

Maarten van Swaay

Nationality: Dutch
Resident: U.S.A.
Born 1930

Marital Status:

Married since 1954

Education:

Candidaat - University of Leiden, the Netherlands, 1953
Ph.D., Physical Chemistry - Princeton University, 1956
Drs., Chemistry - University of Leiden, 1956

Positions:

Research Assistant, Princeton University, 1953 - 1956
Senior Research Assistant, University of Leiden, 1956 - 1959
Senior Staff, University of Eindhoven, the Netherlands, 1959 - 1963
Assistant Professor, Kansas State University, 1963 - 1969
Associate Professor-Chemistry, Kansas State University, 1969 - 1982
Associate Professor-Computer Science, Kansas State University, 1982 - present

Honorary and Professional Societies:

IEEE Computer
Phi Lambda Upsilon
Sigma Xi
DECUS

Fields of Competence:

Laboratory Computer Applications and Interfacing
Analytical Instrumentation
Assembler Language Programming (Applications and System Components)
Micro-Computer Applications and Interfacing

Recent Experiences:

Assembler Languages, PDP-11, 8088, IBM370

Professional Publications:

D.W. Juenker, M. van Swaay and C.E. Birchenall, "On the Use of Palladium Membranes for the Purification of Hydrogen," Rev. Sci. Instr., 26, 888 (1955).
M. van Swaay, "Some Aspects of Palladium-Hydrogen Systems," Ph.D. Thesis, Princeton University, August, 1956.
M. van Swaay and C.E. Birchenall, "Permeability and Diffusion of Hydrogen Through Palladium," Trans. AIME, 218, 285 (1960).
M. van Swaay and R.S. Deelder, "Trace Analysis with a Rotating Hanging Mercury Drop," Nature, 191, 241 (1960).

- M. van Sway, editor: "Gas Chromatography" 1962, Butterworths, London 1963.
- M. van Sway, "The Design of an Automatic Absolute Flow Meter for Gas Chromatography," *J. Chromatog.*, **12**, 99 (1963).
- M. van Sway, "A Fraction Collector for Distillation Columns Operating at Reduced Pressure," *Rev. Sci. Instr.*, **35**, 164 (1964).
- M. van Sway and R.F. Lolley, "A Simple Constant-Flow Device for Use in Titrimetric Analysis," *J. Chem. Ed.*, **42**, 381 (1965).
- M. van Sway, "Coulometry," *Instrumental Analysis*, Chapter 14, J.F.J. Krugers and A.I.M. Keulemans, Ed., Elsevier, New York, 1965.
- M. van Sway and J.R. Bacon, "A Septum-Less Injection System for Use in Gas Chromatography," *J. Chromatog.*, **19**, 604 (1965).
- M. van Sway, "Study of Reaction Kinetics from Broadening of Chromatographic Elution Peaks," *Advances in Chromatography*, J.C. Giddings, Ed., Vol. 8, 1969.
- M. van Sway, "The Control of Temperature," *J. Chem. Educ.*, **46**, A565 (1969).
- B.A. Cunningham, D.L. Roetig and M. van Sway, "Solid-State Controller for Fraction Collectors," *Chemical Instr.*, **2**, 405 (1970).
- M. van Sway, S.H. Ediz and H.D. McBride, "Square-Wave Operation of a Thermal Conductivity Detector," *Chemical Instr.*, **3**, 299 (1972).
- Generator for Electroanalytical Experiments; "Chemical Instr.", **4**, 1 (1972).
- E.M. Winkler and M. van Sway, "An Introduction to Micro-Electronics," *J. Chem. Ed.*, **6**, A325, A363, A394 (1973).
- M. van Sway, "A Practical Potentiostat-Coulometer for the Student Laboratory and for Routine Research Use," *J. Chem. Ed.*, **55**, 1 (1978).
- P.J. Marcoux, M. van Sway, D.W. Setser and L.G. Piper, "Vibrational Relaxation of $CO + (A_2\pi^1), CS(A_1\pi)$ and $C_2(A_3\pi_g)$ in Helium," *J. Phys. Chem.*, **83**, 3168 (1979).
- M. van Sway and D.H. Lenhart: "Fundamentals of Microcomputers," Carnegie Press 1982.
- M. van Sway, "Creation and Handling of Multi-Volume Directories Under RT-11 with Teco," St. Louis, MO May 1983.
- M. van Sway and G.W. Ewing, "The Teaching of Chemical Instrumentation," *Analytical Chemistry*, **57**, 385A (1985).
- R. Fry, E. King and M. van Sway: *Anal. Chem.*, "Sample Pair Modulation, an Approach to the Measurement of Molecular Fragmentation in Plasmas", **58**, 642 (1986).
- M. van Sway: "Moving Decision Points Outward from Applications and Utilities and into Command Level", ACM Sigsmail/PC Conference, San Francisco, 4-5 December 1986.

