

Professional Vita

DENNIS GORDON SEVERANCE

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Education:

B.S. (magna cum laude) Polytechnic Institute of Brooklyn 1965
M.A. Mathematics, The University of Michigan 1966
M.S. Computer and Communication Science, The University of Michigan 1970
Ph.D. Computer and Communication Science, The University of Michigan 1972

Professional Experience:

Currently	Professor of Computer and Information Systems Graduate School of Business Administration The University of Michigan
August 1975 - September 1978	Associate Professor Management Sciences Graduate School of Business Administration University of Minnesota
July 1972 - August 1975	Assistant Professor Department of Operations Research Cornell University
March 1969 - July 1972	Senior Engineer General Motors Proving Ground Milford, Michigan
March 1967 - January 1969	Project Officer, (Captain, USAR) Operations Research Division U.S. Army Management Systems Support Agency, Pentagon Washington, D.C.
May 1965 - March 1967	Member of Technical Staff Bell Telephone Laboratories Holmdel, New Jersey

Professional Activities:*Member*

Tenneco Automotive – Board of Directors, 2000 - *present*
 General Motors - SPO Systems Advisory Council, 1994-1998
 Chrysler Corporation's Systems Advisory Council, 1988-1992
 Whirlpool Corporations Information Systems Advisory Board, 1989-1993

Director of the Information Executive Forum at the University of Michigan Business School,
 1985-1993, 1998-2000

Core Faculty Member

(1) Executive Program, (2) Program for Management Development and (3) Public Utilities
 Executive Program at The University of Michigan Business School,
 1985-2002

five-day management development program on “Manufacturing Excellence” and “Modern
 Logistics” for Trinova Corporation, Rexam PLC and Accenture

Developed and Presented

Executive Development sessions on “Strategic Uses of Information Technology” for AT&T,
 Avon Products, Caterpillar, GTE, Handleman, Whirlpool, Rexam PLC and Philips
 International

Executive Development sessions on “Effective Corporate Use of Information Systems” for
 SOHIO Oil, Marathon Oil, Parker Hannifin, American Electric Power, Timkin Company,
 Burroughs, Newport News Shipbuilding Company

two-day Management Retreat on “Implementing Corporate Strategy” for Sterling Engineered
 Products

one-day session on “Formulating and Valuing Corporate Strategy” for Citibank

two-day Strategic Orientation Session on “Information Systems: The Competitive Edge” for
 The Alexander Hamilton Life Insurance Company

Professional Development sessions on “Executive Perspectives on Information System
 Control” for General Electric, Eli Lilly, Gulf Oil, Ernst and Whinney, Peat Marwick and
 Mitchell. Blue Cross Blue Shield Association, Michigan Wisconsin Pipeline, Arthur
 Andersen, Ohio Society of CPAs, FEI chapters

Professional Development seminars on “Design and Implementation of Corporate Databases”
 for Amdahl, TI, Xerox, Federal Reserve Bank, Petrobras, Minneapolis Star and Tribune

two and three day Executive Development Seminars on “Management Use of Decision Support
 Systems” and “Computer Systems and Services at LOF” for Libbey Owens Ford

three day seminar on “Process Reengineering” for Rexam Corporation

five day seminar on “Manufacturing Excellence” for Rexam Corporation

five day seminar on “Operational Excellence” for Andersen Consulting Worldwide

Invited Speaker

International Federation of Information Processors Workshop, Brussels, 1971

National ACM Conference, Boston, 1972

1974 IEEE International Conference, New York

1976 International SIGMOD Conference on Management of Data, Washington

NBS Database Management System Workshop, Washington, 1977

US-USSR Joint Working Group - Applications of Computers to Management, Moscow, 1977

National Computer Conference, Anaheim, 1978

Institute of Internal Auditors, Eastern Regional Conference, New York, 1983

Society of Information Management IM Conference, Miami, 1987 and Tarpon Springs, 1988

