

Appendix: Vitae of Faculty Members  
Directly Involved in the Proposed Program

## R E S U M E

Karl R. Abrahamson

### EDUCATION

- Ph.D. 1980 University of Washington, Seattle, WA (Computer Science)
- B.S. 1975 University of Washington, Seattle, WA

### PROFESSIONAL EXPERIENCE

- 8/93-present Associate Professor, East Carolina University, Greenville, NC
- 8/87-5/93 Assistant Professor, Washington State University Pullman, WA
- 7/81-6/87 Assistant Professor, University of British Columbia, Vancouver, CANADA
- 9/77-6/80 Research Assistant, University of Washington, Seattle, WA
- 9/75-6/77 Teaching Assistant, University of Washington, Seattle, WA

### GRANTS

Natural Sciences and Engineering Research Council of Canada. Complexity Issues in Sequential and Distributed Computing (4/87-3/88), \$5,000 (cdn)

### PUBLICATIONS

#### Articles:

"Time-Space Tradeoffs for Algebraic Problems on a General Sequential Machine." Journal of Computer and Systems Sciences 43(2) (1991), pp. 269-289.

"On the Modality of Convex Polygons." Discrete and Computational Geometry 5 (1990), pp. 409-419.

(K. Abrahamson, A. Adler, R. Gelbart, L. Higham, and D. Kirkpatrick), "The Bit Complexity of Randomized Leader Election on a Unidirectional Ring." SIAM Journal on Computing 18(1) (1989), pp. 12-29.

(K. Abrahamson, A. Adler, L. Higham, and D. Kirkpatrick), "Randomized Function Evaluation on A Ring." Distributed Computing 3 (1989), pp. 107-117.

(K. Abrahamson, N. Dadoun, D. Kirkpatrick, and T. Przytycka), "A Simple Parallel Tree Contraction Algorithm." Journal on Algorithms 10(2) (1989), pp. 287-302.

"Generalized String Matching." SIAM Journal on Computing 16(6) (1987), pp. 1039-1051.

"Succinct Representation of Regular Sets Using Gotos and Boolean Variables." Journal of Computer and System Sciences 34(1) (1987), pp. 129-148.

#### Workshops (refereed):

(K. Abrahamson, M. Fellows, M. Langston, and B. Moret), "Constructive Complexity." Capitol City Conference on Combinatorics or Theoretical Computer Science, Washington, DC, May 1989.

(K. Abrahamson, A. Adler, L. Higham, and D. Kirkpatrick), "Randomized Function Evaluation on a Ring." Proceedings 2nd International Workshop of Distributed Algorithms on Graphs, LNCS 312. Springer, 1987, pp.324-331.

(K. Abrahamson, A. Adler, L. Higham and D. Kirkpatrick), "The Bit Complexity of Probabilistic Leader Election on A Ring." In E. Gafni and N. Santoro (Eds.), Distributed Algorithms on Graphs. Carleton University Press, 1986, pp. 3-12.

#### Conference Proceedings:

(K. R. Abrahamson, R. B. Downey, and M. R. Fellows), "Fixed-Parameter Intractability II" (Extended Abstract), Symposium on Theoretical Aspects of Computer Science, Wursburg, Germany, February 1993.

(K. R. Abrahamson and A. Karkare), "Efficient Algorithms for Shared Memory Consensus," Allerton Conference on Communication, Control and Computing, Urbana, IL, 1991.

"A Time-Space Tradeoff for Boolean Matrix Multiplication," 31st IEEE Symposium on Foundations in Computer Science, St. Louis, MO, October 1990, pp. 412-419.

(K. Abrahamson, J. Ellis, M. Fellows and M. Mata), "On the Complexity of Fixed Parameter Problems," 30th IEEE Symposium on Foundations of Computer Science, Research Triangle Park, NC, October 1989, pp. 210-215.

"On Achieving Consensus Using A Shared Memory," Seventh ACM Symposium on Principles of Distributed Computing, Toronto, Ontario, CANADA, August, 1988, pp. 291-302.

(K. Abrahamson, N. Dadoun, D. Kirkpatrick, and T. Przytycki), "A Simple Parallel Tree Contraction Algorithm," Proceedings of 25th Annual Allerton Conference on Computation, Communication and Control, Urbana, IL, 1987.

"Time-Space Tradeoffs for Branching Programs Contrasted with Those for Straight-Line Programs," 27th IEEE Symposium on Foundations of Computer Science, Toronto, Ontario, CANADA, October 1986, pp. 402-409.

(K. Abrahamson, A. Adler, L. Higham, and D. Kirkpatrick), "Probabilistic Solitude Verification on A Ring," Proceedings of the 5th Annual ACM Symposium on Principles Distributed Computing, Calgary, Alberta, CANADA, August 1986, pp. 161-173.

"Modal Logic of Concurrent Nondeterministic Programs," Semantics of Concurrent Computation, Lecture Notes in Computer Science, 70, Evian, France, 1979, pp. 21-33.

**Other:**

(M. R. Fellows and K. Abrahamson), "Cutset Regularity Beats Well-Quasi-Ordering for Bounded Treewidth." Manuscript, University of Victoria, Victoria, British Columbia, CANADA, 1991.

"A Game Theoretic View of Randomized Distributed Algorithms." Manuscript, Department of Computer Science, Washington State University, Pullman, WA, January 1989.

"Analysis of A Randomized Sorting Algorithm for a Broadcast Channel." Manuscript, Department of Computer Science, Washington State University, Pullman, WA, May 1988.

(K. Abrahamson, A. Adler, L. Higham, and D. Kirkpatrick), "Probabilistic Evaluation of Common Functions on Rings of Known Size." Technical Report 88-15, Department of Computer Science University of British Columbia, Vancouver, CANADA, 1988.

"Probabilistic Evaluation of Common Functions on Rings of Known Size." Technical Report 88-15, Department of Computer Science, University of British Columbia, Vancouver, CANADA, 1988.

"A Fast Divide and Conquer Protocol for Contention Resolution on Broadcast Channels." Technical report 85-3, Department of Computer Science, University of British Columbia, Vancouver, CANADA, April 1985.

(K. Abrahamson and A. Kanda), "Data Types as Term Algebras." Technical report 83-2, Department of Computer Science, University of British Columbia, Vancouver, CANADA, 1983.

"Decidability and Expressiveness of Logics of Processes." Ph.D. Thesis, University of Washington, Seattle, WA, 1980.

#### Articles Accepted:

(K. Abrahamson, A. Adler, L. Higham and D. Kirkpatrick), "Tight Lower Bounds for Probabilistic Solitude Detection on Anonymous Rings." To appear in Journal of Association for Computing Machinery, November 1992.

(K. R. Abrahamson, J. A. Ellis, M. R. Fellows and M. E. Mata), "Completeness for Families of Fixed Parameter Problems." To appear in Journal of Computer and System Sciences, May 1992.

(K. R. Abrahamson, M. Fellows, B., Moret and M. Langston), "Constructive Complexity." To appear in Discrete Applied Mathematics and Annals of Discrete Mathematics, July 1990.

#### Articles Submitted:

(K. Abrahamson, A. Adler, L. Higham and D. Kirkpatrick), "Optimal Algorithms for Probabilistic Solitude Detection on Anonymous Rings." Submitted to Journal of Association for Computing Machinery, January, 1990 (follow-up undertaken by co-author, D. Kirkpatrick).

#### Research in Progress:

"The Multiparadigmatic Programming Language Astarte."

(K. Abrahamson, A. Adler, L. Higham, and D. Kirkpatrick), "Probabilistic Evaluation of Common Functions on Rings of Known Size." Technical Report 88-15, Department of Computer Science, University of British Columbia, Vancouver, British Columbia, CANADA, 1988 (being prepared for submission for publication).

#### PRESENTATIONS AND/OR PARTICIPATION ON PANELS

"Fixed-Parameter Intractability II" (Extended Abstract), presented at the Symposium on Theoretical Aspects of Computer Science, Wursburg, Germany, February 1993.

"Efficient Algorithms for Shared Memory Consensus," presented at the Allerton Conference on Communication, Control and Computing, Urbana, IL, 1991.

"A Time-Space Tradeoff for Boolean Matrix Multiplication," presented at the 31st IEEE Symposium on Foundations in Computer Science, St. Louis, MO, October 1990.

"Time Space Tradeoffs for Boolean Matrix Multiplication," presented at WOBcats Symposium, Portland, OR, October 1989.

