

Exhibit “D7”

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re reexam of: U.S. Patent 5,490,216 to
RICHARDSON, III
Reexam Control No.: 90/010,831
Filed: January 22, 2010
For: **System for Software Registration**

Confirmation No.: 2214
Art Unit: 3992
Examiner: HENEGHAN, Matthew E.
Atty. Docket: 2914.001REX0

Declaration of Dr. Udo W. Pooch 37 C.F.R. § 1.132

Mail Stop *Ex Parte* Reexam
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Sir:

I, Dr. Udo W. Pooch, declare as follows:

Retention

1. I have been retained as a technical expert witness on behalf of Uniloc USA, Inc. and Uniloc Singapore Private Limited (collectively "Uniloc") for the above-captioned reexamination. I understand that this reexamination involves U.S. Patent No. 5,490,216 ("the '216 patent") which resulted from Application No. 08/124,718, filed on September 21, 1993 on behalf of Frederic B. Richardson, III. I further understand that the '216 patent is currently assigned to Uniloc Singapore Private Limited.

Introduction

2. I understand that claims 1-20 of the '216 patent are subject to reexamination.

3. I have reviewed and am familiar with the Office action dated January 18, 2011 ("the Second Action") issued by the U.S. Patent and Trademark Office ("USPTO") for the '216 patent.

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4. I have reviewed and am familiar with U.S. Patent No. 4,658,093 to Martin E. Hellman (“Hellman”) and with U.S. Patent No. 5,291,598 to Gregory Grundy (“Grundy”), which I understand are the references cited in the pending claim rejections in the Second Action.

5. I am familiar with the level of ordinary skill in the art relevant to the ‘216 patent as of the September 21, 1993 filing date of that patent. In my opinion a person of ordinary skill in the art at the time of the invention (“POSA”) would have held a Bachelor ‘s Degree or equivalent, in either Electrical Engineering or Computer Science, or one to two years of experience in software development or the equivalent work experience.

6. I have been asked to consider the Hellman and Grundy references in view of the claims under reexamination in the ‘216 patent. Specifically, I have been asked to determine whether the factual bases underlying the claim rejections in the Second Action are technically correct.

7. I am being compensated at my standard hourly rate of \$400.00 for my work on this declaration. My compensation is not dependent on the outcome of this reexamination and in no way affects the substance of my statements in this declaration.

Qualifications

8. I have more than 45 years of professional experience and familiarity with the art of computer and software architecture and design. I have worked in private industry and academia. I am currently Professor Emeritus of Computer Science, Computer Science Department, Texas A&M University.

9. I have published over 225 technical articles, chapters, and books pertaining to computer system design, programming, software development, networking, cryptography and computer and data security.

10. I earned a Bachelor of Science in Physics from the University of California (L.A.) in 1963, and a Ph.D. in Theoretical Physics from the University of Notre Dame in 1969.

11. I am a registered professional engineer, Texas License No. 38659.

12. For a complete description of my qualifications, please see my attached Curriculum Vitae (Exhibit P-1).

Hellman

13. Hellman is directed to a system to combat software piracy.

14. To combat software piracy, Hellman's system is used to limit the number of times that a base unit, *e.g.*, a personal computer, is authorized to use a software program. (Hellman, Abstract.) The system allows the manufacturer to control the number of authorized software uses. (Id.) To that end, authorizations are made to be specific to individual base units "so that an authorization for one base unit cannot be transferred to another base unit." (Id.)

15. The authorization unit at the software manufacturer uses a cryptographic function generator 23 to generate an authorization A. (See Hellman, FIGs. 1 and 2.) An identical cryptographic function generator 38 at the base unit's cryptographic check unit 34 is used to generate a check value C that must match the authorization A at comparator 39. (Id., FIGs. 6 and 7.) "If even one bit of C differs from the corresponding bit of A, then A is not considered to be a proper authorization." (Id., 10:24-26.)

16. The cryptographic function generators 23 or 38 are an essential and critical element of Hellman's system. Hellman's cryptographic function generators are designed to

be highly secure and to prevent would-be copiers from generating their own authorizations. (Hellman, 7:4-16.) Hellman describes three conventional cryptographic functions and unequivocally states that they are “*required to carry out the present invention.*” (Id., 2:61-65.) Each is described next.

17. The embodiment described in FIG. 4 uses a modified Data Encryption Standard (“DES”). (Hellman, 8:23-26.) According to Hellman, “[t]he DES would have to be modified ... to have its key length equal to the length of SK” so that it would work in the cryptographic function generator. (Id., 8:24-26.) Hellman teaches that this embodiment “would also inherently have the property that the new authorizations could not be predicted from old authorizations because, in a conventional cryptographic system, given past plaintext-ciphertext pairs, it must have been difficult to determine the plaintext which goes with a new ciphertext.” (Id., 8:46-51.) The DES embodiment thus uses a robust and highly secure, cryptographic algorithm to generate an authorization code sufficiently secure to meet the rigorous needs of Hellman’s system.

18. The Data Encryption Standard (DES) originated at IBM in 1977 and was adopted by the U.S. Department of Defense. DES applies a 56-bit key to each 64-bit block of data. DES is a widely-used method of data encryption using a private (secret) key that was judged so difficult to break by the U.S. government that, for some time, it was restricted for exportation to other countries. There are 72,000,000,000,000,000 (72 quadrillion) or more possible encryption keys that can be used. For each given message, the key is chosen at random from among this enormous number of keys. Like other private key cryptographic methods, both the sender and the receiver must know and use the same private key.

19. In an alternate embodiment described in FIG. 9, “[s]ignals representing H, R and N are presented as a message to be signed by a public key cryptosystem 43 using secret key SK to produce the digital signature,” which becomes authorization A. (Hellman, 1:42-47.) Like the DES embodiment, a public key cryptosystem is a highly secure, robust, cryptographic algorithm that meets the rigorous needs of Hellman’s system.

20. Public-key cryptography is a cryptographic approach using asymmetric keys — that is, the non-message information (the public key) needed to transform the message to a secure form is different from the information needed to reverse the process (the private key).

21. An asymmetric-key cryptosystem was published in 1976 by Whitfield Diffie and Martin Hellman. This method of key exchange, which uses exponentiation in a finite field, came to be known as Diffie–Hellman key exchange. Public key cryptography is a fundamental and widely used technology around the world. It is the approach which is employed by many cryptographic algorithms and cryptosystems. It underpins such Internet standards as Transport Layer Security (TLS) (successor to SSL), PGP, and GPG.

22. Finally, in yet another described embodiment, Hellman discloses that “[o]ne implementation of the cryptographic function generator 23 of FIG. 2 would also involve a one-way hash function....” (Hellman, 8:13-15.) Again, a cryptographic one-way hash function is a robust, highly secure, cryptographic algorithm that meets the rigorous needs of Hellman’s system.

23. In cryptography the input data for hash functions usually name a “message” where a hash value for this message is named a “message digest.” One major

feature of a cryptographic hash function is that it is “one-way.” “One-Way” means that it’s impossible to find a (previously unseen) message that matches a given digest. While the usual checksums are useful in detecting accidental modification such as corruption to stored data or errors in a communication channel, they provide no security against a malicious agent as their simple mathematical structure makes them trivial to circumvent. To provide a cryptographic level of integrity, the use of a cryptographic hash function is necessary.

24. Each of the alternative embodiments that Hellman describes to implement its cryptographic function generators 38 and 23—DES, public key encryption or cryptographic one-way hash function—are sophisticated, cryptographically robust algorithms that meet the rigorous needs of Hellman’s system. As noted, Hellman unambiguously states that such conventional cryptographic functions are “*required to carry out the present invention.*” (Hellman, 2:61-65; emphasis added.)

Grundy

25. Grundy is directed to a method and system for decentralized manufacture of copy-controlled software. As part of Grundy’s system, Grundy describes the generation of a “registration code” that is used for communication between a new software user and what Grundy describes as a Manufacturing Control Agency. (Grundy, 14:31-60.)

26. Of importance to this reexamination, Grundy describes the use of checksum algorithms in the generation of certain data fields that ultimately make up the “registration code.”

27. Specifically, Grundy teaches that the registration code consists of a packed bit array “with each field of the record occupying no more bits than is necessary to encode

the information content of the field.” (Grundy, 18:61-64.) There are six fields concatenated to form the registration code bit array.

28. The first four fields are (i) a user data checksum, (ii) a hardware ID code, (iii) an anti-virus checksum, and (iv) a previous owner’s ID number. (Grundy, 18:58-61.) After these four fields are packed into the bit array, the array is encrypted, then (v) a Product/Version ID code is added, then (vi) a data entry checksum is generated for the entire array and added to the array. (Id., 19:3-12.)