NAME	David A. Gustafson
ADDRESS	Department of Computer Science Kansas State University Manhattan, Kansas 66506
POSITION	Associate Professor Department of Computer Science Kansas State University Manhattan, Kansas 66506
TELEPHONE	Office Tel. (913) 532-6350
EDUCATION	1967 BS Mathematics, University of Minnesota 1969 BS Meteorology, University of Utah 1973 MS Computer Science, University of Wisconsin, Madison 1979 PhD Computer Science, University of Wisconsin, Madison
PROFESSIONAL EXPERIENCE	Employment 1977-present 1974-1977 Lecturer, University of Wisconsin 1972-1977 Teaching Assistant, University of Wisconsin 1968-1972 Captain, Weather Service, U.S. Air Force
TEACHING EXPERIENCE	Machine Organizations and Basic Systems Software Engineering Operating Systems Data Base Management Systems Computer Networks
PHD THESIS	Set Execution: An Approach to Program Validation Major Professor: Dr. D. R. Fitzwater
HONORARY & PROFESSIONAL SOCIETIES	Association for Computing Machinery Institute of Electrical and Electronics Engineers Mathematical Association of America Tau Beta Pi
RESEARCH FIELD	Software Engineering Program Verification Methods Software Metrics-Software Testing Knowledge-Based Tools
PERSONAL DATA	Date of Birth--May 17, 1945 Marital Status--Married Family--3 children Citizenship--USA Military Service--U.S. Air Force, 4 years, Captain

PUBLICATIONS

- David A. Gustafson, "Set Evaluation", Ph.D. Thesis, January 1979, University of Wisconsin-Madison.
- Meals, Randall and David A. Gustafson, "An Experiment in the Implementation of Halstead's and McCabe's Measures of Complexity", Proc. of S.E. Standards Application Workshop, San Francisco, August 18-20, 1981.
- Gustafson, David A., "Control Flow, Data Flow and Data Independence", Sigplan Notices, October 1981.
- Artonson, David B. and David A. Gustafson, "HLSEW Screen Editor", KS-CS Tech. Report CS 81-07.
- Vestal, Daniel R. and David A. Gustafson, "An Inter-Computer Communications System for a Personal Computer", KS-CS Tech. Report CS 81-08.
- White, Barbara and David A. Gustafson, "Application of Halstead's Complexity Measures to Programs Designed with Warnier-Ort Diagrams", Proc of Symp on Application and Assessment of Automated Tools for Software Development, San Francisco, November 1983.
- Gustafson, David A., "Guidance for Test Case Selection Based on the Cost of Errors", Proc. of National Computer Conference, Las Vegas, July 1984.
- Gustafson, David A., "A Requirement Model for the 5th Generation", Proc ACM 1984 Annual Conference (Oct 8-10, 1984) San Francisco.
- Gaylord, Brad C. and Gustafson, David A. "Requirements Analysis Using Petri Nets." ACM Annual Conference Oct. 14-16, 1985, Denver, CO.
- Gustafson, David A., Melton, Austin C. and Hsieh, Chyuan Samuel "An Analysis of Software Changes During Maintenance and Enhancement". Conference on Software Maintenance, Nov 11-13, 1985, Washington, D.C.
- Barrett, W.A., R. Bates, D.A. Gustafson, and J.D. Couch, Compiler Construction: Theory and Practice, 2nd Edition, 1986, SRA, Chicago.
- Gustafson, David A., "Solution Manual for Compiler Construction: Theory and Practice", SRA, Chicago, 1986.
- Baker, A.J. Bieman, D. Gustafson, and A. Melton, "Modeling and Measuring the Software Development Process", HICSS Conference, Hawaii, 1987.

RICHARD ALAN McBRIDE

814 Hald Ct.
Manhattan, Kansas 66502
Telephone: Home (913) 776-3692
Office (913) 532-6350

Education

B.A. (Mathematics) 1968. University of Colorado at Boulder.
M.S. C.S. 1974. Southern Illinois University at Carbondale.
Ph.D. (Computer Science) 1980. Kansas State University.

Computer Related Experience

1972-74 Teaching and Research Assistant, Computer Science Department, Southern Illinois University. Duties included teaching Fortran and serving as a consultant in SPSS and IBM 370 JCL.