"On the Complexity of Fixed Parameter Problems," presented at the 30th IEEE Symposium on Foundations of Computer Science, Research Triangle Park, NC, October 1989.

"On Achieving Consensus Using A Shared Memory," presented at the Seventh ACM Symposium on Principles of Distributed Computing, Toronto, Ontario, CANADA, August 1988.

"A Simple Parallel Tree Contraction Algorithm," presented at the Proceedings of the 25th Annual Allerton Conference on Computation, Communication and Control, Urbana, IL, 1987.

"Time-Space Tradeoffs for Branching Programs Contrasted with Those for Straight-Line Programs," presented at the 27th IEEE Symposium on Foundations of Computer Science, Toronto, Ontario, CANADA, October 1986.

"Probabilistic Solitude Verification on A Ring," presented at the Proceedings of the 5th Annual ACM Symposium on Principles of Distributed Computing, Calgary, Alberta, CANADA, August 1986.

"Modal Logic of Concurrent Nondeterministic Programs," presented to an audience at the Semantics of Concurrent Computation, Lecture Notes in Computer Science, Evian, FRANCE, 1979.

#### Invited Talks:

"The Complexity of Fixed Parameter Problems," presented to an audience at University of Calgary, Calgary, Alberta, CANADA, January 1990.

"Asynchronous Concensus," presented to an audience at Simon Fraser University, Burnaby, British Columbia, CANADA, November 1988.

"Forming and Using Estimates in Broadcast Networks," presented to an audience at Washington State University, Pullman, WA, September 1987.

#### GRADUATE THESES

Director of M.S. Thesis, "Contention Resolution Under Restricted Schedulers" - Ashish Karkare, 6/89-5/91, Washington State University, Pullman, WA.

Director of Ph.D. Dissertation, "Fixed-Parameter Complexity" - Ashish Karkare, 5/91-present, Washington State University, Pullman, WA.

Director of M.S. project, "Type-Inference for Actarte," - Juan Du, 1/91-4/92, Washington State University, Pullman, WA.

Director of M.S. project, "A General System for Computing with Graphs," David Helms, 9/90-5/91, Washington State University, Pullman, WA.

#### CONSULTANTSHIPS

Served as Referee for:

5th Annual International Conference on Computing and Information

ACM Transactions on Programming Languages and Systems Discrete Applied Mathematics

Infor

Information and Computation

Journal of Association for Computing Machinery

Journal of Parallel and Distributed Computing

Journal of Symbolic Computation Order

SIAM Journal on Computing

SIAM Journal on Discrete Mathematics

Holt, Reinhart, and Winston Publishers, New York, NY

## RESUME

Robert G. Fainter

### EDUCATION

- Ph.D. 7/85 Virginia Polytechnic Institute, Blacksburg, VA  
(Computer Science and Applications)
- M.S. 5/81 Virginia Polytechnic Institute, Blacksburg, VA  
(Computer Science and Applications)
- B.S. 12/77 University of North Carolina at Greensboro, NC  
(Magna Cum Laude)

### PROFESSIONAL EXPERIENCE

- 8/89-pres Assistant Professor, Mathematics Department, East Carolina University, Greenville, NC
- 1/87-8/89 Assistant Professor, Computer Science Department, Arizona State University, Tempe, AZ
- 8/85-12/86 Research Associate, Department of Industrial Engineering and Operations Research, Virginia Polytechnic Institute, Blacksburg, VA
- 8/83-8/85 Senior Programmer/Analyst, Department of Industrial Engineering and Operations Research, Virginia Polytechnic Institute, Blacksburg, VA

### GRANTS

National Science Foundation, "Advanced Undergraduate Computational Laboratory," Fall 1991 - \$52,760 (NOT FUNDED). East Carolina University Matching Funds - \$72,336 (NOT FUNDED).

Office of the Vice Chancellor for Academic Affairs, East Carolina University, Greenville, NC, "A Machine to Support A Professional Ada Compilation System," February 1991 - \$8,700 (FUNDED)

McDonnell Douglas Helicopter Company, Mesa, AZ, "Evaluation of Ada Compilers," June 1988-December 1988 -\$24,399 (FUNDED)

McDonnell Douglas Helicopter Company, Mesa, AZ, "A Performance Study of Ada Runtime Environments," June 1987-December 1987 - \$20,093 (FUNDED).

## PUBLICATIONS

### Books:

(R. C. Williges, B. H. Williges, and R. G. Fainter), "Software Interfaces for Aviations Systems," In Human Factors in Aviation. New York, NY: Academic Press, July, 1988, 684pp.

### Articles:

(R. G. Fainter and T. E. Lindquist), "Debugging Tasked Ada Programs," Proceedings, First International Conference on Ada Programming Language Applications for the NASA Space Station (June 2-5, 1986), pp. B1.1.1-B.1.1.23.

(T. E. Lindquist, R. G. Fainter, and M. T. Hakkinen), "GENIE: A Modifiable Computer-Based Task for Experiments in Human-Computer Interaction," International Journal Man-Machine System, 23 (1985), pp. 391-406.

(G. W. Gorsline and R. G. Fainter), "Program Complexity Measures", Proceedings of the Washington, D.C. Chapter of the ACM 19th Technical Symposium, Pathways to Sytem Integrity (June 19, 1980), pp. 161-162.

### Other:

(R. G. Fainter, S. R. Guy, J. F. Maynard, and T. E. Lindquist), "Generic Environment for Interactive Experiments," Technical Report CS83009, Department of Computer Science, Virginia Polytechnic Institute, Blacksburg, VA (1983).

(T. E. Lindquist, R. G. Fainter, S. R. Guy, M. T. Hakkinen, and J. F. Maynard), "GENIE - A Computer-Based Task for Experiments in Human-Computer Interaction," Technical Report CSIE-83-10, Virginia Polytechnic Institute, Blacksburg, VA (1983).

(R. G. Fainter and D. R. Taylor, eds.), "Helpful Hints, Practice Problems and Class Notes for CS2010," Department of Computer Science, Virginia Polytechnic Institute, Blacksburg, VA (1980).

### Research in Progress:

"Reusing Compiler Technology," a revision and different point of view of last year's work (submitted to "Institute of Electrical and Electronics Engineers Software" in December 1993)

"The Relationship of A Model of Human Knowledge to Computer Data Typing" (Target publication: International Journal of Man-Machine Interface, expected submission date: Summer 1994)

## PRESENTATIONS

"Effect of Tasks and Exceptions on Execution Time," presented at the 1989 Meeting of the Evaluation and Validation Team, Mesa, AZ, February 1989.

(R. G. Fainter, A. A. Moerdyk, and T. E. Lindquist), "A Performance Study of Ada Runtime Environments," presented at the 1987 Meeting of the APSE Evaluation and Validation Team, San Diego, CA, December 1987.

(E. Chevers, C. Roby, S. LeGrand, J. Kramer, R. Stevenson, R. Fainter, and H. Hart), CAIS Panel, First International Conference on Ada Programming Language Applications for the NASA Space Station, June 2-5, 1986.

(G. W. Gorsline and R. G. Fainter), presentation of paper by R. G. Fainter, "Program Complexity Measures" at the Washington, DC, Chapter of the ACM 19th Technical Symposium, Pathways to System Integrity, Washington, DC, June 19, 1980.

## CONSULTANTSHIPS/EDITORSHIPS

Review existing Ada courses and develop new Ada courses for C. J. Kemp Co., Inc., Dayton, OH (C. J. Kemp, Inc., contracts with Rockwell International, Cedar Rapids, IA, for industrial training), 1990-91.