29. Finally, the packed bit array is converted to an alpha-numeric form suitable for oral or written communication to produce the registration code. (Grundy, 19:13-18.) The block diagram in Figure A below is my interpretation of how Grundy generates the registration code, which is a packed bit array:

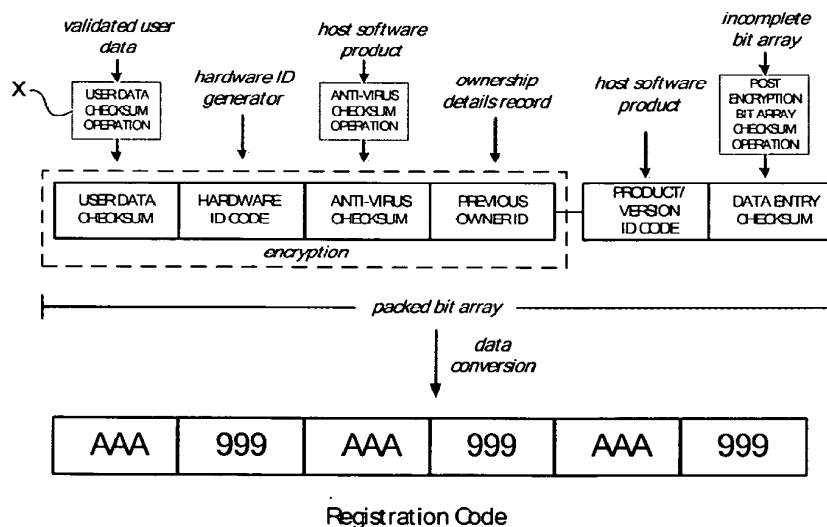


Figure A: Block diagram of Grundy's concatenated registration code

30. As illustrated in the block labeled “X,” the operation that comprises the checksum of the user data component fields is a preliminary step for generating only the data that will later occupy the USER DATA CHECKSUM field of the packed bit array.

31. Thus, the premise relied upon in the Second Action that Grundy produces a registration code by “performing a checksum of the user data component fields” (Second Action, p. 14) is not correct.

32. Further, the checksums described in Grundy are not cryptographic functions, but rather appear to be used to check for typographical data entry errors or transmission errors.

33. While the usual checksums are useful in detecting accidental modification such as corruption to stored data or errors in a communication channel, they provide no security against a malicious agent as their simple mathematical structure makes them trivial to circumvent. To provide this level of integrity, the use of a cryptographic hash function is necessary.

34. In one example, Grundy states for one of the checksums that “[t]his checksum will be used by the Manufacture Control Agency to avoid operator data-entry errors 304.” (Grundy, 19:6-8; *see also* Grundy, 15:13-24.) For another checksum, Grundy states that “[i]f the user data validity check 502 passes, a checksum of the user data is created 505. This checksum will be used during the Authorization process as a cross-reference to validate the user data as communicated to the Manufacture Control Agency 310 FIG. 3.” (Grundy, 18:25-29.)

35. Grundy thus describes several conventional uses for simplistic checksums, which I describe in more detail next.

36. A checksum is a value that (a) is computed by a function that is dependent on the contents of a data object and (b) is stored or transmitted together with the object, for the purpose of detecting changes in the data. A checksum algorithm is a signature algorithm that does not attempt to provide cryptographic protection against inversion. The term “checksum” originally referred to checking algorithms that summed the bytes, but is now generally used to refer to any non-cryptographic checking algorithm.¹

37. This is consistent with a contemporaneous definition of “checksum” from the time the application leading to the ‘216 patent was filed, which defines a “checksum” as:

a calculated value that is used to test data integrity. Errors can occur when data is transmitted or when it is written to disk. One means of detecting such errors is use of a checksum, a value calculated for a given chunk of data by sequentially combining all the bytes of data with a series of arithmetic or logical operations. After the data is transmitted or stored, a new checksum can be calculated (using the possibly faulty transmitted or stored data) and compared with the original one. If the checksums don't match, an error occurred, and the data should be transmitted or stored again; if they do match, the transmission or storage was probably error-free. Checksums are a simple validation mechanism, and they cannot be used to correct erroneous data.²

38. Grundy's use of checksums is consistent with their conventional use in data entry error checking and identifying possible transmission errors.

¹ *Computer Dictionary, The Comprehensive Standard for Business, School, Library, and Home*, Microsoft Press (1991) (Exhibit P-2).

² See also Bauspiess and Damm, *Requirements for Cryptographic Hash Functions*, , *Computers & Security*, 427-437, Vol. 11 (1992) (Exhibit P-3), and Paul Fahn, *Answers to Frequently Asked Questions About Today's Cryptography*, RSA Laboratories, (Sept. 1992) (Exhibit P-4).

39. Grundy's checksums are quite distinct from cryptographic functions, which are used for different applications. If Grundy's checksums were to be used for security applications, for example, they would be vulnerable to attack. For example, a checksum's linearity may be exploited by a malicious adversary.

Evaluation of the Factual Basis Underlying the Proposed Modification of Hellman in View of Grundy

40. The Second Action makes a number of factual assertions regarding Hellman and Grundy with which I disagree.

41. The Examiner states that "it is noted that Hellman stresses that the use of alternative algorithms might be advantageous, particularly an algorithm that could be computed more rapidly...." (Second Action, p. 14; *citing* Hellman, 7:67 – 8:12.) Because the discussion is in the context of generating a unique ID, I presume that the Examiner is referring to alternative algorithms to be used in Hellman's cryptographic function generator.

42. This is confirmed in the next paragraph in the Second Action, where the Examiner states that "Grundy discloses an analogous algorithm for unique ID generation, wherein the unique ID, a registration code, is produced by performing a checksum of the user data component fields...." (Second Action, p. 14, *citing* Grundy, 15:3-23 and 18:25-29.)

43. The Examiner then concludes that "[t]herefore, it would have been obvious to modify the invention of Hellman by using an algorithm ... having summation, as taught by Grundy, that could be computed more rapidly." (Second Action, p. 14.)

44. I believe that the factual premises on which the Examiner relies to support the conclusion that one of ordinary skill in the art would have modified Hellman's cryptographic function generator to use the checksum algorithms described by Grundy are technically incorrect. I also, therefore, disagree with the conclusion itself.

45. First, when Hellman is referring to alternative algorithms that could be computed more rapidly, I understand Hellman to be referring to the "one-way hash function 22," and not to the cryptographic function generator, as alleged by the Examiner. This is facially apparent from Hellman itself when one reads the entire context surrounding the portion upon which the Examiner relies (Hellman, 7:67 – 8:12). The paragraphs immediately preceding the portion on which the Examiner relies (Hellman, 7:31-66) clearly refer to the one-way hash function 22 and not to the cryptographic function generator 23. The Examiner has thus misinterpreted Hellman.

46. Second, Grundy's checksums are not analogous functions to those used in Hellman's cryptographic function generator. As I have explained above, they simply do not rise to the class of cryptographic function that Hellman states are "*required to carry out the present invention*" (Hellman, 2:61-65).

47. For example, a cryptographic hash function may have the following significant characteristics:

- Preimage resistance: Given a hash H it should be difficult to find any message M such that $H = \text{hash}(M)$. This concept is related to that of one-way function. Functions that lack this property are vulnerable to preimage attacks.
- Second preimage resistance: Given an input M1 it should be difficult to find another input M2 — where $M1 \neq M2$ — such that $\text{hash}(M1) = \text{hash}(M2)$. This property is sometimes referred to as weak collision resistance, and functions that lack this property are vulnerable to second preimage attacks.

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- Collision resistance: It should be difficult to find two different messages M1 and M2 such that $\text{hash}(M1) = \text{hash}(M2)$. Such a pair is called a cryptographic hash collision. This property is sometimes referred to as *strong collision resistance*. It requires a hash value at least twice as long as that required for preimage-resistance.

48. Cryptographic hash functions are therefore computationally demanding. They are typically used in contexts where it is necessary for users to protect themselves against the possibility of forgery by a malicious adversary.

49. Public key encryption and DES, which are mentioned by Hellman, also share similar cryptographic features as the described cryptographic hash function. They are also, by design, computationally expensive.

50. For the above noted reasons, I disagree with the factual premises on which the Examiner relies to justify modifying Hellman's cryptographic function generator by replacing its cryptographic functions with the checksum algorithms described by Grundy. The Examiner has technically misinterpreted Hellman. And that misinterpretation notwithstanding, Grundy's checksum algorithms simply do not provide cryptographic functions that Hellman explicitly states are required to carry out his invention.

51. For these reasons, I disagree with the Examiner's conclusion that a person of ordinary skill in the art would have modified Hellman's cryptographic function generators by replacing them with the checksum algorithms described by Grundy. If one were to combine Hellman and Grundy in the manner suggested by the Examiner, it would render Hellman inoperable for its intended purpose.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the '216 patent.

Executed this 17th day of March 2011 in College Station, Texas.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Udo Pooch", written in a cursive style.

