

William Harrington Tranter

Bradley Professor of Communications
Director: Mobile and Portable Radio Research Group
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PROFESSIONAL DATA

DEGREES:

B.S.E.E. University of Alabama, 1964
M.S.E.E. University of Alabama, 1965
Ph.D. University of Alabama, 1970
(Major: Electrical Engineering, Double Minor: Applied Mathematics)

THESIS TITLES:

M.S. "An Exponential Digital Filter for Real Time Use"
Ph.D. "Theory and Analysis of AM-Baseband Systems"

TECHNICAL AREAS OF INTEREST:

•Digital Signal Processing •Wireless Communication Systems •Digital Communication Systems
•Computer-Aided Design, Analysis and Performance Evaluation of Communication Systems.

ACADEMIC EXPERIENCE:

1997 - Present Bradley Professor of Communications and Director of the
Mobile and Portable Radio Research Group
Bradley Department of Electrical Engineering
Virginia Polytechnic Institute and State University
1985 - 1997 Schlumberger Professor of Electrical Engineering
University of Missouri-Rolla
1984 - 1985 Associate Dean of Engineering for Graduate Affairs and Research
University of Missouri-Rolla
1980 - 1984 Assistant Dean of Engineering for Graduate Affairs and Research
University of Missouri-Rolla
1976 - 1984 Professor of Electrical Engineering
University of Missouri-Rolla
1972 - 1976 Associate Professor of Electrical Engineering

University of Missouri-Rolla

1969 - 1972 Assistant Professor of Electrical Engineering
University of Missouri-Rolla

1965 - 1969 Instructor and Research Associate
University of Alabama

OTHER ACADEMIC APPOINTMENTS (SABBATICAL):

July 1995 - Dec. 1995 Visiting professor of Electrical Engineering, The Bradley Department of Electrical Engineering, Mobile and Portable Radio Research Group, Virginia Polytechnic Institute and State University, Blacksburg, VA.

Jan. 1996 - June 1996 Visiting Erskine Fellow, Department of Electrical and Electronic Engineering, University of Canterbury, Christchurch, New Zealand.

NON-ACADEMIC EXPERIENCE:

1972 (Summer) NASA-ASEE Faculty Research Fellowship, Manned Spacecraft Center, Houston, Texas. Computer-aided design, analysis and performance measurement of analog and digital communication systems.

1971 (Summer) NASA-ASEE Faculty Research Fellowship, Manned Spacecraft Center, Houston, TX. Research on computer-aided design of analog and digital communication systems.

1968 (Summer) Senior Engineer, Sperry Rand Space Support Division, Huntsville, Alabama. Research involving the analysis and optimization of analog communication systems with non-linear and time varying components.

CONSULTING:

Jan. 1990 - Dec. 1992 Consulting Editor for Engineering, Houghton Mifflin Publishing Co., Boston, Massachusetts.

Dec. 1987 Motorola, Government Electronics Group, Chandler, Arizona. High level design review for burst demodulators used in TDMA satellite systems.

Jan. 1980 - Dec. 1988 McDonnell Douglas Corporation, St. Louis, Missouri. Design and analysis of tracking receivers for radar applications.

Jan. 1981-Dec. 1981 Battelle Columbus Laboratories, Durham Operations, Durham, North Carolina. Analysis of maximum entropy spectral estimators for application to tracking radar systems.

Jan. 1976-July 1979 Education Development Center, Newton, Massachusetts. Development of the engineering curriculum and course materials for the Institute of Electricity and Electronics in Boumerdes, Algeria.

May 1979-Oct. 1979 Battelle Columbus Laboratories, Durham Operations, Durham, North Carolina. Development of digital signal processors for radar applications. Work performed on site at the U.S. Army Missile Research and Development Command in Huntsville, Alabama.

May 1978-Oct. 1978 Battelle Columbus Laboratories, Durham Operations, Durham, North Carolina. Development of digital signal processors for radar applications. Work performed on site at the U.S. Army Missile Research and Development Command in Huntsville, Alabama.