Co-editor of the Consortium Connection, a newsletter of the Virginia Tech Computer Science Research Consortium, January 1984-July 1985

## PROFESSIONAL MEMBERSHIPS

Computer Society of the Institute of Electrical and Electronics Engineers, July 1987-present

Association for Computing Machinery, SIGADA, SIGSOFT, SIGPLAN, August 1981-present

Pi Mu Epsilon, October 1977-present

## HONORS AND AWARDS

Nominated for Alumni Teaching Excellence Award, East Carolina University, Greenville, NC (Academic Years: 1991-92 and 1992-93)

Two Teaching Excellence Awards from Virginia Polytechnic Institute, Blacksburg, VA (Academic Years: 1979-80 and 1980-81)

Air Force Commendation Medal, Meritorious Service at Da Nang Airfield, Republic of Viet Nam, 1970-1971

Curriculum Vita  
John R. Crammer

EDUCATION:

Ph.D. Statistics, 1974	Clemson University
B.S. Mathematics with option in Computer Science, 1969	Clemson University

PROFESSIONAL EXPERIENCE:

1975 to present: Assistant Professor,  
Department of Mathematics,  
East Carolina University,  
Greenville, NC

1974 to 1975: Visiting Instructor,  
Department of Mathematical Sciences,  
Clemson University,  
Clemson, SC

1969 to 1974: Graduate Assistant,  
Department of Mathematical Sciences,  
Clemson University,  
Clemson, SC

RESEARCH:

Crammer, John (1974), "Allocation of Trials in Selecting  
the Better Binomial Population", Ph.D. Dissertation,  
Clemson University, Clemson, SC

PROFESSIONAL SOCIETIES:

American Statistical Association  
Association for Computing Machinery  
Mathematical Association of America

## R E S U M E

Steven Allen Gordon

### EDUCATION

- Ph.D. 12/90 Illinois Institute of Technology, Chicago, IL  
(Computer Science)
- M.S. 5/82 Illinois Institute of Technology, Chicago, IL  
(Computer Science)
- B.A. 6/77 University of Chicago, IL (Mathematics)

### PROFESSIONAL EXPERIENCE

- 1/91 - pres Assistant Professor, East Carolina University,  
Greenville, NC
- 8/90 - 12/90 Lecturer, East Carolina University, Greenville,  
NC
- 8/85 - 8/90 Instructor, Illinois Institute of Technology,  
Chicago, IL
- 6/82 - 5/85 Lecturer, Illinois Institute of Technology,  
Chicago, IL
- 8/82 - 6/85 Engineer, R. R. Donnelley & Sons, Chicago, IL
- 8/81 - 5/82 Teaching Assistant, Illinois Institute of Tech-  
nology, Chicago, IL
- 6/77 - 7/81 Consultant, Blackhawk Data Corporation, Chicago,  
IL

### GRANTS

ECU Faculty Computer Program Equipment, approximately \$2,000.  
Awarded a MacIntosh SE/30 Computer for Research and Creative  
Activity, April 16, 1991.

### PUBLICATIONS

#### Articles:

"Comparison of Probabilistic Search and Weighted Heuristics in  
A Game with Incomplete Information," Proceedings of the AAAI  
Fall Symposium on Games: Planning and Learning, Raleigh, NC  
(October 1993), pp.

"Chalk Talk," Proceedings of the First Annual Meeting of the Midwest Artificial Intelligence and Cognitive Science Society, The University of Chicago Computer Science Department, Chicago, IL (1987), pp. 18-22.

**Other:**

Dissertation - "Interaction between Parallel Linguistic Mechanisms in a Modular Theory of Parsing Based on Auto-lexical Grammar," University Microfilms International, Ann Arbor, MI, 1991.

**Articles Accepted:**

"A Faster Scrabble Move Generation Algorithm," Software: Practice and Experience, Wiley Chichester, 1994

"Project Exaltt: Exploring the Arts and Literacy through Technology," 9th International Conference on Technology and Persons with Disabilities, California State University, Northridge, CA (March 1994).

**Articles Submitted:**

(S. Gordon and P. Haggard), "A Problem on the Catalan Numbers," Mathematics and Computer Education (April 19, 1991).

A Letter to Dr. Dobb's Journal correcting a paper on "Cellular Automata" (February 1, 1993).

**Research in Progress:**

- 1) "A Thesaurus-Based Augmentative Communication System"
- 2) "Dynamic Heuristics for Evaluating Scrabble Moves"
- 3) "Maxi-Talk Geometry" (with K. Sowell)

Serving on Master's Thesis Committee for Richard Creech in the ECU Speech-Language and Auditory Pathology Department - "Icon Indication for Minspeak on the Liberator," Spring 1991-present.

PRESENTATIONS AND/OR PARTICIPATION ON PANELS

"Issues in Software Development for People with Developmental Disabilities," invited panel discussion (with Jane Steelman and Sonny Johnson), Research Symposium on Innovations in Assistive Technology, Raleigh, NC, September 1993.

"Intelligent Strategies for the Game of Scrabble," colloquium presented to Cognitive Science Discussion Group, September 1993.

"Reducing Nondeterminism in Scrabble None Generation," colloquium presented to Mathematics Faculty, East Carolina University, October 1992.

#### CONSULTANTSHIPS

Consultant to A Federal Grant by Sonny Johnson, Adjunct Clinical Instructor of Speech-Language and Auditory Pathology and Jane Steelman of the Carolina Literacy Center, called "Project Exaltt") to Design Interactive Multimedia Software for Disabled Children (expected to lead to some publications.)

#### PROFESSIONAL MEMBERSHIPS

Association for Computational Linguistics, 1987-present

## R E S U M E

Masao Kishore

### EDUCATION

- Ph.D. 10/77 Princeton University, Princeton, NJ (Mathematics)  
M.S. 6/82 University of Toledo, Toledo, OH (Engineering Science)  
M.A. 4/74 Princeton University, Princeton, NJ (Mathematics)  
B.A. 6/66 University of California--Berkeley, Berkeley, CA (Mathematics)

### PROFESSIONAL EXPERIENCE

- 8/82 - pres Associate Professor, Mathematics Department,  
East Carolina University, Greenville, NC  
8/77 - 8/81 Assistant Professor, University of Toledo,  
Toledo, OH  
1969 - 1977 Instructor, University of Toledo, Toledo, OH

Additional Computer Science courses completed:

University of North Carolina, Chapel Hill, NC:  
COMP 171, Natural Language Processing - Fall 1990  
COMP 282, Mechanized Mathematical Inference - Spring 1991

Wake Forest University, Winston-Salem, NC:  
COMP - Computer Vision  
COMP - Statistical Pattern REcognition

### GRANTS

East Carolina University Research Grant for 1984: \$600.00  
(FUNDED)

### PUBLICATIONS

#### Articles:

"Odd Triperfect Numbers are Divisible by Twelve Distinct Prime Factors," Journal of the Australian Mathematical Society (1987), pp. 173-182.

"Odd Triperfect Numbers are Divisible by Eleven Distinct Prime Factors," Mathematics of Computation 44 (January 1985), pp. 261-263.

"Odd Triperfect Numbers," Mathematics of Computation 42 (January 1984), pp. 231-233.

"Odd Perfect Numbers Not Divisible by 3.II," Mathematics of Computation 40 (January 1983), pp. 405-411.

"On Odd Perfect, Quasiperfect, and Odd Almost Perfect Numbers," Mathematics of Computation (April 1981), pp. 583-586.

"On the Equation  $\sigma(m)\sigma(n) = (m+n)^2$ ," The Fibonacci Quarterly (January 1981), pp. 21-24.

"Odd Integers N with Five Distinct Prime Factors for Which  $2 - 10^{-12} < \sigma(N)/N < 2 + 10^{-12}$ ," Mathematics of Computation (January 1978), pp. 303-309.

"Odd Perfect Numbers Not Divisible by 3 Has at Least Ten Distinct Prime Factors," Mathematics of Computation (January 1977), pp. 274-279.

"On the Number of Distinct Prime Factors of n for Which  $\sigma(n) \mid n-1$ ," Nieuw Archief Voor Wiskunde, XXV (1977), pp. 48-53.

#### Conference Proceedings:

"A Line Drawing Algorithm," Proceedings of Computer Science Conference '90 (February 1990), p. 1990, p. 473.

"Priming Read and End-of-File," Proceedings of Computer Science Conference '89 (February 1989), p. 420-421.

"New Syntax for If and Case Statements," Proceedings of Computer Science Conference '88 (February 1988), p. 680.

#### Other:

Abstract: "Subtraction in Decimal and Binary Number System," International Congress of Mathematics (August 1986), p. 55.

"Odd Triperfect Number," Abstracts of the American Mathematical Society (January 1983), p. 22.

Dissertation: "The Number of Distinct Prime Factors of N for which  $\sigma(N) = 2N$ ,  $\sigma(N) = 2N \pm 1$ , and  $\phi(N) \mid N-1$ ," Princeton University, Princeton, NJ, October 1977.

Review of "Regular Convolutions and A Related Lehmer Problems" by Prasad and Subbara. Mathematical Reviews (July 1987): 3474.

Review of "On Composite  $n$  Satisfying A Problem of Lehmer" by Prasad and Rangamma. Mathematical Reviews (July 1987): 3474.