Dr. Udo W. Pooch

RICHARDSON, III
Reexam of Pat. No. 5,490,216
Reexam Control No.: 90/010,831

Exhibit P-1
Dr. Udo W. Pooch
Curriculum Vitae

Atty. Dkt. No. 2914.001REX0

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UDO W. POOCH

As of: July 9, 2010

I. CONTACT INFORMATION

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II. PERSONAL INFORMATION

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III. EDUCATION:

Ph.D., Theoretical Physics, University of Notre Dame, 1969

B.S., Physics, University of California (L.A.), 1963

IV. PROFESSIONAL LICENSES:

Registered Professional Engineer, (Texas) License No. 38659 (1973)

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Computer Science

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- Fault Tolerant Systems
- Performance, Measurement and Evaluation
- Computer Networks and Data Communications
- Real-time Systems
- Computer Architecture
- Computer Law
- Computer System Security
- Artificial Intelligence
- Simulation

Operations Research

Theoretical Physics

Psychometrics and Statistics

VI. SOCIETIES

A. Professional Societies:

Association of Computing Machinery

- SIGMAP
- SIGGRAPH
- SIGACGI
- SIGBDP
- SIGME
- SIGMICRO
- SIGPLAN
- SIGOPS
- SIGMINI
- SIGART
- SIGACT
- SIGARCH

Simulation Councils, Inc.

SIAM

Operations Research Society of America

American Statistical Association

IEEE/CS (Senior Member - elected 1982)

B. Honor Societies:

Sigma Xi

Upsilon Pi Epsilon

Sigma Pi Sigma

VII. EXPERIENCE:

A. Educational:

Professor Emeritus of Computer Science, Computer Science Department, Texas A&M University, June 2009 - present

Endowed E-Systems Professorship of Computer Science, January 1993 – August 2008, Computer Science Department, Texas A&M University

Professor of Computer Science, Computer Science Department, Texas A&M University, September 1980- May 2009.

Associate Professor of Computer Science, Industrial Engineering Department, Texas A&M University, September 1974 - August 1980.

Visiting Professor of Computer Science, University of Hawaii, Summer 1976, Summer 1977.

Technical Coordinator, Summer Institute of Minicomputers, Texas A&M Extension Service, Summer 1976, Summer 1977.

Instructor, University Extension, University of California at Santa Cruz, 1973, 1974.

Computer Consultant, Texas Transportation Institute, Texas A&M University, September 1971 - 1973.

Member, Computer Science Consultation Group, Texas A&M University, February 1970 - 1972.

Member, Graduate Faculty, Texas A&M University, September 1969 - present.

Assistant Professor of Computer Science, Industrial Engineering Department, Texas A&M University, September 1969 - 1974.

Research Assistant, University of Notre Dame, 1968 - 1969.

Teaching Assistant, University of Notre Dame, 1966 - 1968.

B. Industrial:

Consultant, Comspect, Inc., Houston, Texas, 1973 - 1978.

President, Micro Systems Technology Inc., College Station, Texas 1978 - present.

Partner, Applied Computing, Bryan, 1973 - present.

President, Independent Computer Consultants Inc., College Station, Texas, 1973 - present.

Consultant, USAF via QUEST Research Corp., 1971 - 1978.

Consultant, Computer Graphics International, 1969 - 1970.

Independent Consultant in Computer and Operations Research Field, Decision System Associates, Inc., (3 1/2 years).

Consultant, Telic Computers International, Dallas, 1983.

Consultant, Tracor, 1984, 1988.

Consultant, NASA-Marshall Space Flight Center, 1983-1984.

Consultant, U.S. Air Force Electronic Security Command, 1984.

Consultant, IBM (FSD)-NASA, 1984-1985.

Consultant, IBM - Austin (University Education), 1981-1985.

Consultant, IBM - Quality Institute, Danbury Connecticut, 1984 - 1986.

U.S. Air Force Scientific Advisory Board, Member, 1986 - 1987.

R&D Council on Advertising Performance, Research & Development, Member, 1986 - 1987.

Panelist, National Research Council Office of Scientific and Engineering Personnel, Fellowship Programs, 1989-90.

Consultant to Tracor, Austin (1988), Technology Forecast for US Air Force.

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Member, IEEE 802.x Standard Committee, 1991-92.

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Merle Collins Foundation (1977) - Design and Development of PASCAL Compilers/Run time environment for H3000.

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D. Ben and Associates (1990-91, 93, 94, 95)

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Winston and Strawn, Chicago, 2000 (Thomas Wiegand).
M. Fletcher Reynolds, Dallas, 2000 (M. Fletcher Reynolds).
Locke, Liddell and Sapp, Dallas, 2000, (Peggy Hall).
Haynes and Boone, Dallas, 2001, (David McCombs).
Jenkins and Wilson, Durham, 2001, (Gregory Hunt).
Fletcher and Springer, Dallas, 2001, (Lenny Vitullo).
Malesovas, Martin, and Tekell, Waco, 2001, (John Malesovas).
Susman Godfrey, Dallas, 2001, (Barry Barnett).
Law, Snakard, and Gambill, Forth Worth, 2001, (Ed Huddleston).
Haynes and Boone, Dallas, 2001, (Phillip Philbin).
Wickwire Gavin, Vienna, 2001, (Brian Waagner).
Bracewell and Patterson, Houston, 2001, (John Edmonds).
Michael A. Hirsch, Houston, 2002, (Michael A. Hirsch).
Locke Liddell and Sapp, Dallas, 2002, (Jerry Clements).
Haynes and Boone, Dallas, 2002, (Don Templin).
Fennigan, Henderson, Favabrow, Garrett and Dunner, Washington DC, 2002, (Dan Binstock).
Seigfreid, Bingham, Levy, Selzer and Gee, Kansas City, 2002, (Paul Schepers).
Orgain, Bell and Tucker, Beaumont, 2002, (Gary N. Reger).
Carrington Coleman Sloman & Blumenthal, Dallas, 2003, (James Cox)
Heller Ehrman White & McAuliffe, San Francisco, 2003 (Chris Martiniak, Robert Fram)
Sussman Godfrey, Dallas, 2003, (Barry Barnett, Ophelia Camina)
Vinson Elkins, Houston, 2003, (John Edmonds, Scott Fletcher)
Brown McCarroll, Dallas, 2003, (Blake Bailey)
Stone Pigman Walther Wittman & Hutchison, New Orleans, 2003, (John Landis)
Vinson & Elkins, Houston, 2003, (Steve Borgman)
Warren & Kennedy, Irving, 2003, (Stephen Kennedy, Ruben DeLeon)
Blakeley & Reynolds, San Antonio, 2003, (Brett Reynolds)
Malesovas & Martin, Waco, 2003, (John Malesovas)
Fee, Smith, Sharp & Vitullo, Dallas, 2003, (Anthony Vitullo)
The Reaud Law Firm; Orgain, Bell & Tucker; Beaumont, 2003, (Gary Reger, DeWayne Layfield)

Freedman Boyd Daniels Hollander Goldberg & Cline, Albuquerque, 2003, (John Boyd)
Fine Kaplan & Black, Philadelphia, 2003, (David Romine)
Greenberg & Traurig, Phoenix, 2003, (Jeffrey Walsh)
Anthony Ostlund & Baer, Minneapolis, 2003, (Joseph Anthony)
LeBoeuf Lamb Greene & MacRae, Boston, 2003, (Allen Horsley)
Lamson Law Firm, Houston, 2003, (Mike Lamson)
Hogan & Hartson, New York, 2003, (Frank Spano)
Godwin Gruber, Dallas, 2003, (Michael Gruber)
Edwards & Angel, Boston, 2003, (Barbara Moore)
Hughes & Luce, Dallas, 2003, (Mark Sales)
Baren Riley Warnock & Jacobson, Nashville, 2004, (Steven Riley)
Geiser & Johnston, Birmingham Ala., 2004, (Ron Geiser)
Winstead Sechrest & Minik, Dallas, 2004 (Daniel Perez)
Anthony Ostlund & Baer, Minneapolis, Minn., 2004 (Richard Ostlund)
Liesler Meyer, San Francisco, CA (Thomas Ward)
Blake, Dawson, & Waldron, Syney, Australia, 2005 (Sophie Dawson)
Wong Abello, Houston, Texas, 2005 (Lou Bruccleri)
Rogers & Hardin, Atlanta, Georgia, 2005 (Dan Zegura)
David Goodman & Madole, Dallas, Texas, 2005 (Bob Palmer)
Herum Crabtree Brown, Stockton, CA, 2005 (Jennifer Whipple)
Coats Rose Yale Ryman, Houston, Texas, 2005 (James Collura)
Susman Godfrey, Dallas, Texas, 2006 (Michael Fritz)
Womble Carlyle Sandridge & Rice, Winston Salem, NC, 2006 (Michael Sullivan)
Potter Law Group, Indianapolis, Ind., 2006 (James Geiger)
Fish & Richardson, San Diego, CA, 2006 (John Guist)
Susman Godfrey, Houston, Texas, 2006 (Michael Lee)
Susman Godfrey, Houston, Texas, 2006 (Stephen Susman)
Susman Godfrey, Dallas, Texas, 2006 (Ophelia Camina)
Stippe, Brussels, Belgium, 2007 (Frederic Debussere)
Susman Godfrey, Houston, Texas, 2007 (Brian Melton)
Mathews, Lawson, Bowick & Al-Azem, Houston, Texas, 2007 (Guy Matthews)
Godwin, Pappas, Ronquillo, Fort Worth, Texas, 2007, (Bruce Bowman)

Susman Godfrey, Dallas, Texas, 2007 (Ophelia Camina)
McKool Smith, Dallas, Texas, 2007 (Jason Cassady)
Darby & Darby, Seattle, Washington, 2007 (David Tellekson)
Law Offices Stephan Kennedy, Dallas, Texas, 2008 (Stephen Kennedy)
Etheridge Law Group, Southlake, Texas, 2009 (Jim Etheridge)
Chernoff, Vilhaner, McClung & Stenzel, Portland, Oregon, 2009 (Kevin Russell)
Dovel & Luner, Santa Monica, California, 2009 (Richard Lyon, III)
Irell & Manella, Los Angeles, California, 2009 (Christopher Kennedy)
Baker & McKenzie, Houston, Texas, 2010 (Myall S. Hawkins)
Cooley, Godward, Kronish, San Francisco, California, 2010 (James P. Brogan)
King Spalding, Atlanta, Georgia, 2010 (Chad Pannell)

D. Military:

USMC 1963 - 1966 CPL. (Honorable Discharge)
Research Assistant and Computer Programmer Involved in Approximately 20 Major Military Operations Research Programs.
Meritorious Commendation and Award: Commanding General, USMC, San Diego, 1966.
Letter of Commendations; Officer in Charge, U.S. Naval Personnel Research Activity, 1966.