Professional Activities (cont.):*General Session Speaker*

National Conference on Database Management Systems, Ottawa, 1974
 Database 79--National IDMS Users Associations Meeting, Houston, 1979
 The Institute of Internal Auditors, International Conference on Information Systems Controls, New York, 1981
 Eleventh Conference on Computer Audit, Control and Security, New York, 1981
 Information Systems Audit and Controls Conference, Chicago, 1982
 American Patent Law Assoc Conference: Computer Software Protection, Palm Springs 1984

Session Chairman

“Changing Role of the Information Executive” at the Conference Board's Conference on Information Management, New York, 1988

Keynote Speaker

EDP Auditor's Conference on Computer Control and Security, Los Angeles, 1981

Developed and Presented

Professional Development Seminars in “Applied Data Structures” for the Association for Computer Machinery (Boston, Chicago, New York, Washington, D.C.) 1973
 Intensive Seminars in “Modeling of File Organizations for Optimal File Design” and “Database Management” for the Professional Development Institute (Montreal, Toronto, Ottawa), 1973, 1974-, 1977, 1978, 1979
 Seminars in conjunction with the Latin American Computer Science Workshop, sponsored by IBM (Santiago, Chili; Bogota, Columbia; Rio de Janeiro, Brazil; and Caracas, Venezuela), 1973, 1974
 Seminars on “Database Management Systems” for Advanced Management Research Inc. (Boston, New York, Chicago, Atlanta, Washington, San Francisco, Dallas, Houston, Toronto, Montreal, Los Angeles), 1974, 1975
 Workshop on “Database Design Procedures” for the Navy Ships Parts Control Center, 1978
 Seminars in “Database Management Systems” for Continuing Business Education, University of Minnesota, 1978
 Seminars in “Information System Analysis” for the Management Information Systems Research Center, University of Minnesota, 1977, 1978
 Seminars on “Information System Design” in conjunction with IBM's Visiting Faculty Program (Rio De Janeiro and Sao Paulo, Brazil; Mexico City and Monterey, Mexico), 1978
 Seminar on “Effective Use of Computer Resources” for Division of Management Education, The University of Michigan, 1979-1984
 Seminar on “Effective EDP Auditing” for Division of Management Education, The University of Michigan, 1979-1984
 Seminar on “Use and Control of Data Processing Resources” for the Graduate School of Bank Management, The University of Michigan, 1979-1984
 Seminar on Computer Control Issues for Non-Technical Auditor, Borg Warner Corp., 1984

Presentations

Lecture Series on “File Organization Techniques” at 1973 and 1974 Cornell University Summer Conferences
 “Database Design” at 1976, 1977, and 1979 The University of Michigan Engineering Summer

Professional Activities (cont.):*Presentations (cont.)*

- “Future of Computerized Data Processing,” for the Division of Management Education, The University of Michigan, 1978, 1979
 “Database Management System Design” for Societa di Gestione Tecnologie Avanzate, Urbino, Italy, 1979
 “Computers and Executive Decision Making” for the Power Utilities Executive Program, Graduate School of Business Administration, The University of Michigan, 1979, 1980
 “Data Processing Control and Audit” at the 1980 Ernst & Whinney National Partner's Meeting
 “Management Control of Computer Based Systems” for National Meeting of PMM EDP Auditors, 1982, 1983

Member of Program Committee

- 1974 SIGMOD Intentional Conference, San Jose, for 1977 International Conference on Very Large Databases, Tokyo
 1982 International Conference on Information Systems, Ann Arbor

Colloquium presentations at more than fifty universities and research laboratories in seventeen countries, 1975-2000

Numerous *luncheon and dinner speeches* for ACM, IIA, SIM and FEI, 1975-1986

National lecturer for the ACM Lectureship Program, 1971-1974

Associate Editor for the Management Information Systems Quarterly

Advisory Board

- Information Systems Journal
 Association of Computer Machinery SIGMOD, 1978-1982

Referee for JACM, CACM, TODS, SLAM, Comp Surveys, IBM SysJ, Info SysJ, NSF, MISQ and a variety of book publishers

Consultant to:

General Motors	Amdahl Corporation	Ohio Mattress Co.	Jacobs'
Chrysler	General Electric	SOHIO	Manufacturing
Ford	Philips International BV	Gulf Oil	Market Opinion
Whirlpool	American Electric Power	Aeroquip Corporation	Research
Xerox	Service Corporation	Vickers Incorporated	PepsiCo Inc.
Federal Reserve Bank	Database Design Inc.	Eli Lilly	GM//EDS
Minneapolis Star and Tribune	Chicago Pneumatic Tool	Upjohn	Cravath
Honeywell	Burroughs	Warner Lambert	Swaine & Moore
Petrobras	MATCO Tools Corp.	Parker Hannifin	Plunkett & Cooney
Library of Congress	Ernst & Whinney	Hennessy Industries	Citibank
United States Navy	Peat, Marwick Mitchell & Co.	Libbey-Owens-Ford	Valmont Industries
Society of Mfg. Engineers	Arthur Andersen & Co.	Trivona	Avon Products
IBM Corporation	Andersen Consulting	Sterling	Crane Co.
Texas Instruments	Michigan Wisconsin Pipeline	Engineered Products	DSM Chemicals
ADP Network Services	Marathon Oil	Alexander Hamilton	Rexam PLC
	Timken	Ohio Casualty	KLM Airlines
	Blue Cross Blue Shield Assn.	Pioneer Plastics	Pitney Bowes

Member

IBM International Faculty Visitor Program
 National Science Foundation Computer Sciences and Engineering Research Panel, 1976-1979
 Strategic Planning Committee for the National Research Library Group, 1982-1984

Professional and Academic Organizations:

Member of Sigma Xi
 Member of Pi Mu Epsilon
 Member of the American Statistical Association
 Member of the Association for Computing Machinery
 Member of Operations Research Society of America

Academic Honors and Awards:

New York State Engineering Scholarship 1961-1965
 Polytechnic Institute of Brooklyn Scholarship 1962-1965
 Outstanding Student of Statistics PIB 1965
 Distinguished Military Graduate PIB 1965
 NSF Fellowship 1966
 The University of Michigan Fellowship 1969
 NDEA Fellowship 1970, 1971
 Data Processing Management Association Fellowship (Thesis Prize) 1971
 UMBS MBA Teaching Excellence Award - 1990
 UMBS BBA Teaching Excellence Award - 1998

Publications:

Making IT Work: An Executives Guide To Implementing Information Technology Systems, Jossey-Bass (September 2002) pp. 220, with J. H. Passino
 "Harnessing the Potential of Information Technology for Support of the New Global Organization"
Human Resource Management (Spring 1990) pp. 69-76.
 "The U.S. Manufacturing Renaissance: More Folks Are Talking About Heaven Than Going There," *Planning Preview* (November/December, 1988), pp. 4-12, with J. H. Passino.
 "The Changing Role of the Chief Information Officer," *Planning Review* (September/October, 1988), with J. H. Passino.
Senior Management Attitudes Toward Strategic Change in U.S. Manufacturing Companies, U. M., GSBA Research Monograph (January, 1987), 44 pp.
 "Senior Management Perspectives on Effective Management of Information Technology."
Proceeding of Fifth International Conference on Information Systems (November, 1984), with R. K. Mautz and A. G. Merten.
 "Corporate Computer Control Guide," *Financial Executive* (June, 1984), pp. 25-36, with R. K. Mautz and A. G. Merten.
 "Who's in Charge Here--You or Your Computer?" *Dividend* (December, 1983), pp. 1016, with R. K. Mautz and A. G. Merten.
 "Executive Management's Perspective on Information Systems Control," *Proceedings 1983 International Conference on Information Systems Auditing*, Milan, Italy (September, 1983), pp. 1-14.
Senior Management Control Over Computer-Based Information Systems, Financial Executive Research Foundation (April, 1983), pp. 144, with R. K. Mautz and A. G. Merten.