1974-1980 Graduate Teaching and Research Assistant, Computer Science Department, Kansas State University. Courses taught included Fortran, PL/1, Operating System Principles, and an introductory survey course for graduate students. Participated in the design and implementation of software-based communication systems, a simulation system, and modifications to a Pascal compiler which these projects necessitated.

June 1979 Consultant, Elbit Computer Corporation, Israel. Ported a version of Pascal to a Pact minicomputer.

1980-1982 Project Manager, NDX Corporation, Toronto, Ontario. Research and planning related to office automation products. Designed and implemented a portion of a turnkey textual retrieval system.

1982-Present Assistant Professor, Computer Science Department, Kansas State University.

Societies

ACM, IEEE, Upsilon Pi Epsilon.

Personal Data

US citizen; single; Birthdate: January 27, 1948;

- McBride, R.A. "A Generalization of the Hu-Tucker Algorithm to m-ary Trees," Master's Thesis, Southern Illinois University, 1974.
- Wallentine, V. and R. McBride, "Concurrent Pascal—A Tutorial," Kansas State University, Department of Computer Science, Technical Report CS76-17, 1976.
- Wallentine, V. E., W. J. Hankley, and R. A. McBride, "SIMMON—A Concurrent Pascal Based Simulation System," Kansas State University, Department of Computer Science, Technical Report CS79-05, 1978.
- Unger, E. A., R. A. McBride, J. Stonim, and F. J. Maryanski, "Design for Integration of a DBMS into a Network Environment," in Proc. Sixth Data Communications Symposium, IEEE, N.Y., 1979.
- McBride, R. A., "Modelling Techniques for Data Communication Protocols," Ph.D. Dissertation, Kansas State University, Department of Computer Science, 1980.
- Hankley, W. J. and R. A. McBride, "Discrete Simulation with a Concurrent Base Language", Proceedings of 1981 Summer Simulation Conference, Reston, VA., July, 1981.
- Stonim, J., V. Wallentine, P. Fisher, L. J. MacRae, and R. A. McBride, "OFFICE/NET: The Backbone of the Automated Office," Electronic Office: Management and Technology, Auerbach Publishers Inc., Pennsylvania, N.J., April 1982, 004.0001.013, pp. 1-16.
- Stonim, J., L. J. MacRae, R. A. McBride, F. J. Maryanski, E. A. Unger, and P. S. Fisher, "A Throughput Model: Sequential vs. Concurrent Processing," Information Systems, Pergamon Press Ltd., Vol. 7, 1982.
- McBride, R.A. and Unger, E.A., "Modeling Jobs in a Distributed System," 1983 Conference on Personal and Small Computers, ACM, pp. 32-41.
- McBride, R.A., Unger, E.A., Stonim, J., and MacRae, L.H., "MEDIATOR: An Approach for Providing a Global User View in a Distributed Information Environment" appears as Chapter 6 in Advances in Distributed Processing Management, Vol. 2, Wiley Heyden Ltd.
- Jantz, D., Unger, E.A., McBride, R., and Stonim, J. "Query processing in a Distributed Data Base," 1983 Conference on Personal and Small Computers, ACM, pp. 237-244.
- McBride, R.A., "Viewing Messages as Objects," 1986 ACM SIGSMALL/PC Symposium on Small Systems.

RESUME

NAME: Austin Clark Melton, Jr.

ADDRESS: Department of Computer Science
Nichols Hall
Kansas State University
Manhattan, Kansas 66506

PHONE: 913-532-6350

EDUCATION:

Friends University, 1967-1971, B.A., English
Wichita State University, 1971, 1981
University of Kansas, 1972
Kansas State University, 1972-1974, 1975-1978, 1979-1980, M.S. and
Ph.D., Mathematics
Universitat Munchen, 1974-1975
Universitat Bremen, 1978-1979
Marshall University, 1981-1982

FELLOWSHIPS and GRANTS:

Exchange Student to Universitat Munchen, 1974-1975
Fulbright-Hays Fellowship, Universitat Bremen, 1978-1979
Endowment Fund Grant (to attend conference in Prague), Marshall
University, 1981
Faculty Development Grant, Marshall University, 1981
Faculty Research Grant (to study one month at Edinburgh University),
Wichita State University, 1983
Faculty Research Grant (summer support), Wichita State University,
1984
Faculty Research Award, Kansas State University, 1984-1985
Principal Investigator, National Science Foundation Grant DCR-
8604080, 1986-1988.