VIII. PUBLICATIONS:

A. Thesis

"Broken Internal Symmetries and Mass Sum Rules in S-Matrix Theory," Thesis-University of Notre Dame, 1969.

B. Books, Book Chapters, and Contributions to Books

Monograph-Microprocessors, Microprogramming, and Minicomputers, Editor with R. Chattergy. Western Periodicals. September 1977.

Designing Microcomputer Systems, with R. Chattergy. Hayden Book Company. June 1979.

Simulation, with W. Graybeal. Little, Brown and Company. January 1980.

Top-Down Modular Programming in FORTRAN with WATFIV, with R. Chattergy. Little, Brown and Company. January 1980.

Minicomputers: Structure, Application and Programming, with R. Chattergy. Western Publishing Co., Inc. February 1980.

Topics in Programming Languages (Monograph), Editor with R. Chattergy. Western Periodicals. Spring 1980.

"Toward a Management Philosophy for Software Development," Chapter 1 in *Advances in Computer Programming Management*. Heyden & Son, Inc. Spring 1981.

Telecommunications and Networking Concepts, with G. Moss and B. Greene. Little, Brown and Company. September 1982.

"Comparative Evaluation of Networks and Protocols," Chapter 5 in *Advances in Data Communications Management*, Volume 2 (edited by J. Solnim, E.A. Unger, and P.S. Fisher). Wiley-Heyden. 1984.

Library of Turbo Pascal Programs, with Murat Tanik. Wordware Publishing, Inc. Spring 1987.

Advanced Programming Techniques in Turbo Pascal, with Murat Tanik and Salih Yurttas. Wordware Publishing, Inc. 1988.

Illustrated QuickBasic 4.0, with M. Tanik, and V.V. Hari. Wordware Publishing, Inc. 1989.

An Ada Courseware, Version 4.1.4 (Open Ada Macintosh), with M. Tanik. Meridian Software Systems, Inc., Irvine, CA. 1989.

An Ada Courseware (Revised), Version 4.1.4 (Open Ada Macintosh), with M. Tanik. Meridian Software Systems, Inc., Irvine, CA. 1992.

Telecommunications and Networking, with D. Machuel and J. McCann. CRC Press Inc., Boca Raton, FL. 1993.

Discrete Event Simulation: A Practical Approach, with James Wall. CRC Press Inc., Boca Raton, FL. 1994.

Computer System and Network Security, with G.B. White and E. Fisch. CRC Press Inc., Boca Raton, FL. 1995.

Distributed Simulation, with John Hamilton and Dave Nash. CRC Press Inc., Boca Raton, FL. 1997.

Secure Computer Networks, with G. B. White and Eric Fisch. CRC Press Inc., Boca Raton, FL. 1999.

"JAGATH: A Methodology and Its Application for Distributed Systems Performance Evaluation and Control" with Sunil Santha. Included in *Lecture Notes in Computer Science*, Vol. 1469, Springer-Verlag, Berlin. 1998.

Chapter 53 - "Network Simulation," with J. Hamilton, J., and W. Marti, in The Networking Handbook, CRC Press, Boca Raton, FL, (accepted, pending publication).

Chapter "Security and Dynamic Encryption System in Mobile Ad-Hoc Network," with Peter Yu, in Theory and Applications of Ad Hoc Networks, INTECH (2010, accepted for publication).

C. Technical Papers - Journals:

- "Broken Symmetry Mass Formulas for the JP = 1/2 + Baryon Octet for S-Matrix Theory," *Physics Review D*, 1(10): 2955-2961, May 15, 1973.
- "A Survey of Indexing Techniques for Sparse Matrices," *Computing Surveys*, 5, 2, June 1973.
- "SEQUIN: A Computerized Item Selection Procedure," *Behavior Research Methods and Instrumentation*, Vol. 6, (1), January 1974.
- "Programming Techniques: An Interactive Teaching Approach," *Transactions Computers in Education (ASEE)*, 6, 5, May 1974.
- "Translation of Decision Tables," *Computing Surveys*, 6, 2, June 1974.
- "Computer Graphics, Interactive Techniques, and Image Processing: A Bibliography," *Computer*, 9, 8, August, 1976.
- "An Adaptive On-Line Data Compression System," Co-authored with Dennis Dance, *British Computer Journal*, 19, 3, November, 1976.
- "Software Development Management," Co-authored with Philip F. Gehring, Jr., *Data Management*, Vol. 15, 1, February 1977.
- "Integrated Design and Verification of Simulation Programs," Co-authored with Rahul Chattergy. *Computer (special issue on Simulation)*, Ira Kay (guest ed.), 10, 4, April, 1977.
- "Computer Simulation: A Tutorial," Co-authored with Gerald Adkins. *Computer (special issue on Simulation)*, Ira Key (guest ed.), 10, 4, April, 1977. Also included in "Selected Reprints in Software", Edited by M.V. Zelkowitz, IEEE Computer Society, Long Beach, Ca., 1980.
- "A New Technique For the Fast Minimization for Switching Functions," Co-authored with V.T. Rhyne, P.S. Noe, M.H. McKinney, *IEEE TC*. Vol. C-26, No. 8, August 1977.
- "Continuing Education in Computer Science," Co-authored with Rahul Chattergy. *Computer Magazine* 10, 12, December, 1977.
- "A Review of Classification Schemes in Computer Communications Networks," Co-authored with William Greene. *Computer* 10, 11, (November 1977). Also included in "Computer Networks: A Tutorial", edited by M. Abrams, R. P. Blanc, and Ira W. Cotton, IEEE Computer Society, Long Beach Ca., 1976.
- "Analysis of the Availability of Computer Systems Using Computer - Aided Algebra", Co-authored with Rahul Chattergy, *Communications of the ACM*, 21(7), July 1978.
- "Education/Training," Co-authored with G. Aiken, R. Austing and R. Chattergy, *Computer*, 11, 9 (September 1978).
- "A Distributed Function Computer with Dedicated Processors for Time-Sharing," Co-authored with Rahul Chattergy, *British Computer Journal*, 22, 1, Feb. 1979.
- "Design of Calibration Experiments for Synthetic Jobs", Co-authored with W. Graybeal, *British Computer Journal*, 24, 1, February 1981.

"Measurement Bias in Feedback Queues", Co-authored with G. Adkins, et.al., *JACM.*, 28, 2, April 1981.

"Algorithms for a Nonlinear Multiprocessor Scheduling Problems", Co-authored with C. Price. *Journal for Discrete Mathematics*, 1982.

"A Survey of Microprogram Verification and Validation Methods", Co-authored with T. Lucido, R. Chattergy, *British Computer Journal*, 24, 2, May 1981.

"Search Techniques for a Nonlinear Multiprocessor Scheduling Problem," Co-authored with C. Price, *Naval Research Logistics Quarterly*, 29, 2, June 1982.

"A Sizing and Timing Analysis of an Integrated Computer Network Simulator," Co-authored with M. Kiemele, *Modeling*, 19, 2, December 1983.

"Fast Prototyping of a Goal-Oriented Simulation Environment System," Co-authored with D. Umphress, and M. Tanik, *British Computer Journal*, Vol. 32, No. 6, June 1989.

"Accelerated Time Discrete Event Simulation in a Distributed Environment," Co-authored with D. Cook, *International Journal of Systems Science*, Vol. 3, No. 2, pp. 1-28,1992.

"A Characterization of the Operation of the PACSAT-1 Digital Communications Satellite," Co-authored with R. Diersing, *IEEE Journal Selected Areas in Communications*, Vol. 13, No. 11, 1992.

"A Unix Network Protocol Security Study: Network Information Services," Co-authored with D.K. Hess and D. Safford. *Computer Communication Review*, Vol. 22, No 5, October 1992.

"Phoenix - A Robust Fault Tolerant Distributed Environment," Co-authored with D. Safford, *Journal of Parallel and Distributed Computers*, March 1993.