Review of "Rules for Constructing Hyperperfect Numbers" by H. J. te Riele. Mathematical Reviews 85i (1985): 3819.

Review of "Sketch of A Proof That An Odd Perfect Number Relatively Prime to 3 Has At Least Eleven Prime Factors" by P. Hagsis, Jr. Mathematical Reviews 85b (1985): 451.

Review of "Perfect Numbers and Aliquot Sequences" by H. J. te Riele. Mathematical Reviews 84m (1984): 4888.

Review of "Application of Mathematical Research and Information Processing" by S. Hitomatsu. Mathematical Reviews 84f (June 1984): 2404.

Review of "Some Results Concerning Quasiperfect Numbers" by P. Hargis and G. L. Cohen. Mathematical Reviews 84f (June 1984): 2136.

Review of "Search for Absolute Pseudo Prime Numbers" by M. Yorinaga; "Large Carmichael Numbers" by S. Wagstaff; and "Issues in Nonlinear Hyperperfect Numbers" by D. Minolin. Mathematical Reviews (March 1982): 969.

#### PRESENTATIONS AND/OR PARTICIPATION ON PANELS

"A Line-Drawing Algorithm," presented to an audience at the 1990 Association for Computing Machinery Conference, Washington, DC, February 1990.

"Priming Read and End-of-File," presented to an audience at the 1989 Association for Computing Machinery Conference, Louisville, KY, February 22, 1989.

"Syntax of If and Case Statements," presented to an audience at the 1988 Association for Computing Machinery Conference, Atlanta, GA, February 1988.

"Subtraction in Decimal and Binary Number System," presented to an audience at the International Congress of Mathematics, Berkeley, CA, August 1986.

"Odd Triperfect Numbers are Divisible By At Least Twelve Distinct Primes," presented to an audience at the American Mathematical Meeting, Chicago, IL, March 22, 1985.

"On Triperfect Numbers," presented to an audience at the North Carolina Academy of Sciences Meeting, Guilford College, Greensboro, NC, March 29, 1985.

"A Lower Bound for Odd Triperfect Numbers," presented to an audience at the North Carolina Academy of Sciences Meeting, Wake Forest University, Winston-Salem, NC, 1984.

"Odd Triperfect Numbers Have at Least Eleven Distinct Prime Factors," presented to an audience at the North Carolina Academy of Sciences Meeting, Chapel Hill, NC, 1983.

"Odd Triperfect Numbers," presented to an audience at the American Mathematical Society Meeting, Cincinnati, OH, 1978.

"The Six Smallest Prime Factors of An Odd Perfect Number, presented to an audience at the American Mathematical Society Meeting, Atlanta, GA, 1978.

"Odd Integers  $N$  with Five Distinct Prime Factors for Which  $2 - 2/10^{10} < \sigma(N)/N < 2 + 2/10^{10}$ ," presented to an audience at the American Mathematical Society Meeting, St. Louis, MO, 1976.

"An Odd Perfect Number Not Divisible By 3 Has At Least Ten Prime Factors," presented to an audience at the American Mathematical Society Meeting, Los Angeles, CA, 1975.

#### CONSULTANTSHIPS

Abstractor for Shingaku Giho - "Information Theory," "Non-Linear Problems," and "Image Engineering" (from Japanese to English), 1985-86.

Reviewer for Mathematical Reviews.

Computer Specialist at Cherry Point Marine Base, Summer 1983.

#### GRADUATE THESIS

"Odd Triperfect Numbers are Bounded Below By  $10^{60}$ ," Linda Buck Alexander, East Carolina University, Greenville, NC, 1984.

#### PROFESSIONAL MEMBERSHIPS

Association for Computational Linguistics, 1987-present  
American Mathematical Society  
Phi Beta Kappa

#### HONORS

University of California Regent's Scholarship, Berkeley, CA,  
1964-1966

Phi Beta Kappa  
NDEA Title IV Fellowship, Princeton, NJ, 1967-68  
Princeton National Fellow (Honor JSK Mathematical Fellow,  
1967-68

# R E S U M E

Ronnie W. Smith

## EDUCATION

- Ph.D. 1991 Duke University, Durham, NC (Computer Science)  
M.S. 1987 Duke University, Durham, NC (Computer Science)  
B.S. 1983 Vanderbilt University, Nashville, TN (Computer Science/Mathematics)

Was one of four ECU faculty to attend the New Faculty Seminar on Exemplary Teaching, held at the North Carolina Center for the Advancement of Teaching, Cullowhee, NC, June 8-11, 1993.

## PROFESSIONAL EXPERIENCE

- 8/92-pres Assistant Professor, East Carolina University, Greenville, NC  
9/88-5/92 Research Assistant/Associate, Duke University, Durham, NC  
1/92-5/92 Instructor, Duke University, Durham, NC  
8/91-12/91 Visiting Lecturer, North Carolina Central University, Durham, NC  
5/83-7/85 Programmer Analyst, Sverdrup Technology, Tullahoma, TN

## GRANTS

East Carolina University Research/Creative Activity Committee for new project, "Contextual Factors in Error Correction for Spoken Human-Computer Dialog" (NOT FUNDED). Revised and resubmitted to Vice Chancellor for the 1994 Summer Research/Creativity Stipend Program - approximately \$7,250 (PENDING)

East Carolina University Research/Creative Activity Committee for the project, "The Impact of Misrecognition in Spoken Human-Computer Dialog" - FUNDED: \$7,250 (Summer 1993).

## PUBLICATIONS

## Books:

Chapter title, "Very Large Scale Integrated Circuits," in Great Ideas in Computer Science, by Alan Biermann. Cambridge, MA: MIT Press (1990), pp. 221-249.

## Conference Proceedings:

"Effective Spoken Natural Language Dialog Requires Variable Initiative Behavior: An Empirical Study," Proceedings of the 1993 AAAI Fall Symposium on Human-Computer Collaboration: Reconciling Theory, Synthesizing Practice, (October 22-24, 1993), pp. 101-106.

(Alan W. Biermann, Curry I. Guinn, Ronnie W. Smith, and D. Richard Hipp), "Efficient Collaborative Discourse: A Theory and Its Implementation," publisher: Morgan Kaufmann in Proceedings of the ARPA Workshop on Human Language Technology, Plainsboro, NJ (March 21-24, 1993), pp. 177-181.

(Ronnie W. Smith, D. Richard Hipp, and Alan W. Biermann), "Four Theories of Natural Language Processing and Their Integration into a Practical Dialog Machine," in Proceedings of the Workshop on Fully-Implemented Natural Language Understanding Systems, part of ANLP-92, Trento, Italy (March 30, 1992), pp. 100-109.

"Integration of Domain Problem Solving with Natural Language Dialog," Proceedings of Applications of AI X: Knowledge Based Systems, Orlando, FL (April 22-24, 1992), pp. 270-278.

(Ronnie W. Smith, D. Richard Hipp, and Alan W. Biermann), "A Dialog Control Algorithm and Its Performance," Proceedings of the 3rd Conference on Applied Natural Language Processing (ANLP-92), Trento, Italy, (April 1-3, 1992), pp. 9-16.

(Ronnie W. Smith and D. Richard Hipp), "Using Expectation to Enable Spoken Variable Initial Dialog," Proceedings of the 1992 Symposium of Applied Computing, Kansas City, MO, (March 1-3, 1992), pp. 123-130.

(Alan W. Biermann and Ronnie W. Smith), "An Architecture for Pragmatic Voice Interactive Systems." In Methodologies for Intelligent Systems, edited by Z. W. Ras and M. Zemankova. Springer-Verlag Lecture Notes in Artificial Intelligence 542, Charlotte, NC (October 16-19, 1991), pp. 1-15.

"Providing Natural Language Assistance in Locating Objects: A General Model for Information Selection and Generation" Proceedings of the First International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, Tullahoma, TN (1988), pp. 922-930.

**Other:**

"A Computational Model of Expectation-Drive Mixed-Initiative Dialog Processing," Ph.D. Dissertation, Duke University, Durham, NC (1991).

"The Use of Physical and Mental Information by a Natural Language Generator in Assisting Users with Locating Objects," M.S. Thesis, Duke University, Durham, NC (1987), (microfilm).

**Books/Articles Accepted:**

(Ronnie W. Smith and D. Richard Hipp). Spoken Natural Language Dialog Systems: A Practical Approach, Oxford University Press (February 1994).