EXPERIENCE:

Wichita High School North, Mathematics Teacher, 1972
Kansas State University, Graduate Teaching Assistant, 1972-1974,
1975-1978, 1979-1980
University of Maryland, Munich Campus, Mathematics Instructor,
1975
Marshall University, Assistant Professor of Mathematics, 1980-1982
Wichita State University, Assistant Professor of Computer Science,
1982-1984
Kansas State University, Assistant Professor of Computer Science,
1984-present

LECTURES GIVEN:

Universitat Bremen, West Germany, 1979
Fernuniversitat Hagen, West Germany, 1979
Kansas State University, 1979, 1986

Conference on General Topology and Modern Analysis, University of California, Riverside, 1980
 Fifth Prague Topological Symposium, Czechoslovakia, 1981
 Marshall University, 1982, 1984
 Edinburgh University, 1983
 Maacon Convention, Technical Sessions, St. Louis, 1984
 Washington University, St. Louis, 1984
 Iowa State University, 1984
 Workshop on Category Theory and Computer Programming, University of Surrey, United Kingdom, 1985
 University of Wisconsin, Whitewater, 1986
 IEEE Computer Society's Tenth Annual International Computer Software and Applications Conference, Chicago, 1986

PAPERS:

Which Dispersed Di-factorization Structures on 'Top' Are Hereditary?, "General Topology and Modern Analysis", (Proceedings of the Conference on General Topology and Modern Analysis, Riverside, California, 1980), Academic Press, New York, 1981, 281-290.
 On the Structure of Factorization Structures, with G. E. Strecker, "Category Theory: Applications to Algebra, Logic, and Topology", (Proceedings of the International Conference on Category Theory, Gummertsbach, West Germany, 1981), Springer-Verlag, Berlin, 1982, 197-208.

Hereditary Factorization Structures on 'Top' and 'To', "General Topology and Its Relations to Modern Analysis and Algebra V", (Proceedings of the Fifth Prague Topological Symposium, 1981), Heldermann Verlag, 1983, 477-480.
 Galois Connections and Characterization Theorems for Dispersed, Hereditarily Dispersed, and Hereditary Factorization Structures, Quaestiones Mathematicae, 7,4, 1984, 363-376.

An Analysis of Software Changes During Maintenance and Enhancement, with David A. Gustafson and Chyuan Samuel Hsieh, (Proceedings of the Conference of Software Maintenance, 1985).
 A Topological Framework for pos Lacking Bottom Elements, with D.A. Schmidt, (Proceedings of the Conference on the Mathematical Foundations of Programming Semantics, Manhattan, Kansas, 1985), Lecture Notes in Computer Science, Springer-Verlag, 1986, 196-204.

Galois Connections and Computer Science Applications, with D.A. Schmidt and G. E. Strecker, (Proceedings of the Summer Workshop of Category Theory and Computer Programming, Guildford, UK, 1985), Lecture Notes in Computer Science, Springer-Verlag, to appear.

A Synthesis of Software Science Metrics and the Cyclomatic Number, with Bina Ramamurthy, (Proceedings COMPSAC86, Chicago, 1986), IEEE Computer Science Press, Silver Spring, Maryland, 1986.

Modeling and Measuring the Software Development Process, with Albert L. Baker, James M. Bieman, and David A. Gustafson, (Proceedings of Hawaii International Conference on System Sciences), 1987.

TECHNICAL REPORTS:

Structures Supporting Galois Connections, with G. E. Strecker, Technical Report CS-TR-86-1, Kansas State University
Modeling and Measuring the Software Development Process, with Albert L. Baker, James M. Bieman, and David A. Gustafson, CS-TR-86-5

EDITOR:

Proceedings of the Software Engineering Workshop at Wichita State University, 1984. (A copy is in the Wichita State University library).

Proceedings of the Conference on the Mathematical Foundations of Programming Semantics, Kansas State University, Manhattan, Kansas, 1985. Springer-Verlag Lecture Notes in Computer Science, 239.

THESES DIRECTED:

A Software Complexity Measure
Transformational Grammar String Parsing Technique
A Partial Ordering of Flow Diagrams
An Exploratory Study of Software Development Measure Across Cobol Programs

TEACHING EXPERIENCE (GRADUATE CLASSES TAUGHT):

Analysis of Algorithms
Automata Theory
Compiler Design
Computability (Recursive Function Theory)
Denotational Semantics
Elementary Classical Analysis
Formal Language Theory
General Topology
Operating Systems
Programming Languages
Software Engineering

PROFESSIONAL ACTIVITIES:

Principal organizer and conference co-chairperson of the International Conference on the Mathematical Foundations of Programming Semantics, Kansas State University, Manhattan, Kansas, 1985.