"Getting Inside Your Local Area Network: Tools, Techniques, and Resources," Co-authored with J. Hamilton, G. Ratteree, P. Brutch, A. Karmarkar, C. Cunningham and E. Fisch. *Crosstalk*, vol. 8, no. 1, pp. 19-23,Jan. 1995.

"A Toolkit for Monitoring the Utilization and Performance of Computer Networks," Co-authored with J. Hamilton and G. Ratteree. *Simulation*, vol. 64, no. 5, pp. 297-301, May, 1995.

"Problems with DCE Security Services," Co-authored with G. B. White. *Computer Communication Review*, vol. 25, no. 5, pp. 5-12,Oct. 1995.

"Cooperating Security Managers: A Peer-based Intrusion Detection System," Co-authored with G. B. White and E. Fisch. *IEEE Network Magazine*, IEEE Press, Jan./Feb. 1996,20-23.

"A Software Engineering Perspective on Distributed Simulation," Co-authored with J. Hamilton and D. Cook. *Crosstalk*, vol. 9, no. 2, pp. 13 – 16, February 1996.

"Public Domain Tools for Modeling and Simulating Computer Networks," Co-authored with J. A. Hamilton, G. Ratteree, and P. Brutch. *Simulation*, vol. 67, no. 3, pp. 161 – 170, September 1996.

"Cooperating Security Managers: Distributed Intrusion Detection System," Co-authored with G. B. White. *Computer & Security*, vol. 15, no. 5, pp. 441 – 450, September/October 1996.

- “Propagating Updates in Uni-directional Communication Environment,” Co-authored with Gurijala, A., *International Journal of Parallel and Distributed Systems and Networks*, Spring 1998.
- "Indicators of UNIX Host Compromise," Co-authored with Brutch, P., and Brutch, T., *USENIX ;login.*, Special Edition, pp. 30-35, September 1999.
- "Simulations During Operations," Co-authored with Surdu, J., *Army RD&A Journal*, pp. 34-35, September – October 1999.
- "Towards a Concurrent Theory of Combat: A Parallel Processing Approach," Co-authored with Hamilton, J., and White, G., *Military Review, the Professional Journal of the U.S. Army*, November-December 1999
- "Simulation Technologies in the Mission Operational Environment." Co-authored with Surdu J., *Simulation, the Journal of the Society for Computer Simulation*, vol. 74, no. 3, pp. 138-161, March 2000.
- "Simulation During Operations," Co-authored with Surdu, J., *Military Review, the Professional Journal of the U.S. Army*, pp 38-45, March – April 2001.
- "Web User Studies: A Review of Current and Framework for Future Research," Co-authored with Jansen, B., *Journal of the American Society for Information Science (JASIS)*, 52(3), pp 235-246, 2001.
- "A Methodology for Using Intelligent Agents to Provide Automated Intrusion Response," Co-authored with C. A. Carver, Jr., J. M. D. Hill, and J. R. Surdu, accepted in *Transactions (Special Issue) of the IEEE Systems, Man, and Cybernetics Society*.
- "An Interactive Design, Visualization, and Analysis Tool for Information Flow over a Tactical Data Network," Co-authored with J. M. D. Hill, J. R. Surdu, C. A. Carver, Jr., J. Vaglia, *Simulation Journal - Special Issue on Simulation and Visualization*, September/October 2001.
- " Technologies on social issues of videoconferencing on the Internet: a survey," Co-authored with Kouadio, M., *Journal of Network and Computer Applications (Academic Press)*, 25(1), pp 37-56, January 2002.
- “A Taxonomy of Design Considerations for Internet Accountability,” Co-authored with M. Kouadio, *ACM Computer Communication Review*, vol. 32, no. 5, pp , 2002.
- “Simulations During Operations,” Co-authored with John R. Surdu, *Military Review, Vol. LXXXIII, No. 4*, pp15-23, July-August 2003.
- “Assisting the searcher: utilizing software agents for Web search systems,” Co-authored with Jim B. Jansen, *Journal of Internet Research: Electronic Networking Applications and Policy*, 14(1), pp.19-33, January 2004.

D. Technical Papers - Conferences

- "A Storage Re-utilization Technique," *Proc. Third Annual Houston Conference on Computer and System Science*, pp. 106-115, April 26, 1971.

"The Design of a Computer Throughput and Output Processing Simulation Systems," *Computer Science Conference*, Columbus, Ohio, February 20, 1973.

"A General Purpose Microprogrammable Emulator," *1973 Southwestern Institute of Electrical and Electronics Engineers Conference*, Houston, April 4-6, 1973.

Pedestrian Injury Models, *Third International Congress on Automobile Safety*, July 15-17, 1974, San Francisco, California.

"A Performance Optimization Model of Processor Scheduling," Co-authored with T. Cary, *8th Hawaii International Conference on System Science*, January 7-9, 1975.

"Self-Adaptive Teleprocessing Network Design," , Co-authored with H. Livings, *Proc. Trends and Applications 1975: Computer Networks* (NBS-IEEE sponsored) Gaithersburg, Maryland, June 18, 1975.

"A Generalized Optimization Search Procedure for Multiple Subsystem Scheduling," Co-authored with Thomas Reeves, *Proc. 1975 Summer Computer Simulation Conference*, San Francisco, California, July 21-23, 1975.

"Computer Simulations of the Two-dimensional Flow of Heat and Moisture in Soils with Irregular Surfaces, Sources, and Sinks," Co-authored with C. Schroeder and D. DeMichele, *Proc. 1975 Summer Computer Simulation Conference*, San Francisco, California, July 21-23, 1975, (invited paper).

"A Multiple Subsystem Simulator of Processor Scheduling," Co-authored with Thomas Reeves, *Proc. 3rd Symposium on the Simulation of Computer Systems*, Boulder, Colorado, August 12-14, 1975.

"An Adaptive File Management System," Co-authored with Dennis Dance, *Proc. Second National Symposium on the Management of Data Elements in Information Processing*, NBS, Washington, D.C., October 23-24, 1975.

"A Measure for Program Locality in Demand Paging," Co-authored with Robert Hedges, *Proc. ACM 1975*, Minneapolis, Minnesota, October 20-22, 1975.

"Axiomatic Theory of Graphics Operators," Co-authored with F. Menkello, *4th Texas Conference on Computer Systems*, Austin, Texas, November 17-18, 1975.

"Minicomputer System Selection and Evaluation: Part I: Procedure," *4th Texas Conference on Computer Systems*, Austin, Texas, November 17-18, 1975.

"Minicomputer System Selection and Evaluation: Part II: Example of Procedure," *4th Texas Conference on Computer Systems*, Austin, Texas, November 17-18, 1975.

"An Application of a General Purpose Microprogrammable Emulator," *9th Hawaii International Conference on System Science*, January 6-8, 1976, Honolulu, Hawaii.

"Modelling, Simulation and Validation of Computer Systems - A Tutorial," *9th Hawaii International Conference on System Science*, Honolulu, Hawaii, January 6-8, 1976.

"Time-sharing Analysis Combining Processor Scheduling and Memory Resources," Co-authored with E. McCarthy, *ORSA/TIMS Special Interest Conference on Scheduling*, Orlando, Florida, February 4-6, 1976.

"A Generalized Iterative Optimization Procedure," *Ninth Annual Simulation Symposium*, Tampa, Florida, March 17-19, 1976.

"Economic Implications of Microcomputer Design," *Trends & Applications 1976: Micro & Minisystems*, Gaithersburg, Maryland, May 27, 1976.

"Mini and Microcontrolled Process Applications," *Trends & Applications 1976: Micro & Minisystems*, Gaithersburg, Maryland, May 27, 1976.

"Optimization Techniques Applied to the Simulation of Heat and Moisture in Soils," Co-authored with Charles Schroeder. *9th Hawaii International Conference on System Sciences*, Honolulu, Hawaii, January 6-8, 1976. Included in *Selected Papers on Simulation*, Rahul Chattergy (Ed.), Western Periodicals, 1976.

"A Communications Computer Simulation System (C2S2)," *1976 Summer Computer Simulation Conference*, Washington, D.C., July 12-14, 1976.

"A User-Oriented Computer Graphics Systems," *Third Annual Computer Graphics Conference*, Philadelphia, Pennsylvania, July 14-16, 1976.

"A Heuristic Teleprocessing Network Design Technique," Co-authored with Hal Livings, *4th Annual Symposium on the Simulation of Computer Systems*, Boulder, Colorado, August 10-12, 1976.

"Dynamic Clustering Strategy in a Demand Paging Environment," *4th Annual Symposium on the Simulation of Computer Systems*, Boulder, Colorado, August 10-12, 1976.

"Modified Locality Matrix Model (MLMM) - Dynamic Clustering Strategy in a Demand Paging Environment," Co-authored with David Burris, *Proc. National ACM Conference*, Houston, Texas, October 20-22, 1976.

"An Analytical Page Fault Model Combining Processor Scheduling and Memory Resources," Co-authored with Edmond McCarthy, *Fifth Texas Conference on Computing Systems*, Austin, Texas, October 18-19, 1976.