"Spoken Variable Initiative Dialog: An Adaptable Natural Language Interface," to appear in IEEE Expert (February 1994).  
REFEREED

**Articles Submitted:**

"The Impact of Variable Initiative on a Natural Language Dialog System" (invited extended Abstract), submitted to the journal, Knowledge-Based Systems (February 1994).

"An Architecture for Voice Dialog Systems Based on Prolog-Style Theorem Proving" (Ronnie W. Smith, D. Richard Hipp, and Alan W. Biermann), submitted to Computational Linguistics, February 1993.

**Research in Progress:**

"Human and Computer Performance in Spoken Natural Language Dialog" (plan to submit grant proposal to the National Science Foundation for one of their Research Initiation Awards in Computer Science - grant deadline, January 1995).

PRESENTATIONS, PARTICIPATION ON PANELS

"Effective Spoken Natural Language Dialog Requires Variable Initiative Behavior: An Empirical Study," presented at the Proceedings of the 1993 AAAI Fall Symposium on Human-Computer Collaboration: Reconciling Theory, Synthesizing Practice, Durham, NC, October 22-24, 1993.

Session Chairperson - Natural Language Processing, at Applications of AI X: Knowledge-Based Systems, Orlando, FL, April 1992.

"Integration of Domain Problem Solving with Natural Language Dialog," presented at the Proceedings of Applications of AI X:

Knowledge Based Systems Conference, Orlando, FL, April 22-24, 1992.

"A Dialog Control Algorithm and Its Performance," presented at the Proceedings of the 3rd Conference on Applied Natural Language Processing (ANLP-92), Trento, Italy, April 1-3, 1992.

"Four Theories of Natural Language Processing and Their Integration into a Practical Dialog Machine" (with D. Richard Hipp and Alan W. Biermann), presented at the Workshop on Fully-Implemented Natural Language Understanding Systems as part of ANLP-92, Trento, Italy, March 30, 1992.

"A Mixed Initiative Natural Language Dialog System," invited presentation at the 3rd Annual North Carolina Symposium on Artificial Intelligence, November 1990.

"An Architecture for Voice Dialog Systems," invited presentation at the 2nd Annual North Carolina Symposium on Artificial Intelligence, February 1989.

"Providing Natural Language Assistance in Locating Objects A General Model for Information Selection and Generation," presented at the Proceedings of the First International Conference on Industrial and Engineering Applications of Artificial Intelligence and Expert Systems, Tullahoma, TN, June 1988.

#### CONSULTANTSHIPS

Accepted by the Educational Testing Service as a grader for the Advanced Placement Test in Computer Science, appointment term TBA.

#### PROFESSIONAL MEMBERSHIPS

Association for Computing Machinery, 1983-pres  
Association for Computational Linguistics, 1986-pres

#### HONORS

Awarded a microcomputer through the Faculty Microcomputer Program for 1992-93.

Outstanding Student Paper Award - "Using Expectation to Enable Spoken Variable Initiative Dialog" (with D. Richard Hipp), at the 1992 Association for Computing Machinery Symposium of Applied Computing.

James B Duke Fellowship, Duke University, Durham NC (1985-88)

Graduated Summa Cum Laude, International Association of Machinists  
and Aerospace Workers National and Local Scholarships, Vanderbilt  
University, Nashville, TN

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## R E S U M E

William R. Spickerman

### EDUCATION

- Ph.D. 1965 University of Kentucky, Lexington, KY  
Major: Curriculum (Education);  
Minor: Mathematics
- M.S. 1958 Xavier University, Cincinnati, OH (Mathematics)
- M.A. 1953 Omaha University, Omaha, NE  
Major: Education Administration  
Minor: Guidance
- B.A. 1949 Omaha University, Omaha, NE (Mathematics)

Additional graduate work at University of Cincinnati, Cincinnati, OH

### PROFESSIONAL EXPERIENCE

- 1972-pres Professor, East Carolina University, Greenville, NC
- 1967-1972 Associate Professor, East Carolina University, Greenville, NC
- 1965-1967 Spindletop Research, Lexington, KY (Senior Scientist)
- 1962-1964 Graduate Student/Teaching Assistant/Research Assistant, University of Kentucky, Lexington, KY
- 1961-1962 Goodyear Aerospace Corporation, Akron, OH (Specialist-engineer)
- 1958-1961 AVCO Corporation, Cincinnati, OH (Engineer II)
- 1957-1958 Walnut Hills High School, Cincinnati, OH (Physics Teacher)
- 1956-1957 General Electric Company, Evendale, OH (Technical Engineer)
- 1952-1956 Thomas Jefferson High School, Council Bluffs, IA (Mathematics Teacher)
- 1951-1952 U. S. Army Engineers, Omaha, NE (Engineer Aide)

1949-1950 Neola High School, Neola, IA (Mathematice Teacher)

1944-1946 U. S. Army (Basic Engineer)

#### GRANTS

#### PUBLICATIONS

##### Books/Reports:

(W. R. Spickerman and T. J. Pignani), Basic Geometry for Elementary Teachers. Raleigh, NC: Litho Industries Inc., (1968).

Graduate Education Needs in the Quad Cities, Research Report 609, Spindletop Research Inc., Lexington, KY, March 1967, p. 102.

(W. R. Spickerman, and V. Prestridge), "School Needs in Central Kentucky," Spindletop Research Inc. (1967), p. 33.

##### Articles:

(W. R. Spickerman, R. N. Joyner, and R. L. Creech), "Problem B-708 Proposed by Joseph J. Kostal, Solution 3," The Fibonacci Quarterly 31(1) (February 1993), p. 89.

(W. R. Spickerman, R. L. Creech, and R. N. Joyner), "On the Structure of the Set of Difference Systems Defining (3, F) Generalized Fibonacci Sequences," The Fibonacci Quarterly 31(4) (November 1993), pp. 333-337.

(W. R. Spickerman, R. N. Joyner, and R. L. Creech), "On the (2, F) Generalizations of the Fibonacci Sequence," The Fibonacci Quarterly 30(4) (November 1992), pp. 310-314.

(R. L. Creech, W. R. Spickerman, and R. N. Joyner), "A Note on the Game Show Problem," The Journal of the Elisha Mitchell Scientific Society, 108(3) (1992), pp. 152-153.

(W. R. Spickerman and R. N. Joyner), "The General Term of Complementary Sequence," The Journal of the Elisha Mitchell Scientific Society 105(3) (Fall 1989), pp. 145-147.

(W. R. Spickerman and R. N. Joyner), "Binet's Formula for the Recursive Sequence of Order K," The Fibonacci Quarterly 22(4) (November 1984), pp. 327-331.

(W. R. Spickerman and R. N. Joyner), "A Binet's Formula for the Tribonacci Sequence," The Fibonacci Quarterly 20(2) (May 1982), pp. 118-120.

(W. R. Spickerman, and J. W. Daniels), "A Note on Integration by Parts," The Mathematics Teacher, Vol. 76, No. 5 (May 1983), pp. 337-338.

"An Extension of Morley's Theorem," Mathematics Magazine 44(4) (September 1971), pp. 191-192.

"A Note on Fibonacci Functions," The Fibonacci Quarterly 8(4) (October 1970), pp. 397-401.

"Constructing Base N Addition and Multiplication Tables," School Science and Mathematics (December 1969), pp. 771-72.

"A Note on Casting Out (N-1)'s", School Science and Mathematics, LXVIII, No. 5 (May 1968), p. 565.

Dissertation: "A Study of the Relationships Between Attitudes Toward Mathematics and Some Selected Pupil Characteristics in a Kentucky High School," Bulletin of the Bureau of School Service College of Education, University of Kentucky, Lexington, KY, XXXIX, No. 4 (June 1967).

#### Conference Proceedings:

"CERT (Curriculum Evaluation Review Technique), "Proceedings of the 18th Annual Southeast Regional Association for Computing Machinery Conference, Florida State University, Tallahassee, FL (March 24-26, 1980), pp. 160-161.

#### Other:

Dissertation: "A Study of the Relationships Between Attitudes Toward Mathematics and Some Selected Pupil Characteristics in a Kentucky High School," University of Kentucky, Lexington, KY, June 1965.

#### CONSULTANTSHIPS/EDITORSHIPS

Served as a reviewer for The Fibonacci Quarterly, the official journal of the Fibonacci Association, 1985-present.