Organizer of the International Workshop on the Mathematical Foundations of Programming Semantics, Kansas State University, Manhattan, Kansas, 1986.

Program Co-chairperson of the Third Workshop on the Mathematical Foundations of Programming Language Semantics, Tulane University, New Orleans, Louisiana, 1987.

DEPARTMENTAL ACTIVITIES:

Personnel Committee, Kansas State University, 1976-1978
Search Committee, Marshall University, 1981
Colloquia Committee, Chairperson, Marshall University, 1981-1982
Organized Artificial Intelligence Seminar, Wichita State University, 1983

Association for Computing Machinery Faculty Advisor, Wichita State University, 1983-1984

Mathematical Association of America State Representative (for department), Wichita State University, 1983-1984

Organized LISP Seminar, Wichita State University, 1983-1984

Organized Denotational Semantics Research Group, Wichita State University, 1984

Organized Software Engineering Workshop (for local industry), Wichita State University, 1984

Helped to organize Domain Theory Seminar with the University of Kansas and Wichita State University, Kansas State University, 1984

Organized Denotational Semantics Seminar, Kansas State University, 1984

Helped organize Computer Science-Mathematics Seminar, 1986
Departmental representative to Mathematical Association of America, 1986.

PROFESSIONAL MEMBERSHIPS:

Association for Computing Machinery
IEEE Computer Society

1986 October 24, 1986

RESUME

Name:

Thomas Pittman
Kansas State University
Department of Computer Science
Manhattan, KS 66506

Personal Data:

Born 1943, USA citizen
Single, no dependents

Academics:

(1985) PhD, Information Science
University of Calif, Santa Cruz
Thesis: Practical Optimization by Attribute Grammars
Applied to Low-Level Intermediate Code Trees
Advisor: Franklin DeRemer
(1980) MS, Information Science
University of Calif, Berkeley
(1966) BA Mathematics
University of Calif, Berkeley

Experience:

(1972-1985) Consultant (self-employed) in micro-processor software, mostly writing complete application programs.
(1984) Chairman, IEEE Computer Society Computer Standards Committee.
(1977-1983) Chairman, IEEE working group to develop a standard relocatable code for microprocessors (P695).
Also sit on several other standards committees and working groups, including Microprocessor Assembly Language (P694), Binary Floating Point Arithmetic (P754) and Media-Independent Information Transfer (949).

Remarks:

Professional interests center around ways to increase the information density in artifacts (such as higher performance in smaller computers). Research involves compiler optimization, VLSI computer design, and "expert systems".

Publications:
Generalized Retrieval and Summary Program, NRDL-0CP-69-1 69

Software: The Genie in the Bottle, ROM 77 Aug P.32

Putting Two & Two Together ROM 77 Oct p.32; Dec p.60

Tiny Basic: A Mini-Language, Kilobaud 77 Jan p.34

A Short Course in Programming, Kilobaud 79 Jan p.12

Dots

Kilobaud 79 Feb p.84; apr p.34

Tiny Basic and Cosmac,

Personal Computing 79 Mar p.20

Software Standards-Who Needs Them?, Dr. Dobbs Journal 79 May p.44

Mac the Hack,

Dr. Dobbs Journal 85 Feb

Free Software?,

PCC 77 Mar p.12

Making It In Hobby Software, IEBB Computer 77 Jun p.101

Coding Theory & Vestigial Organs,

Orgins Research 83 Fall p.2

VACUUM: Variable Architecture...(with JR Davis), Proc.1st WCCF 77 p. 294

Computer Languages: Key to Processor Power, Proc.1st WCCF 77 p.245

Deus Ex Machina

Proc.2nd WCCF 78 p.132

The Proposed IEBB Floating Point Standard Proc.3rd WCCF 78 p.202

A User Looks at Pascal MicroEngine... Proc.6th WCCF 81 p.353

MINIX: A Minimum Executive

Proc.7th WCCF 82 p.242

...Believable Video Animation

Proc.8th WCCF 83 p.20

Open Mac

Proc.10th WCCF 85

Curriculum Vitae

David A. Schmidt
Computer Science Department
Kansas State University
Manhattan, KS 66506
913-532-6350

Born: May 10, 1953, Colby, Kansas

Degrees:

B.A., Mathematics, Fort Hays Kansas State University, Dec. 1975

M.S., Computer science, Kansas State University, Aug. 1977

Ph.D., Computer science, Kansas State University, May 1981

advisor: Neil D. Jones; thesis title: *Compiler generation from lambda calculus definitions of programming languages*