Publications (cont.):

- “Practitioner's Guide to Database Compression,” *Information Systems Journal*, (8,2), (March, 1983), pp. 51-62.
- “A Practical Guide to the Design of Differential Files for Recovery of Online Databases,” *ACM Transactions on Database Systems* (December, 1982), pp. 540-565, with H. Aghili.
- “Design of a Differential File Architecture,” in *Data Base Management*, Auerbach Publishers, Pennsauken, N. J. (June, 1981).
- “Database Design Strategies-Database Maintenance via Differential Files,” *Data Base Management*, Auerbach Publishers, Pennsauken, N. J. (March, 1981).
- “Internal Control and the Foreign Corrupt Practices Act,” in *Sloan Management Review* (1981), pp. 47-54, with A. G. Merten and B. J. White.
- “Data Processing Control: A State-of-the-Art Survey of Attitudes and Concerns of DP Executives,” *Management Information System Quarterly* (June, 1981), with A. G. Merten.
- “Frame Memory: A Storage Architecture to Support Rapid Design and Implementation of Efficient Databases,” in *ACM Transactions on Database Systems* (September, 1981), pp. 441-463, with S. T. March and M. E. Wilens.
- “Storage Structures and Management,” in *What Can Be Automated*, MIT Press, Cambridge (October, 1980), pp. 767-786.
- “Toward More Effective Control of Data Processing,” in *Internal Control in U.S. Corporations--Volume II*, Financial Executives Research Foundation, New York (March, 1980), with A. G. Merten.
- “Real Exposures anti False Comforts in Data Processing,” in *Internal Control in U.S. Corporations--Volume II*, Financial Executives Research Foundation. New York (March, 1980). Also appears as “Is Your Computer Out of Control: Some Ways to Avoid a Data Processing Disaster,” *Dividend*, Graduate School of Business Administration, The University of Michigan (May, 1980), with A. G. Merten.
- Internal Control in U.S. Corporations--Volume I*. Research Study and Report prepared for the Financial Executives Research Foundation (March, 1980), with R. K. Mautz, et al.
- “Design of Decision Support Systems in Medicine: Rationale and Principles from the Analysis of Physician Expertise,” *Proceedings of the 12th International Conference on System Sciences* (January, 1979), with P. E. Johnson and P. J. Feltovich.
- “Transfer of Physician Expertise in Computer Based Support Systems,” *Proceedings of the 8th Annual Conference of the Society of Computer Medicine* (October, 1978), with P. E. Johnson, et al.
- “A Mathematical Modeling Approach to the Automatic Selection of Database Designs,” *Proceedings of the 1978 SIGMOD International Conference on the Management of Data* (May, 1978). Also appears in *Tutorial: Centralized and Distributed Database Systems*, IEEE Textbook Series (October, 1979), with S. T. March.
- “Design of Efficient Access Paths for a Multiuser Database,” *Proceedings of the 1978 National Computer Conference*, also translated into Russian and appears in *Proceedings Joint Seminar on Data Models and Data Management Systems, US-USSR Joint Working Group in Applications of Computers to Management* (November, 1977), with R. A. Duhne.

Publications(cont.):

- “A Practical Guide to the Selection of Record Access Paths,” *ACM Computing Surveys* (December, 1977), also translated into Japanese and appears in *BIT* (September, 1978), with J. V. Carlis.
- “Record Retrieval Via Hashing Functions and Scatter Tables,” *National Bureau of Standards, Software Engineering Handbook* (January, 1977).
- “The Determination of Efficient Record Segmentations and Blocking Factors for Large Shared Databases,” *ACM Transactions on Database Systems* (September, 1977), with S. T. March.
- “Differential Files: Their Application to the Maintenance of Large Databases,” *Proceeding of the 1976 International Conference on Management of Data* (June, 1976). Selected as an outstanding paper and appears in *ACM Transactions on Database Systems* (September, 1976), pp. 256-267, with G. M. Lohman.
- “Mathematical Techniques for Efficient Record Segmentation,” *Journal of the ACM*, 23, 4 (October, 1976), pp. 619-636, with M. J. Eisner.
- “The Use of Cluster Analysis in Physical Data Base Design,” *Proceedings International Conference on Very Large Data Bases* (September, 1975), with J. A. Hoffer.
- “A Practitioner's Guide to Addressing Algorithms,” *Communications of the ACM* (June, 1975), pp. 314-325, with R. A. Duhne.
- “A Parametric Model of Alternative File Structures,” *Information Systems Journal*, 1, 2 (April, 1975), pp. 51-56.
- “Identifier Search Mechanisms: A Survey and Generalized Model,” *Computing Surveys*, 6, 3, (September, 1974), pp. 175-194.
- “The Evaluation of Data Structures in an Information Systems Design,” *Proceedings of the 1974 IEEE International Conference* (March, 1974).
- “Comparison of Alternatives for the Representation of Data Item Values in an Information System.” *Proceedings of the Wharton Conference on Research on Computers in Organizations* (December, 1973), pp. 121-136, with W. L. Maxwell.
- “Performance Evaluation of File Organizations Through Modeling.” *Proceedings--1972 ACM National Conference* (September, 1972), pp. 1061-1072, with A. G. Merten.
- Some Generalized Modeling Structure for Use in Design of File Organizations*, Ph.D. Dissertation, The University of Michigan, 1972.