Editor for Centroid, the journal for the North Carolina Council of Teachers of Mathematics, 1985-87

#### PRESENTATIONS

(W. R. Spickerman and R. L. Creech), "Set Equations--Part I and Part II," presented Part I at the Annual Meeting of the North Carolina Academy of Sciences, Wilmington, NC, March 26, 1993. (Part II presented by R. L. Creech at the same meeting.)

"On Complementary Sequences," presented at the Eastern Regional Meeting of the North Carolina Council of Teachers of Mathematics, Greenville, NC, February 26, 1993.

"On An Analog of the Lucas Sequence for the Tribonacci Sequence," presented at the Annual Meeting of the North Carolina Academy of Sciences, Fayetteville, NC, Spring 1992.

(W. R. Spickerman and R. L. Creech), "On the (3, 2) Generalizations of the Fibonacci Sequence, Part I--Canonical Forms; and Part II Conjugate Classes," presented Part I at the Annual Meeting of the North Carolina Academy of Sciences, Greensboro, NC, March 23, 1991. (Part II was presented by R. L. Creech at the same meeting.)

"Some Sums of Recursive Sequences," presented at the Annual Meeting of the North Carolina Academy of Sciences Meeting, High Point, NC, March 30-31, 1990.

"Structured Walkthroughs in An Elementary COBOL Class," presented at the Mathematical Association of America Sectional Meeting, Davidson, NC, April 6-7, 1990.

"Emphasizing Concepts in An Introductory Computer Science Course," presented at the 67th Annual Meeting of the Mathematical Association of America--Southeastern Section, Furman University, Greenville, SC, April 15, 1988.

"A Note on Standard Sums of Recursive Sequences," presented at the 85th Annual Meeting of the North Carolina Academy of Sciences, University of North Carolina--Charlotte, Charlotte, NC, March 25, 1988.

"A Study of the Validity of A Student Survey of Instruction," presented at the 17th Annual State Mathematics Conference, Winston-Salem, NC, October 1-2, 1987.

"Conducting Meaningful Structured Walkthroughs in COBOL Classes" (with R. N. Joyner), presented at the Mathematical Association Regional Meeting, Auburn, AL, April 11-12, 1986.

"Political Action for the Professionalization of Education," presented at the North Carolina Council of Teachers of Mathematics Regional Meeting, Charlotte, NC, October 24-26, 1985.

"Geometric Fibonacci Sequence," presented at the Mathematical Association of America Southeastern Section Meeting, Raleigh, NC, March 1973.

#### GRADUATE THESES

Director of the following M.A. Theses:

"On Fibonacci Numbers and Their Congruences," Tammy S. Anderson, East Carolina University, Greenville, NC, April 1990.

"Some Properties of Recursive Sequences," Joan B. Pfeiffer, East Carolina University, Greenville, NC, May 1974.

"Space Quadrilaterals," Yvonne Eure Rice, East Carolina University, Greenville, NC, May 1971.

"On Morley's Theorem," Elaine Lytton, East Carolina University, Greenville, NC, May 1971.

"Some Invariant Properties of Affine Transformations," James E. Godfrey, East Carolina University, Greenville, NC, May 1970.

#### PROFESSIONAL MEMBERSHIPS

American Mathematical Society,	-present	
National Council of Teachers of Mathematics,		-present
National Education Association,	-present	
American Association of University Professors,		-present
Mathematical Association of America,	-present	
Society for Industrial and Applied Mathematics,		-present
Operations Research Society of America,	-present	
Phi Delta Kappa,	-present	

#### HONORS

Listed in:

Who's Who in the South and Southwest  
American Men of Science  
Men of Achievement (International Biographical Centre)

## R E S U M E

Mohammad Hossein Nassehzadeh Tabrizi

### EDUCATION

- Ph.D. 6/77-4/82 University of Sheffield, England (Control Engineering)
- M.S. 10/72-5/77 University of Sheffield, England (Control Engineering)
- B.S. 10/72-6/75 University of Manchester, England (Computer Science)

### PROFESSIONAL EXPERIENCE

- 1991-present Associate Professor, East Carolina University, Greenville, NC
- 1985-1991 Assistant Professor, East Carolina University, Greenville, NC
- 10/84-5/85 Visiting Assistant Professor, East Carolina University, Greenville, NC
- 10/82-7/84 Research Assistant, University of Manchester, Manchester, England. (Extensive work on an important industrial project--problem on management and control of integrated product systems.) Also, work on modeling and dynamic optimization of the utilities system at Shell Refineries, Carrington, Manchester, England, was undertaken. A 5th order model was developed for Boiler No. 12 which could be used for control design. Simulator Packages were written and run on DIA computers for operator training purposes.
- 1982-1984 Gave talks at managerial level to management of research group at Shell Refineries, and to those at Lever Brothers who were sponsors.
- 1977-1982 Was in charge of Pilot Plant Distillation Column at Sheffield University, Sheffield, England. PID Controllers were designed and analogue computers were used for controlling pressure. Digital computers made by Texas Instruments were used at later stages to replace analogue computer. Taught and demonstrated this project to all Bachelor and Masters' students and others. Taught FORTRAN and Analogue programming for different groups of Masters students.

- 1977-1982 Acted as guide and gave talk at yearly open day of University of Sheffield, Sheffield, England.
- 6/77-4/82 Research student, working for the degree of PhD, University of Sheffield, Sheffield, England. Distillation column control experience gained while working on the research project. Pilot-plant of 12 tray column was owned and operated by the department for research purposes.
- Extensive programming experience in several languages; e.g., FORTRAN, ALGOL, COBOL, Basic, PL1, Assembly, etc. Machines used were CDC 7600, ICL 1906S, IBM, PDP11, Perkin Elmer and Texas Instruments Microprocessor.
- Graphics packages which were written during the course of research work were in daily use as part of the department's computer library.
- 1977-1982 Instructed Bachelor and Masters students on analogue and computer packages at the University of Manchester, Manchester, England.
- 10/75-5/77 Master's project was concerned with writing a suit of programs titled 'Sub-Optimal Identification' which subsequently formed part of the larger CAD package (SPAID) developed in the department (University of Sheffield, Sheffield, England).
- 10/72-6/75 Final year B.S. project was a joint effort with the department of mechanical engineering and titled 'The Numerical Solution of Boundary Value Ordinary Differential Equation Associated with Fluid Mechanics', University of Manchester, Manchester, England.

#### GRANTS

Grant in the form of Software called Model Mate from Control Data, including Site License for the ECU Mathematics Department. Software priced @ \$2500 per copy, October 1989 - FUNDED.

#### PUBLICATIONS

##### **Articles:**

(M. H. N. Tabrizi and J. B. Edwards), The Analytical Modelling and Dynamic Behaviour of Tray-Type Binary Distillation Column, Mathematical and Computer Modelling, Vol. 16, No. 2 (1992), pp. 105-129.

(M. H. N. Tabrizi and J. B. Edwards) "Modelling Short Packed and Tray-Type Distillation Columns for Controller Design," Mathematical and Computing Modelling Vol. 10, No. 5 (1992), pp. 131-146.

"Numerical Solutions of Stiff Boundary Value Problems," CoEd Journal, Vol. 1, No. 4 (October-December 1991), pp. 5-9.

"An Interactive Graphics Algorithm for Transfer Function Identification," COED Journal, Vol. X, No. 3 (1990), pp. 21-26.

(M. H. N. Tabrizi, H. Jamaluddin, S. A. Billings, and R. W. Skaggs), "Use of Identification Techniques to Develop A Water Table Prediction Model," Transactions of the American Society of Agricultural Engineers, Vol. 33, No. 6 (1990), pp. 1913-1918.

"Numerical Solutions of Difficult Boundary Value Ordinary Differential Equations," Journal of Elisha Mitchell Scientific Society, Vol. 105 (1989), pp. 132-136.

#### Articles Accepted:

"Towards An Insight into the Dynamic Behavior of Tray Distillation Columns through Analysis and Simulation of Dynamically Asymmetric Packed Column," Mathematical Modelling and Scientific Computing (1993).

"A Multivariable First-Order Lag Model," Mathematical Modelling and Scientific Computing (1993).

#### Conference Proceedings:

"An Investigation into the Dynamics of the Distillation Column, Search for Wave Effects," Proceedings of Institute of Electrical and Electronics Engineers Southeastern '90 Conference, New Orleans, LA, Vol. 2 (April 1990), pp. 599-602.

"Suboptimal Estimation of the Parameters of Discrete Systems in the Presence of Correlated Noise," Proceedings of Modelling and Simulation Conference, American Instrument Society (1990), pp. 2275-2279.