Employment:

Kansas State University, Manhattan, Kansas: Assistant professor, computer science, June 1986—

Iowa State University, Ames, Iowa: Assistant professor, computer science, Aug. 1984—May 1986

University of Edinburgh, Edinburgh, Scotland: Science and Engineering Research Council research fellow, computer science, Jan. 1982—Dec. 1983

University of Aarhus, Aarhus, Denmark: Research asst., computer science, Aug. 1979—June 1980

University of Kansas, Lawrence, Kansas: Research asst., computer science, Jan. 1979—June 1979

Kansas State University, Manhattan, Kansas: Graduate teaching asst./research asst./temporary asst. professor, computer science, Jan. 1976—Dec. 1978, Aug. 1980—Dec. 1981, Jan. 1984—July 1984

Teaching experience:

Undergraduate courses:

Introductory computer programming (Pascal, PL/I, COBOL)

Business data processing

Programming methodology and algorithms

Comparative programming languages

Denotational semantics

Graduate courses:

Comparative programming languages
Compiler construction
Formal semantics of programming languages
Operating systems
Denotational semantics

Research interests:

denotational semantics
applicative programming
natural deduction theorem proving

Referer:

National Computer Conference 1979
Int. Conference on Automata, Languages, and Programming 1982
GI Conference on Theoretical Computer Science 1983
Symposium on Theoretical Aspects of Computer Science 1983
IEEE Int. Conference on Programming Languages 1986
Acta Informatica
Science of Computer Programming
Theoretical Computer Science
John Wiley and Sons, Publishers
Allyn and Bacon, Publishers

Society member:

Association for Computing Machinery
European Association for Theoretical Computer Science

Grants:

Co-principal investigator with A.C. Melton and G.E. Strecker of National Science Foundation Grant DCR-8604080, *Programming Language Semantics and Galois Connections*, July 1986-March 1988, \$121,000

Other professional activities:

Program committee member, Conference on Mathematical Foundations of Programming Semantics, Manhattan, KS, 1985.

Cochair, Third Conference on Mathematical Foundations of Programming Semantics, New Orleans, LA, 1987.

Programming experience:

At Iowa State University:

Supervision of a graduate student's implementation of a compiler, evaluator system for a strongly typed version of the programming language used in Henderson's *Functional Programming* book. The system is coded in Pascal.

Supervision of a graduate student's implementation of a denotational semantics-based compiler generating system. The system's input is a Strachey-style denotational definition; the output is a compiler for the defined source language to Cardelli-MIL code. The generator uses the LEX/YACC system to convert the language's abstract syntax definition to a parser. The generated parser maps source programs to abstract

syntax trees that are expressed as ML abstract data type values. The generator's semantic generator maps the valuation functions of the definition into an ML-coded syntax directed translation scheme, which itself maps abstract syntax trees to ML code. Supervision of a graduate student's implementation of an interactive lambda-calculus interpreter. The interpreter displays both intermediate and final stages in the derivation, as the user desires. It contains an extensibility feature that allows it to interpret programs that possess a denotational semantics. The system is coded in ML.

At Edinburgh University:

Design and implementation of a prototype theorem prover for first order logic. The system contained a parser and theorem construction routines. It was implemented in ML and consisted of approximately 600 lines of code.

At the University of Aarhus:

Development and implementation of a multipass text formatting system for type setting and line printing devices. The system was an extension of Bell Lab's NROFF and included features found in Knuth's TEX formatting system. The program contained 5000 lines of Pascal.

At Kansas State University:

Construction and maintenance of a general purpose table-driven macroprocessor for conversion of 7000 lines of ANSI COBOL to Perkin-Elmer subset COBOL. The program was approximately 5000 lines of Pascal.

Construction and maintenance of a simulator for a stack machine architecture proposed by Perkin-Elmer. The interpreter was used as a testing and performance measurement tool in the parallel development of a compiler for the architecture. The simulator was written in 8000 lines of assembly code.

Modification and maintenance of two Pascal compilers.

Construction of a number of small COBOL interface programs for a packet switching network system.

Publications:

Schmidt, D.A. *Denotational Semantics: A Methodology for Language Development*. Allyn and Bacon, Inc., Boston, MA, 331 pages, 1986.

Melton, A., Schmidt, D.A., and Strecker, G. Galois connections and implementation structures. Proc. Workshop on Category Theory and Computer Programming, Surrey, England, Sept. 1985, Lecture Notes in Computer Science, Springer-Verlag, Berlin, in press.

