. 1997.
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