"An Analytical Study of the Dynamics of Long Tray Distillations Columns," Proceedings of Institute of Electrical and Electronics Engineers Southeastern '89 Conference, Columbia, SC (April 1989), pp. 1289-1293.

(M. H. N. Tabrizi and J. B. Edwards), PART I. "Modelling for Controller Design in Tray Distillation; Development of a Parametric, Lumped Parametric, Transfer Function Model," Proceedings of IEEE Region III Southeastcon '88 Conference, Knoxville, TN (April 1988), pp. 301-304.

(J. B. Edwards and M. H. N. Tabrizi), PART II: "Modelling for Controller Design in Tray Distillation, Comparison of Lumped and Distributed Parameter Model Performance," Proceedings of IEEE Region III Southeastcon '88 Conference, Knoxville, TN (April 1988), pp. 305-308.

(M. H. N. Tabrizi and J. B. Edwards), "Parametric Transfer Function for Binary, Tray Distillation Column," International Federation of Automatic Control, Institute of Measurement Control Symposium on Dynamics and Control of Chemical Reactors and Distillation Columns, Bornmouth, England (December 1986), pp. 189-194.

#### Other:

(M. H. N. Tabrizi and S. Billings), Report on research project, "Parameter Estimation and Neural Network Modeling of a Water Treatment System," Greenville Utilities Commission, Greenville, NC (March 1993).

Abstract on "Graphics Algorithms" was published in the Proceedings of the Association for Computing Machinery, Computer Science Conference, 1989, Louisville, KY (February 1989), pp. 394.

Abstract on "An IEEE 488 GPIB Test" was published in the Proceedings Focus on Software, Computer Science Conference 88, Atlanta, GA (February 1988), pp. 704.

"An IEEE 488 GPIB Test Proposal for Naval Aviation Maintenance," submitted to Meteorology Engineering Center, Software Design, Corona, CA (1986).

Final report on the research project, "Modelling and Dynamic Optimization of the Utilities System at Shell Carrington Manchester," England (1985).

Reports 1, 2, 3, and 4, Unilever Production System, Liverpool, England (1983). Final Report, Shell Refineries, Manchester, England (1984).

Research Report No. 113, titled "Towards an Insight into the Dynamic Behaviour of Tray Distillation Column through Analysis and Simulation of Dynamically Asymmetric Packed Columns," University of Sheffield, Sheffield, England (1979).

#### Research Projects:

Establishing a Micro Programming Lab for computer architecture class (in progress)

Established a hardware lab to support switching theory class (1987-88)

Assisted Lee W. Toderick (student in Software Engineering Course) - resulted in a Certificate of Commendation by U.S. Marine Corps, August 28, 1987.

PRESENTATIONS, PARTICIPATION ON PANELS, ETC.

"An Investigation into the Dynamics of Distillation Column, Search for a Wave Effects," presented at the Institute of Electrical and Electronics Engineers Southeastern '90 Conference, New Orleans, LA, April 1990.

"Optimal Scheduling of Large Scale Discrete Non-linear Systems, presented at the Third SIAM International Conference on Optimization, Boston, MA, April 1989.

"An Analytical Study of Long Tray Distillation Column," presented at the Institute of Electrical and Electronics Engineers Southeastern '89 Conference, in Columbia, SC, April 1989.

"Graphics Algorithms," presented at the Association for Computing Machinery, Computer Science Conference, in Louisville, KY, February 1989.

"Analytically Derived Parameter Transfer Function Model for Ideal Tray-Type Distillation Column" (PART I and II), presented at the Institute of Electrical and Electronics Southeastern '88 Conference in Knoxville, TN, April 1988.

"On Optimal Scheduling of Packing Line System, through Lograngian Relaxation Methods," presented at the Operations Research Society of America Meeting, St. Louis, MO, October 1987.

Guest speaker at Department of Computer Science, University of North Carolina--Charlotte, Charlotte, NC, gave talk on "Modeling and Control of Distillation Column, Investigation of Computer Model Developed," October 7, 1986.

Colloquium speaker at Department of Mathematics, East Carolina University, Greenville, North Carolina, gave talk on "Parametric Transfer Functions for Distillation Column," September, 1986.

MEETINGS ATTENDED

Association for Computing Machinery 16th Computer Science Conference, Atlanta, GA, February 23-25, 1988

CONSULTANTSHIPS

Lawrence Behr Associates, Inc. (Broadcast and Telecommunications Consultants), Greenville, NC - 1985-1986

PROFESSIONAL MEMBERSHIPS

American Society for Engineering Education, 1988-present

HONORS

1991 Harden-Simmons Prize - \$400.00 (outstanding Computers in Education Division Journal paper in 1991)

## R E S U M E

James F. Wirth

### EDUCATION

- Ph.D. 1965 University of Notre Dame, South Bend, IN  
B.S. 1961 University of Notre Dame, South Bend, IN

### PROFESSIONAL EXPERIENCE

- 1975-present Associate Professor, East Carolina University,  
Greenville, NC  
1967-1975 Assistant Professor, East Carolina University,  
Greenville, NC  
1965-1967 Lecturer, University of Manchester, England

### GRANTS

(M. J. Spurr, G. Peterson, and J. F. Wirth) National Science Foundation - ILI (Instrumentation and Laboratory Improvement) Grant, \$56,229 (1991).

National Science Foundation, "Micro-Computer Teacher Preparation Program" - ISEP, \$13,000 (1981).

University Research Grant, East Carolina University, Greenville, NC - \$1800 (1979).

Computer-Aided Music Synthesis, East Carolina University Foundation, Greenville, NC - \$512 (1976).

Prototype Multidrop Terminal Interface, East Carolina University, Greenville, NC - \$948.75 (1980 or 1979).

### PUBLICATIONS

#### Articles:

(C. G. Adler and J. F. Wirth), "Quantum Logic," American Journal of Physics, (April-June 1983).

"Improvements to Digital Tone Generators," Electronotes, Vol. 9(7s) (January 1977), p. 75.

"The Mapping Cylinder Axiom for WCHP Fibrations," Pacific Journal of Mathematics.

"The Christmas Present Principles," The Mathematics Teacher (December 1975).

"A Practical Compiler Writing System," Communications of Association for Computing Machinery, 1974.

(J. F. Wirth and V. J. Bellis), "A Computer Based Flonstie Analysis of Pamlico River Phytoplankton," Water Resources Research Institute, January 1971.

"The Mapping Cylinder Axiom for WCHP Fibrations," Pacific Journal of Mathematics, 1971.

#### Abstracts:

(G. Peterson, M. Spurr, and J. Wirth), "Computer Enhanced Calculus I at East Carolina University," Abstracts of the Fourth Annual International Conference on Technology in Collegiate Mathematics (November 1991), p. 38.

(G. Peterson, M. Spurr, and J. Wirth), "Computer Enhanced Calculus II at East Carolina University," Abstracts of the Fourth Annual International Conference on Technology in Collegiate Mathematics (November 1991), p. 38.

(J. F. Wirth and M. B. Wirth), "Co-op and Computers--Visions of the Future," Proceedings of the 26th Annual Conference of the Cooperative Education Association, Inc. (April 1989), pp. 23-24.

(C. G. Adler and J. F. Wirth), "The Relativistic Falling Body Problem in a Uniform Gravitational Field," Journal of AAPT 16(4) (1986), p. 89.

#### Other:

Ph.D. Dissertation: "Fiber Spaces and Higher Homotopy Cocycle Relations," University of Notre Dame, Notre Dame, IN, 1966.

#### Conference Proceedings:

"MELD - A Modest Extensible LISP Dialect," Proceedings of the 18th Annual Southeastern Regional Association for Computing Machinery Conference, Florida State University, Tallahassee, FL, March 24-26, 1980.

"KASM - A Kind Assembler for M6809 Microcomputer," Proceedings of the 1981 Southeastern Regional Association for Computing Machinery Conference, 1981.

"ASTROL--An Associative Structure Oriented Language," American Federation of Information Processing Societies Conference Proceedings Vol. 48 (1979), pp. 721-725 (Abstracted in Computer Reviews).

"MUSICM - A Music Synthesis System," Proceedings of the 16th Annual Southeastern Regional Association for Computing Machinery Conference, April 1978, pp. 154-159.

PRESENTATIONS, WORKSHOPS, AND/OR PARTICIPATION ON PANELS

"Pascal by Template," invited workshop at 17th Annual State Mathematics Conference, October 1987.