"The Implication of a Programmable Bus Architecture on Microprogramming," Co-authored with Dan D. Drew, Invited paper to *HICSS-10 (10th Hawaii International Conference on System Science)*, January 5-7, 1977, Honolulu, Hawaii. Also, in a Monograph (Eds: U.W. Pooch and Rahul Chattergy) *Microprocessors, Microprogramming, and Minicomputers*, Western Periodicals, September 1977.

"A Simulation Study of the IBM 370/168 and AMDAHL 470V/6", Co-authored with Gerald Adkins, *Tenth Annual Simulation Symposium*, Tampa, Florida, March 16-18, 1977.

"Performance Measuring for On-line Data Base Systems," *First Annual Army Software Symposium*, Ft. Belvoir, Virginia, May 23-24, 1977.

"A Proposed Program for Continuing Education for the IEEE Computer Society," Co-authored with Dr. Rahul Chattergy, *Computer Science and Engineering Model Curricula Workshop*, Williamsburg, Virginia, June 6-7, 1977.

"A Quantitative Analysis of Estimating Accuracy in Software Development," Co-authored with Philip Gehring. *ACM 16th Annual Tech. Symposium*, June, 1977, Gaithersburg, Maryland.

"A Distributed Function Computer for Time-sharing," Co-authored with Rahul Chattergy. *Comcon* (Fall) 1977, Washington, D.C., September, 1977.

"Dynamic Cluster Model," Co-authored with David Burris. *ACM National Conference*, 1977, Seattle, Washington, October, 1977.

"Model of a Multiprogrammed Computer System with a Multilevel Memory Hierarchy," Co-authored with Don Warner. *ACM National Conference*, 1977, Seattle, Washington, October, 1977.

"Evaluation of Virtual Memory Paging Systems," Co-authored with Tom Nute. *6th Texas Conference on Computer Systems*, Austin, Texas, November, 1977.

"An Extension of the Central Server Model," Co-authored with Don Warner. *1977 Winter Simulation Conference*, Gaithersburg, Maryland, December 1977.

"Minicomputers - Microcomputers: A Role in Data Communication," Co-authored with G.N. Williams. *HICSS - 11*, Honolulu, Hawaii, January 1978.

"Real-time Applications which can be Implemented with Minicomputers and /or Microcomputers," Co-authored with Don Warner, *HICSS - 11*, Honolulu, Hawaii, January 1978.

"Education/Training: A Continuing Education Outlook," Co-authored with R. Chattergy, *Problems of the 80's: The Oregon Report on Computing*, March 20-22, 1978 Portland, Oregon.

"A Computer Page - Fault Analysis Using Analytical, Simulation, and Real System Data," Co-authored with G. Adkins, G.N. Williams. *Invited paper to ORSA*, New York, NY, May 1978.

"A Simulation Model for Arbitrarily Connected Communications Networks," Co-authored with R. Chattergy and Charles Neblock. *Invited paper to ORSA*, New York, NY, May 1978.

"Design of Synchronous Parallel Processors with Chip-Slices," Co-authored with Rahul Chattergy; *Second Rocky Mountain Symposium on Microcomputers*, Pingree Park, Colo., August 23-30, 1978.

"Loop - Free Distributed Adaptive Routing", Co-authored with Charles Neblock; *4th International Computer Communications Conference*, Kyoto, Japan, Sept. 26-29, 1978.

"Simulation of Heat and Moisture Flow in Soils", Co-authored with C. Schroeder, D.W. DeMichele, and B. Teague. *Simulation* 31, 4, October 1978.

"Distributed Network Performance Monitoring: A Critical Review", Co-authored with W. Greene, *12th Hawaii International Conference on System Science*, January 4-5, 1979, Honolulu, Hawaii.

"Classification of Flow Control Strategies in Distributed Computer-Communications Networks," Co-authored with C. Clabaugh, S. Jones, *12th Hawaii International Conference on System Science*, January 4-5, 1979, Honolulu, Hawaii. P.2-5.

"A Simulation Model for Network Routing" Co-authored with R. Chattergy, C. H. Neblock, *1979 Winter Simulation Conference*, December 3-5, 1979, San Diego, CA.

"A Quantitative Analysis of Software Estimation," Co-authored with P. Gehring, *8th Texas Computer Conference*, November 12-13, 1979, Dallas, Texas.

"An Integrated Packet/Circuit Switched Network Simulator," Co-authored with C. Clabaugh, *13th Hawaii International Conference on System Science*, January 4-5, 1980, Honolulu, Hawaii.

"The Emerging Role of Mini and Microcomputers in Control Engineering," *ASME Century 2 International Computer Technology Conference*, August 12-15, 1980, San Francisco.

"The Design of an Integrated Packet/Circuit Switched Network Simulator," in Vol. 5 (Ed. Manfred Ruschitzka) *Parallel and Large Scale Computers: Performance, Architecture, Applications*, North Holland Publishers, 1983.

"Simulation of Computer Systems: Looking Back," *1982 Winter Simulation Conference*, San Diego, December 6-8, 1982.

"Teaching Simulation to Undergraduates," *1982 Winter Simulation Conference*, San Diego, December 6-8, 1982.

"Design of an Integrated Packet/Circuit Switched Network," *10th IMACS*, Montreal Canada, August 8-13, 1982.

"A Simulation Model for Evaluating Integrated Packet/Circuit Switched Networks," Co-authored with M. Kiemele, *WSC 1983 Winter Simulation Conference*, Arlington, Va., December 1983.

"Sensitivity Analysis of an Integrated Computer Network Simulation Model," *Workshop on Network Simulation and Analysis, 17th Annual Simulation Symposium*, Tampa, Florida, March 1984.

"Topological Optimization of an Integrated Circuit/Packet-Switched Computer Network," Co-authored with Mark Kiemele, *WSC 84 Winter Simulation Conference*, Dallas, Texas.

"A Sizing and Timing Analysis of an Integrated Computer Network Simulator," Co-authored with Mark Kiemele, *WSC 1985 Winter Simulation Conference*, San Francisco, California, December 1985.

"A Sensitivity Analysis of an Integrated Computer Network Simulator," Co-authored with Mark Kiemele, *WSC 1985 Winter Simulation Conference*, San Francisco, California, December 1985.

"Rule-Based Object Oriented Simulation Systems," Co-authored with H. Adelsberger, R.E. Shannon, and Glen N. Williams, *SCS MultiConference*, 1986. In *Intelligent Simulation Systems, SCS Simulation Series*, Vol. 17, No. 1, pp. 107-112, January 1986.

"Routing as a Flow Control Strategy in an Integrated Circuit/Packet Switched Communications Network", Co-authored with Kenneth Hebert, *WSC'86 Winter Simulation Conference*, Washington, D.C., December 8, 1986.

"A Prototype Implementation of a Goal-Oriented Simulation Environment System", Co-authored with David Umphress, *4th International Symposium on Modelling and Simulation Methodology: Intelligent Environments and Goal-Directed Models*, Tucson, Arizona, January 1987.

"A Goal-Oriented Approach to Simulation," Co-authored with David Umphress, *Eastern Simulation Conference*, Orlando, Florida, April 6, 1987. In *Methodology and Validation: SCS Simulation Series*, Vol. 19, No. 1, pp. 44-49, April 1987.

"Reliability Design of a Distributed Control System for an Autonomous Underwater Vehicle," Co-authored with G. N. Williams and D. Safford, *5th International Symposium on Unmanned Untethered Submersible Technology*, Merrimack, N.H., June 22-24, 1987.

"Fast Prototyping of a Goal-Oriented Simulation Environment System," Co-authored with D. Umphress, and M. Tanik, *ACM Computer Science Conference (1988 CSC)*, Atlanta, GA., February 23-25, 1988.

"A Computer-Aided Ada Courseware," Co-authored M. Tanik, B. Shirazi, and J. Sampson, *19th Technical Symposium of ACM Special Interest Group on Computer Science Education (SIGSCE 88)*, Atlanta, GA., February 25-26, 1988.

"A Computer-Aided Ada Course", Co-authored M. Tanik, B. Shivazi, and J. Sampson, *National Educational Computing Conference (NECC 1988)*, Dallas, TX, June 1988.

"A Prototype for Simulation and Development of an Autonomous Underwater Vehicle Control System," Co-authored with D. Safford and G. N. Williams, *Modelling and Simulation Symposium*, Charles Stark Draper Laboratory, June 1988.

"An Intelligent Control System for an Unmanned Underwater Vehicle," Co-authored with G.N. Williams, D. Friesen, M. McDermott, D. Safford, E. Nelson, and D. Barnett, *AUV 1990 Conference*, (Classified Session), Washington, D.C., June 1990.

"Synchronous Time Acceleration for Distributed Simulation Software Development," Co-authored with E. Nelson and G. N. Williams, *Summer Computer Simulation Conference (SCSC 1991)*, Baltimore, MD., July 1991.

"A Simulation Support Environment for the Development of an AUV Controller," Co-authored with E. Nelson and G. N. Williams, *Summer Computer Simulation Conference (SCSC 1991)*, Baltimore, MD., July 1991, pp. 776-770.