Schmidt, D.A. An implementation from a direct semantics definition. Proc. Workshop on Programs as Data Objects, Copenhagen, October, 1985, Lecture Notes in Computer Science 217, Springer-Verlag, Berlin, pp. 222-235.

Melton, A., and Schmidt, D.A. A topological framework for cpos lacking bottom elements. Proc. Mathematical Foundations of Programming Semantics, Manhattan, Ks., April, 1985, Lecture Notes in Computer Science 239, Springer-Verlag, Berlin, pp. 196-204.

- Schmidt, D.A. Detecting global variables in denotational specifications. ACM Transactions on Programming Languages and Systems 7-2 (1985) 299-310.
- Schmidt, D.A. A programming notation for tactical reasoning. Proc. 7th International Conference on Automated Deduction, Napa, Cal., May, 1984, Lecture Notes in Computer Science 170, Springer-Verlag, Berlin, pp. 445-459.
- Schmidt, D.A. Approximation properties of abstract data types. Theoretical Computer Science 24-1 (1983) 73-94.
- Jones, N.D., and Schmidt, D.A. Compiler generation from denotational semantics. Proc. Workshop on Semantics-Directed Compiler Generation, Aarhus, Denmark, Jan. 1980, Lecture Notes in Computer Science 94, Springer-Verlag, Berlin, pp. 70-93.
- Schmidt, D.A. State transition machines for lambda calculus expressions. Proc. Workshop on Semantics-directed Compiler Generation, Aarhus, Denmark, Jan. 1980, Lecture Notes in Computer Science 94, Springer-Verlag, Berlin, pp. 415-440.
- Stonim, J.S., Schmidt, D.A., and Fisher, P.S. Considerations for determining the degree of centralization or decentralization in the computing environment. Information and Management 2-1 (1979) 15-37.
- Maryanski, F.J., Fisher, P.S., Housch, R.D., and Schmidt, D.A. A prototype distributed data base management system. Proc. 12th Hawaii International Conference on System Sciences, Honolulu, Jan. 1979, pp. 205-214.
- Technical reports:**
- Schmidt, D.A. Detecting stack-based environments in denotational definitions (extended version). Report 86-3, Computer Science Dept., Kansas State University, Manhattan, Kansas, October 1986.
- Leszczyłowski, J., and Schmidt, D.A. A logic for program derivation and verification. Report 86-2, Computer Science Dept., Kansas State University, Manhattan, Kansas, October 1986.
- Schmidt, D.A. Tuning architectures to semantic definitions. Report 85-9, Computer Science Dept., Iowa State University, Ames, Iowa, Jan. 1985.
- Schmidt, D.A. Detecting global variables in denotational specifications (extended version). Report 84-3, Computer Science Dept., Iowa State University, Ames, Iowa, Aug. 1984.
- Schmidt, D.A. Natural deduction theorem proving in set theory. Report CSR142-83, Computer Science Dept., University of Edinburgh, Scotland, July 1983.
- Schmidt, D.A. Syntactic type checking using Scott retraction maps. Report CSR112-82, Computer Science Dept., University of Edinburgh, Scotland, April 1982.
- Schmidt, D.A. Denotational semantics as a programming language. Report CSR100-82, Computer Science Dept., University of Edinburgh, Scotland, Jan. 1982.

Jones, N.D., Muchnick, S.S., and Schmidt, D.A. A universal compiler: towards a compiler generator based upon denotational semantics. Report IR-17, Computer science dept., University of Aarhus, Denmark, Nov. 1979.

Schmidt, D.A. User's guide to the PRECOB text preprocessor. Report CS77-16, Computer science dept., Kansas State University, Manhattan, Kansas, Mar. 1977.

References

Mr. Robin Milner, Computer Science Department, University of Edinburgh, The King's Buildings, Edinburgh EH9 3JZ, SCOTLAND. ph: (44)-031-667-1081

Professor Neil D. Jones, Computer Science Department, University of Copenhagen, Sigturdsgade 41, Copenhagen N, DENMARK. ph: (46)-01-83-64-66

Dr. George Strecker, Mathematics Department, Kansas State University, Manhattan, Kansas 66506. ph: 913-532-6750.

Dr. Fred J. Maryanski, Dept. of Electrical Engineering and Computer Science, University of Connecticut, Storrs, Connecticut 06268. ph: 203-486-2584

Maria Zamfir Bleyberg

Assistant Professor
Department of Computing and Information Sciences
Kansas State University
Manhattan, Kansas 66506
Office Tel. (913) 532-6350

RECENT EDUCATION

1982 Ph.D. in Computer Science, University of California, Los Angeles, with a major in Programming Languages and minors in Data Management Systems and Theory (Artificial Intelligence).