Research Grants:

- Director, Burroughs Corporation Grant “Decisions Support for the Manufacturing Planning Process” (1984-86, 3 years, \$51,000).
- Principle Investigator, Arthur Andersen and Co. Grant, “Managing Strategic Change in U.S. Manufacturing Corporations” (1984, 12 months \$50,000).
- Principal Investigator, IBM Research Grant, “Applications of Management Principles to the Control of the Automated Office” (1982, 6 months, \$25,000).
- Co-investigator, Financial Executives Research Foundation Grant “Senior Management Control of Computer-Based information Systems” (1981, 14 months, \$100,000).
- Principal Investigator, NSF Research Grant, “Design of Data Access Paths Based Upon Frame Memory” (1980, 18 months, \$55,000).

Research Grants (cont.):

- Co-investigator, Financial Executives Research Foundation Grant, “Internal Control in U. S. Corporations” (1979, 12 months, \$180,000).
- Principal Investigator, NSF Research Grant, “Secondary Memory Frames-Extension” (1979, 12 months, \$55,000).
- Principal Investigator, ONR Research Contract, “Automatic Design of Multi-Entity Databases” (1978, 12 months, \$80,000).
- Principal Investigator, NSF Research Grant, “Pliable, Elastic and Durable Secondary Memory Frames” (1978, 12 months, \$38,000).
- Principal Investigator, ONR Research Contract, “Database Design Based Upon Secondary Memory Frames” (1977, 12 months, \$80,000).
- Principal Investigator. ONR Research Contract, “A Database Design Analyzer”(1976, 12 months, \$69,000).
- Principal Investigator, ONR Research Contract, “Automation of Database Design”(1975, 15 months, \$34,000).
- Principal Investigator. NSF-Engineering Research Initiation Grant, “Data Access and File Organization Techniques” (1974, 18 months, \$17,000).
- Co-investigator. NSF Grant, “Privacy & Security in Information Systems” (1973, 12 months \$110,000).

Doctoral Theses Directed:

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| Hoffer, J. A. | A Cluster Approach to the Generation of Sub-files for the Design of Computer Data Bases, completed June, 1974. |
| Duhne, R. A. | Optimal Design of a Generalized File Organization, completed October, 1976. |
| March, S. T. | Models of Storage Structures and the Design of Records Based on User Characterization, completed May, 1978. |
| Carlis, J. V. | Database: Structure, Process and Performance; An Investigation into the Modeling and Design of Multiple-File Databases, rewriting completed and thesis accepted, September, 1980, under Professor Gary Dickson. |
| Aghili, H. | The Application of Differential Files to a Distributed Database Environment, completed September, 1981. |
| Lehman, J. | Transfer of Expertise in Business Decision Making, completed September, 1982. |
| Spiegel, C. P. | Computer Aided Modeling: An Application to Decision Support in Business Environments, completed December, 1982. |
| Walls, J. | Management Control over Computer Based Information Systems, completed May, 1985. |
| Kwikkers, R. | Quantitative Models of Forecast Uncertainty and Operational Flexibility in Manufacturing Systems, September 1987. |
| Wong, Yue-Kee | Computer Aided-Group Judgment. A Study of Group Decision Support Systems Effectiveness 1989. |
| Murray, David | The Value of Information in the Design and Operation of Industrial Logistics Systems, 1997. |