"The Event of Jumping Algorithms," Co-authored with D.A. Cook, *Summer Computer Simulation Conference (SCSC 1991)*, Baltimore, MD., July 1991, pp. 98-103.

"Synchronous Time Acceleration for Distributed Simulation Software Development," *Summer Computer Simulation Conference (SCSC '91)*, Baltimore, MD, July 1991, pp. 742-745.

"A Simulation for PACSAT-I Downlink Traffic," Co-authored with R. Diersing, *AMSAT-NA Technical Symposium and Educational Workshop*, Los Angeles, Ca., November 1991.

"FTMP: A Protocol for Distributed Fault Tolerant Operating Systems Services for an AUV Control System," Co-authored with D. K. Hess and G. N. Williams, *Proceedings, AUV 1992 Conference*, Washington, D.C., June 2-3, 1992.

"User Interface Design Strategies for AUV Software Development," Co-authored with E. Nelson, J. F. DeSoi, J. W. Mollenhauer, S. R. McClaran, K. P. Carroll, and G. N. Williams, *Proceedings, AUV'92 Conference*, Washington, D.C., June 2-3, 1992.

"Computer Ethics Education: Impact from Societal Norms," Co-authored with G. B. White. *Ethics in the Computer Age*, November 11-13, 1994, Galtinburg, TN.

"The Design of an Audit Trail Sanitization Tool." Co-authored with E. Fisch and G. B. White. *10th Annual Computer Security Applications Conference*, December 5-9, 1994, Orlando, FL.

"An Algorithm for Supporting Fault Tolerant Objects in Distributed Object Oriented Operating Systems," Co-authored with G. Beedubail, A. Karmarkar, A. Gurijala and W. Marti. *Proceedings of Fourth International Workshop on Object Oriented Operating Systems*, Lund, Sweden, August 14-15, 1995, pp. 142-148.

"An Open Simulation Architecture for Force XXI," Co-authored with J. Hamilton. WSC 1995: *Winter Simulation Conference*, Washington, D.C., December 3-6, 1995.

"A Survey of Object-Oriented Methodologies," Co-authored with J. Hamilton. Tri-Ada 1995, Anaheim, CA, Nov. 5-10, 1995, pp. 226-234.

"Distributed Simulation in Ada 1995," Co-authored with J. Hamilton and D. Cook. Tri-Ada 1995, Anaheim, CA, Nov. 5-10, 1995, pp. 105-113.

"SMT: A System Monitoring Tool for DCE," Co-authored with P. Brutch, A. Karmarkar, A. Gurijala, K. Walzel and W. Marti. ICDP 1996: *IFIP/IEEE International Conference on Distributed Platforms*, Dresden, Germany, pp. 245 – 257, Feb. 27-March 1, 1996.

"Distributed Computing Environment (DCE) Porting Tool," Co-authored with S. Muppidi, N. Krawetz, G. Beedubail and W. Marti. ICDP 1996: *IFIP/IEEE International Conference on Distributed Platforms*, Dresden, Germany, pp. 115 – 129, Feb. 27-March 1, 1996.

"Fault Tolerant Objects in Distributed Systems using Hot Replication," Co-authored with G. Beedubail, A. Karmarkar, A. Gurijala and W. Marti. IPCCC 1996, *IEEE International Phoenix Conference on Computers and Communications*, Phoenix, AZ, pp. 89 – 95, March 27-29, 1996.

"Integrating Distributed Simulation into Force XXI Training," Co-authored with J. Hamilton and B. Bachus. 1996 SMC: *Simulation Multi-Conference*, New Orleans, LA, April 8-11, 1996.

"Building Distributed Systems," Co-authored with J. Hamilton and W. Marti. *STC 1996 – 8th Annual Software Technology Conference*, Salt Lake City, UT, April 21 – 26, 1996.

"Security and Reliability Issues in ATM Switch Protocols," Co-authored with W. Marti. *ATM Year 96*, May 6-9, 1996, San Jose, CA.

"Packet Tracing: A New Paradigm for Teaching Computer Network Courses," Co-authored with W. Marti and J. Hamilton. *SIGCSE/SIGCUE Joint Conference on Integrating Technology into Computer Science Education*, Barcelona, Spain, June 2 – 6, 1996.

"Performance Instrumentation for Task Sharing in Distributed Systems," Co-authored with S. Muppidi. *SDNE-96 – 3rd International Workshop on Services in Distributed and Networked Environments*, Macao, June 3 – 4, 1996.

"An Architecture for Performance Instrumentation in Distributed Systems," Co-authored with S. Muppidi. *PDPTA 1996 – International Conference on Parallel and Distributed Processing Techniques and Applications*, Sunnyvale, CA, August 9 – 11, 1996.

"Propagating Updates in Asymmetric Channels," Co-authored with A. Gurijala. *First International Workshop on Satellite Based Information Services (WOSBIS)*, Rye, NY, pp. 53 – 59, November 13, 1996.

"A Formal Approach for the Simulation of Local Area Networks," Co-authored with P. Brutch and W. Marti. 1997 Western Multiconference on Computer Simulation (Communication

Networks and Distributed Systems Modelling and Simulation Conference), Phoenix, AZ, pp. 3 - 8, January 12 - 15, 1997.

"Modelling and Simulating an Army Information Support Structure," Co-authored with B. Jansen and J. Hamilton. *1997 SMC: Simulation Multi-Conference*, Atlanta, GA, pp. 59 - 65, April 6 - 10, 1997.

"Multilevel Multiresolution Simulation of Local Area Networks," Co-authored with J. Hamilton and W. Marti. *STC 1997 - 9th Annual Software Technology Conference*, Salt Lake City, UT, April 27 - May 2, 1997.

"Intruder Containment - An Automated Method of Response to Potential Security Incidents," Co-authored with Paul Brutch, Willis Marti, Greg White and D. Pradhan. *Computer Security Incident Handling Conference and Workshop, FIRST 1997 (Forum of Incident Resonse and Security Teams)*, Bristol, England, June 23-27, 1997.

"The Effect of Mobility on Consistency and Access Time in Distributed Systems," Co-authored with Anil Gurijala. *1997 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA 1997)*, Las Vegas, Nev., pp. 1160 - 1164, June 30 - July 3, 1997.

"A Framework for Communication Support in Object Oriented Distributed Systems," Co-authored with Anish Karmarkar. *1997 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA 1997)*, Las Vegas, Nev., pp. 182 - 185, June 30 - July 3, 1997.

"An Architecture for Object Replication in Distributed Systems," Co-authored with Ganesha Beedubail. *1997 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA 1997)*, Las Vegas, Nev., pp. 50 - 59, June 30 - July 3, 1997.

"Propagating Updates in Uni-directional Communication Environment," Co-authored with Anil Gurijala. *Ninth International Conference on Parallel and Distributed Computing and Systems (PDCS 1997)*, Washington D.C., October 13 - 16, 1997. (Also to appear in the International Journal of Parallel and Distributed Systems and Networks (ISPDSN), Spring 1998.)

"A Fuzzy Logic Approach for Intelligent Analysis for Actual and Simulated Military Reconnaissance Missions," Co-authored with D. J. Ragsdale, C. D. Butler and B.A. Cox. *Proceedings of the IEEE International Conference on Systems, Man and Cybernetics (SMC 1997)*, Orlando, Fla., October 12 - 15, 1997.

"Autonomous Conduct of Indirect Fire in Interactive Simulations," Co-authored with D. Nash. *Proceedings of the 1997 IEEE International Conference on Systems, Man and Cybernetics (SMC 1997)*, Orlando, Fla., October 12 - 15, 1997.

"Markov Chain Analysis of the Software Development Lifecycle to Improve Software Reliability," Co-authored with Charles Dunn, III, and James Matis. *Proceedings of the 1997 International Conference on Software Quality (ICSQ)*, Maribor, Slovenia, November 17 - 19, 1997.

"Implementing Military Units in Simulation as Intelligent Agents," Co-authored with Surdu, J., Cox, B., Ragsdale, D., and Yen, J., *Proceedings of the 1998 Advanced Simulation Technologies Conference (1998 ASTC)*, Boston, MA, pp. 190-195, April 5-9, 1998.

"Construction of a State Space for a CTMC Software Fault-Counting Model," Co-authored with Dunn, Charles, III, *Proceedings of the 1998 International Conference in Reliability and Survival Analysis. (ICRSA 1998)*, DeKalb, IL., May 1998.

"A Survey of Distributed Systems Performance Evaluation Tools," Co-authored with Santha, S., *Proceedings of the 1998 International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA 1998)*, Las Vegas, NV., July 13-16, 1998.

"A Methodology for Applying Simulation in the Mission Operational Environment," Co-authored with Surdu, J. R., and Yen, J., *Proceedings of the 1998 IEEE Information Technology Conference (InfoTech 1998)*, Syracuse, NY, pp. 43-48, September 1-3, 1998.

"A Statistic Based Methodology for Performance Management in Distributed Systems," Co-authored with Santha, S., *Proceedings of the International Performance and Dependability Symposium (IPDS 1998)*, Durham, NC, September 7-9, 1998.