"Building a Nano-computer," presented at Computer Conference, East Carolina University, Greenville, NC, Spring 1980.

Gave demonstration of computer synthesized music at East Carolina Computer Conference, 1980

"Computer Aided Music Synthesis," Society of Physics Students Seminar, 1976

"An Extremely Portable Compiler Writing Language," presented at Meeting of the North Carolina Academy of Sciences, Spring 1974.

Gave Computer Workshop for North Carolina Council of Teachers of Mathematics State Meeting, November 1971

"Bus Architecture," workshop given to NARF data processing personnel at Cherry Point by Computer Aided Tele-Conferencing, Havelock, NC, 1987.

Gave panelist presentation on "Computer Literacy" for the School of Medicine practice management seminar, East Carolina University, Greenville, NC, February 1984.

Gave one workshop at the ECU Computer Facilities Workshop on February 1983

Conducted ECU School of Education Gifted and Talented Saturday Morning Seminar Program on Microcomputers (five (5) 1-hour sessions), East Carolina University, Greenville, NC, Spring 1983.

Mathematics Department Colloquium, "A Modest Extensible List Dialect," East Carolina University, Greenville, NC, February 1983.

"An Introduction to Microcomputers," given to Pitt County Medical Society, Greenville, NC, October 1983.

"The Ada Language," talk given to ECU Student Chapter of ACM, Mathematics Department, East Carolina University, Greenville, NC, March 1982.

Eastern Carolina Computer Users Group, Pitt Community College, Greenville, NC, January 1982.

Micro Computer Workshop given at South Greenville Elementary School, Gifted and Talented Program, Greenville, NC, 1981-1982

Served as judge for 7th Annual NCSAS research paper presentations, Friday, April 11, 1980.

"How to Build A Small Microcomputer, presentation at Farmville High School, Farmville, NC, 1979.

"Computers, Music, and the Physics Laboratory," Fall 1978 meeting of the South Atlantic Section of the American Association of Physics Teachers

"Music and Mathematics," talk given to Seniors in Mathematics at Kinston High School, Kinston, NC, April 1977.

Colloquium speaker, "FORTRANS for Formulas--Symbolic Math," Department of Physics, East Carolina University, Greenville, NC, January 27, 1969.

#### GRADUATE THESES

Directed M.A. Theses as follows:

"A Graphical Approach to Game Theory" - Evelyn W. Jenkins, East Carolina University, Greenville, NC, 1973.

"Some Results on Countable, Topological Spaces" - Bobby N. Beckom, East Carolina University, Greenville, NC, 1972.

"Certain Graphical Methods in Group Presentation Theory" - Connie L. Rhem, East Carolina University, Greenville, NC, 1972.

"Zero Divisions and Related Topics in Polynomial-like Rings" - Robert M. Ussery, Jr., East Carolina University, Greenville, NC, 1971.

#### CONSULTANTSHIPS

Electronic Services thru ECU Center for Applied Technology, 1986

Specialized Data Systems Data Base Installation, 1984

Developed Hardware Drivers for Installation of Turbo DOS Operations System on the SB80 computer for Colonial Data Services Corporation, 1983

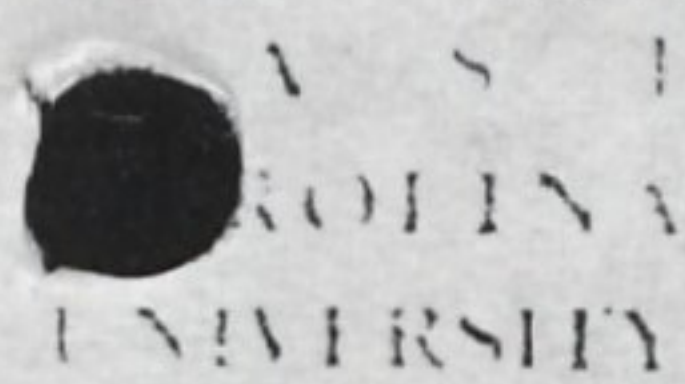
## PROFESSIONAL MEMBERSHIPS

Association for Computer Science, 1991-present  
American Mathematical Society, 1967-present  
National Council of Teachers of Mathematics, 1988  
North Carolina Council of Teachers of Mathematics, 1988  
Association for Computing Machinery, 1977  
Musical Engineering Group, 1977  
SIAM  
North Carolina Academy of Sciences, 1973

## HONORS

Undergraduate NSF National Merit Scholarship

Graduate (one-year) NSF Assistantship



MEMORANDUM

Computing and  
Information Systems  
Austin Building

757-6401

To: Bob Bernhardt, Chairman  
Mathematics Department

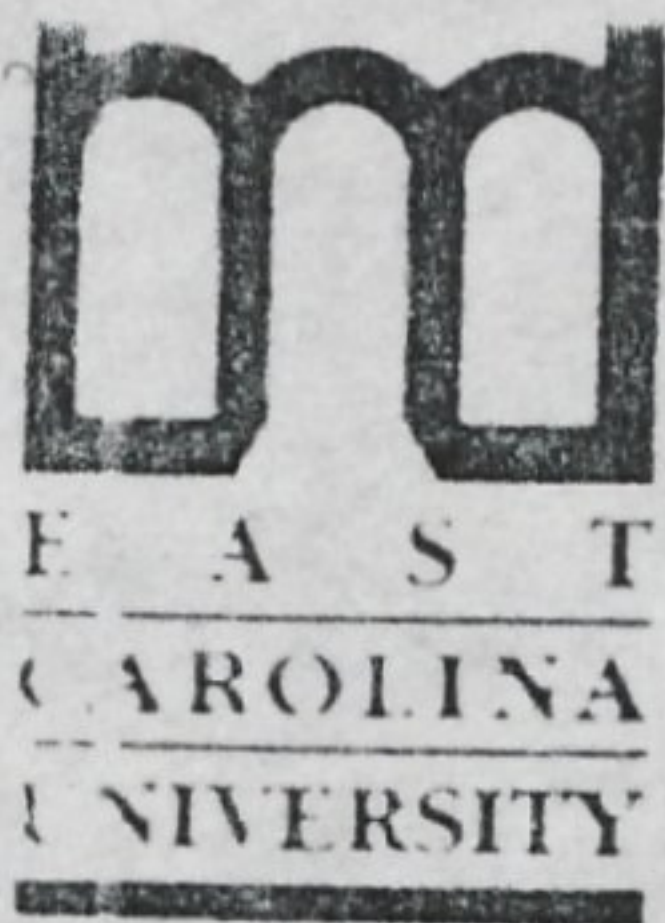
From: Ernest Marshburn *Ernest Marshburn*  
Manager, Academic Computing

Date: January 31, 1994

Subject: Masters Program in Computer Science

After a careful review of the documents which you provided outlining the goals and objectives of a new degree program in Computer Science, we believe the indicated objectives to be obtainable with respect to both computing hardware and software presently available at East Carolina University. As indicated, the required computing resources referencing existing facilities/resources presently housed within Austin and other locations on campus are presently adequate to meet all foreseeable demands by both students and instructors. Although not stated, it is inferred that the IBM ES/9000, DEC VAX 4000, and microcomputer based facilities represent the core components around which the objectives will be derived. For your information, current plans call for continued support of the VM, VMS, and UNIX operating systems on the IBM, VAX, and AT&T systems respectively. If there are specific resource requirements with which Academic Computing can assist, please feel free to bring them to my attention.

cc: Karl Abrahamson



February 4, 1994

Academic Library Services

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Reference and Collection  
Development  
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Library Services  
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Library Services  
781-6560

North Carolina  
Collection  
781-6560

TO: Dr. Robert Bernhardt

FROM: Dr. Kenneth E. Marks, <sup>KA</sup>Director  
Academic Library Services

SUBJECT: Library Resources for Computer Sciences

The proposed Master's Degree in Computer Science relies heavily on current material since the field is a new and changing one. The library has good holdings in the QA76 area in both the reference area and the stacks.

The two major publishers in the field, IEEE and ACM, are both available on the Yankee approval plan, through which the library receives current books. Of the eighteen new serials requested by the Mathematics Department in 1993, the library owns or can give access to, through CARL, fourteen titles. Additional one-time funds were provided to the Mathematics Department in 1993/94 for the development of its new programs.

The new degree will rely heavily on classroom texts and laboratories rather than on specific library resources.

CONCLUSION: Library resources are adequate to support the proposed new Master's Degree in Computer Science.

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