1960 Diplomate in Mathematics (equivalent to M.S. in USA), University of Bucharest, Department of Mathematics, Bucharest, Romania.

EXPERIENCE

1986 - present

Assistant Professor, Department of Computing and Information Sciences, KSU.
Teaching Fundamentals of Artificial Intelligence, and Models for Concurrent Computing.
Areas of research activity include work on the algebraic foundation of concurrency, and issues on object-oriented programming paradigms.

1983 - 1986

Visiting Lecturer, Computer Science Department, UCLA.
Teaching Theoretical Models in Computer Science and Structures of Programming Languages.
Research activity included applications of Artificial Intelligence in the development of knowledge-based expert systems for CAD/CAM, and work on a mathematical model of concurrency.

1982 - 1984

Computer Systems Specialist, Research & Development Department, System Development Corporation, Santa Monica, California.
Research activity included the development of a mathematical model defining the semantics of FDM, a formal specification and verification methodology developed by SDC.
Practical applications included the use of the programming language QUC to add new features to the FDM system.

1982

Teaching Fellow, Computer Science Department, UCLA.

1979 - 1982

Research Assistant, Computer Science Department, UCLA.
Research was conducted to develop a mathematical model of concurrent computing agents, in an attempt to unify the theory of models of concurrent computing agents.

1977 - 1979

Assistant Programmer, Computer Science Department, UCLA.
Implemented a Faculty Data Base System on an SDS 9300 computer, using FORTRAN IV.
Member of the Artificial Intelligence Group, developing the Fuzzy Maze Running Program for IBM 360/90 using LISP.

HONORS

Nominee, The Outstanding Young Women of America, 1981.

Regent Scholarship, UCLA, 1977 - 1979.

Visiting Fulbright-Hays Scholar at Department of Computer Science, UCLA, 1973 - 1974.

Visiting Fulbright-Hays Scholar at Department of Information and Computer Science, University of California, Irvine, 1972 - 1973.

ASSOCIATIONS

Member, Association for Computing Machinery.

RESEARCH INTERESTS

Applications of artificial intelligence in the development of knowledge-based systems.

Mathematical models of concurrency, theory of computation, software correctness and reliability (see details).

RESEARCH IN PARALLEL COMPUTATION

An initial algebraic approach to concurrency is chosen to

1. study and compare Milner's behavioral net model, Petri nets, and other models of concurrent computation in a unified manner;
2. define a least fixed-point semantics of programming languages which exhibit the full power of concurrency, treating parallelism and nondeterminism as distinctive features;
3. define at the syntactic level fundamental properties of concurrent systems including completeness, deadlock, and liveness, and study the result of inferring their definitions in all possible semantic domains;
4. formally treat errors in concurrent systems;

PUBLICATIONS

1. "A Recurrent Description of the Programming Language FORTRAN", Studii si Cercetari Matematice, TOM 22, No. 8, 1970, pp. 1123-1154;
2. "Automatic Content Coding of English Text", (with P.G. Tripodis, S. Greenstein, P. Dolan, G.H. Shure), Proceedings ICM, CA, 1974;
3. "Initial Algebra Semantics for Knuth Systems", Analele Universitatii Bucuresti, Anul XXV, 1976;
4. "The Axiomatization of Data Base Conceptual Models by Abstract Data Types", (with M.A. Melkanoff), Computer Science Department Report, UCLA-ENG-7785, 1978, UCLA;
5. "A Practical Method for Testing Algebraic Specifications", (with J. Goguen, J. Tardo, Norman Williamson), Computer Science Department Quarterly, January 1979, Vol. 7, No. 1;
6. "On the Syntax and Semantics of Concurrent Computing", Ph.D. Dissertation, UCLA, Report No. CSD-820819, August 1982.
7. "Applications of Artificial Intelligence Techniques to Manufacturing", (with Larry Lichten), UCLA, Manufacturing Engineering Report, 1985.
8. "On the Syntax and Semantics of Concurrent Computing", (with David Martin), Proceedings, Conference on the Mathematical Foundation of Programming Semantics, Kansas State University, April 1985, LNCS 237.
9. "Parallel and Nondeterministic Algebras with I/O Capabilities", in preparation.

5. formally define distributed database systems;
6. generalize Knuthian semantics to concurrent systems;
7. study computational complexity of concurrent systems;
8. generalize Hoare's axiomatic model to concurrent systems using the formalism of Temporal logic.