"JAGATH: A Methodology and It's Application for Distributed Systems Performance Evaluation and Control," Co-authored with Santha, S., *Proceedings of the 10th International Conference on Modelling Techniques and Tools for Computer Performance Evaluation (Tools 1998)*, Palma de Mallorca, Spain, September 14-18, 1998.

"UNIX Penetration Tests: A Classification of Attempts Performed During a Graduate Security Class at Texas A&M University," Co-authored with Brutch, P., Gandapur, T., and Mitchell, E., *Proceedings of the SANS Network Security 1998 Conference*, Orlando, FL., October 24-30, 1998.

"Electronic Quarantine: Automated Intrusion Response Tool," Co-authored with Brutch, P., and Gandapur, T., *Proceedings of the 1998 IEEE Information Survivability Workshop (ISW 1998)*, Orlando, FL, October 28-30, 1998.

"Recovery in Wireless and Mobile Communication Systems," Co-authored with Gandapur, T., and Brutch, P., *Proceedings of the 1998 IEEE Information Survivability Workshop (ISW 1998)* Orlando, FL., October 28-30, 1998.

"Analysis of a Software Project using a Continuous-Time Markov Chain," Co-authored with Dunn III, C., *Proceedings of the 1998 IEEE International Symposium on Software Reliability Engineering (ISSRE 1998)*, Pandeborn, FRG., November 1998.

"Mutual Authentication, Confidentiality, and Key Management (MACKMAN) System for Mobile Computing and Wireless Communication," Co-authored with Gandapur, T., and Brutch, P., *Proceedings of the Fourteenth Annual Computer Security Applications Conference (14th ACSAC)*, Scottsdale, AR, December 7-11, 1998.

"OPSIM: A Purpose- Built Distributed Simulation for the Mission Operational Environment," Co-authored with Surdu, J. R., and Haines, G., *Proceedings of the 1999 WMC - Web-Based Modelling and Simulation Conference (WebSim 99)*, Western Multi-Conference, San Francisco, CA., pp. 69-74, Jan. 17-20, 1999.

"A Methodology for Using Intelligent Agents to Apply Simulation Technologies in the Mission Operational Environment," Co-authored with Surdu, J., *Proceedings of Enabling Technology for Simulation Science III*, Orlando, FL, pp. 294-299, April 5-9, 1999.

"Connecting the Operational Environment to Simulation," Co-authored with Surdu, J., Proceedings of the Military, Government and Aerospace Simulation - 1999 Advanced Simulation Technologies Conference (ASTC 1999), San Diego, CA., pp. 94-99, April 11-15, 1999.

"An Analysis of Student Learning in a Graduate Software Engineering Course," Co-authored with Carver, C., *Proceedings of the 1999 ACM ASEET Conference*, Colorado Springs, CO, pp. P-XIII-1 – P-XIII-4, 25-29 July 1999.

"Providing Interoperability through a Divisional Tactical Internet," Co-authored with Carver, C., *Proceedings of the 1999 ACM ASEET Conference*, Colorado Springs, CO, pp. P-I-1 – P-I-5, 25-29 July 1999.

"Improving the Performance of Existing Information Retrieval Systems Using a Software Agent," Co-authored with Jansen, B., *Proceedings of Fifth Conference of Information Systems Analysis and Synthesis (ISAS 1999)*, Orlando, FL, pp. 58 – 60, 31 July – 4 August 1999.

"Third Generation Adaptive Hypermedia Systems," Co-authored with Carver, C., and Hill, J., *Proceedings 1999 AACE WebNet Conferences*, Honolulu, HI, pp. 177-182, October 24-31, 1999.

"Emerging Curriculum Issues in Digital Libraries," Co-authored with Carver, C., and Hill, J., *Proceedings of the 1999 IEEE Frontiers in Education Conference*, San Juan, Puerto Rico, pp. 12C2-18 – 12C2-23, 10-13 November 1999.

"Information Flow: Tactical Network Design and Bandwidth Management," Co-authored with Hill, J. and Carver, C., *Eighteenth IASTED International Conference on Applied Informatics (AI2000)*, pp. 487-490, Innsbruck, Austria, February 14-17, 2000.

"Rational Agents, Simulation, and Military Operations," Co-authored with Surdu, J., *AI, Simulation, and Planning (AIS 2000)*, pp. 327-332, Tucson, AZ, 6-8 March 2000.

"Simulations linked to Command and Control Systems," Co-authored with Stone, G., and Carver, C., *Advanced Simulation Technologies Conference (ASTC2000): Military, Government and Aerospace Simulation Symposium*, Washington, DC, April 16-20, 2000.

"All Random Numbers are not Created Equal: Differences Between Generators for Simulation and Cryptography," Co-authored with Humphries, J., *Advanced Simulation Technologies Conference (ASTC2000): Military, Government and Aerospace Simulation Symposium*, pp. 37-42, Washington, DC, April 16-20, 2000.

"A Dynamic Hierarchy of Rational Agents to Link Simulation to the Operational Environment," Co-authored with Surdu, J., *Advanced Simulation Technologies Conference (ASTC2000): Military, Government and Aerospace Simulation Symposium*, pp. 29-34, Washington, DC, April 16-20, 2000.

"A Methodology to Support Anticipatory Planning," Co-authored with Hill, J. and Surdu, J., *Advanced Simulation Technologies Conference (ASTC2000): Military, Government and Aerospace Simulation Symposium*, pp. 22-27, Washington, DC, April 16-20, 2000.

"Tactical Event Resolution Using Software Agents, Crisp Rules, and a Genetic Algorithm," Co-authored with Hill, J., Miller, M., and Yen, J., *Advanced Simulation Technologies Conference*

(ASTC2000): *Military, Government and Aerospace Simulation Symposium*, pp. 15-21, Washington, DC, April 16-20, 2000.

"A Tactical Data Network Bandwidth Design and Simulation Tool," Co-authored with Hill, J. and Carver, C., *Advanced Simulation Technologies Conference (ASTC2000): Military, Government and Aerospace Simulation Symposium*, pp. 43-48, Washington, DC, April 16-20, 2000.

"A Methodology for Using Intelligent Agents to Provide Automated Intrusion Response," Co-authored with Carver, C., Hill, J., and Surdu, J., *IEEE Systems, Man, and Cybernetics Information Assurance and Security Workshop (SMC-IAW 2000)*, pp. 110-116, West Point, New York, June 6-7, 2000.

"An Intrusion Response Taxonomy and its role in Automatic Intrusion Response," Co-authored with Carver, C., *IEEE Systems, Man, and Cybernetics Information Assurance and Security Workshop (SMC-IAW 2000)*, pp. 110-116, West Point, New York, June 6-7, 2000.

"Secure Mobile Agents for Network Vulnerability Scanning," Co-authored with Humphries, J., and Carver, C., *IEEE Systems, Man, and Cybernetics Information Assurance and Security Workshop*, pp. 19-25, West Point, NY. June 6-7, 2000.

"Anticipatory Planning Using Execution Monitoring and a Constrained Planning Frontier," Co-authored with Hill, J. and Surdu, J., *Applied Simulation and Modeling (ASM 2000)*, Banff, Alberta, Canada, pp. 168-172, July 24-26, 2000.

"No Silver Bullet: Inherent Limitations of Computer Security Technologies," Co-authored with Humphries J., Ragsdale D., Carver C., and Hill J., *4th World Multiconference on Systemics, Cybernetics and Informatics (SCI'2000)*, pp. 245-250, Orlando, FL, July 23-26, 2000.

"Adaptation Techniques for Intrusion Detection and Intrusion Response Systems," Co-authored with Ragsdale, D., Carver, C., and Humphries, J., *IEEE International Conference on Systems, Man, and Cybernetics*, pp. 2344-2350, Nashville, Tennessee, October 8-11, 2000.

"Anticipatory Planning Support System," Co-authored with Surdu, J., and Hill, J., *2000 Winter Simulation Conference*, pp. 950-957, Orlando, Florida, December 10-13, 2000.

"An Isolated Network in Support of an Advanced Networks and Security Course," Co-authored with Carver, C., Hill, J., and Humphries, J., accepted by the *32nd SIGCSE Technical Symposium on Computer Science Education*, Charlotte, North Carolina, February 21-25, 2001.

"Implementation of the Anticipatory Planning Support System," Co-authored with Hill J., and Surdu J., *Advanced Simulation Technologies Conference (ASTC'2001): Military, Government, and Aerospace Simulation Symposium*, pp. 76-81, Seattle, Washington, April 22-26 2001.

"Anticipatory Planning Support System Test Results," Co-authored with Hill, J., and Surdu, J., accepted by the *Advanced Simulation Technologies Conference (ASTC2001): Military, Government and Aerospace Simulation Symposium*, Seattle, Washington, April 22-26, 2001.

"Synchronized Simulations in Planning Systems," Co-authored with Hill, J., Surdu, J., and Vaglia, J., *Advanced Simulation Technologies Conference (ASTC2001): Military, Government and Aerospace Simulation Symposium*, pp 69-75, Seattle, Washington, April 22-26, 2001.