PROFESSIONAL AFFILIATIONS:

Institute of Electrical and Electronics Engineers (Fellow)
IEEE Communications Society
IEEE Acoustics, Speech and Signal Processing Society
IEEE Education Society
Capstone Engineering Society (University of Alabama)

HONORS AND AWARDS:

Eta Kappa Nu
Sigma Xi
Tau Beta Pi
Phi Kappa Phi
NASA-ASEE Faculty Research Fellowship - 1971, 1972
UMR Outstanding Teacher Award - 1972, 1973, 1977, 1979, 1981, 1984, 1985, 1987, 1988, 1989, 1990.
Outstanding Young Men of America - 1973
NASA New Technology Award for Innovative Research - 1979
IEEE St. Louis Section Education Award - 1980
IEEE Centennial Medal - 1984
Jefferson Smurfit Fellowship (University College Dublin, Ireland) - 1985
Elected IEEE Fellow - 1985
(Citation: For contributions in communications and signal processing research and for leadership in engineering education)
MASUA (Mid-America State Universities Association) Honor Lecturer - 1986
Tau Beta Pi Effective Teaching Award - 1987
Named 150th Anniversary Distinguished Engineering Fellow by the University of Alabama - 1988
Donald W. McLellan Meritorious Service Award, presented by the IEEE Communications Society - 1989.
Named Erskine Fellow, University of Canterbury, Christchurch, New Zealand - 1994.
IEEE Third Millennium Medal - 2000
Dean's Award for Excellence in Service, Virginia Tech – 2000
IEEE Communications Society Publications Exemplary Service Award - 2001
Elected Vice President – Technical Activities, IEEE Communications Society - 2002

SPONSORED RESEARCH PROJECTS AND GRANTS:

“Improved Base Station Operability with HMMs,” Motorola, 9/1/03–8/31/04. (Principal Investigator)

“The Re-Design, Development and Asynchronous Delivery of Four Courses to Complete the Development of the On-line Masters of Information Technology Programs,” Center for Innovative Learning at Virginia Tech, 7/13/01-6/30/02. (Co-Investigator)

“ACN Independent Innovative Research Component,” Raytheon Systems Co., 12/01/01-11/30/02. (Co-Investigator)

“Power Amplifier Nonlinearity Compensation and Correction for Multicarrier Systems,” Analog Devices, 3/1/01-2/28/02. (Co-Investigator)

“Research and Development for IMT-2000,” LG Electronics, 5/15/00-9/30/01. (Co-Investigator)

“Next Generation Software: A Collaborative Problem Solving Environment for Modeling of Broadband Wireless Communication Systems,” National Science Foundation, 8/15/99-8/14/02. (Co-Investigator)

“Reconfigurable Apertures and Space-Time Processing,” Raytheon Systems Co., 5/00-7/02. (Co-Investigator)

“Research Into Signal Recovery Algorithms in Support of Spectral Spatial Interference Cancellation Systems,” Raytheon Co., Project No. 208-11-110F-104-801-1, 3/9/00-3/8/01. (Co-Investigator)

“Collaborative Problem Solving Environment for Modeling of Broadband Wireless Communication Systems,” National Science Foundation, Grant No. 9974956, 8/15/99-7/31/00. (Co-Investigator)

“Enhancing the Capacity of IMT - 2000 Through Turbo Coding and Smart Antennas,” LGIC Corporation, 10/1/98-9/31/99. (Co-Investigator)

“Configurable and Robust Wireless Communications Nodes,” DARPA (NISE-East), Grant No. N65236-97-K-7806, 7/18/97-9/30/2000. (Co-Investigator)

“Curriculum Innovation for Simulation and Design of Wireless Communications Systems,” National Science Foundation, Grant No. CDA-9527537, 9/1/95-8/31/99. (Co-Investigator)

“Space Station Freedom Communications and Tracking System Link Simulations (Continuation),” GE Government Communications Systems Department, GE Aerospace, Camden, NJ, Contract No. 941021-0003-61-S22, 1989 – 1991. (Project Director and Principal Investigator).

“The Applications of Modern Digital Signal Processing Techniques to Veterinary Medicine,” University of Missouri Weldon Spring Endowment Fund Project, 1989 – 1990. (Co-investigator).

"Space Station Communications and Tracking System Link Simulations," RCA Government Communications Systems Division, GE Aerospace, Camden, NJ, Contract No. 941021-0001-61-S22, 1988 – 1989. (Project Director and Principal Investigator).

"Development and Verification of Simulation Models for Analyzing Orbiter Digital Communication and Data Links," National Aeronautics and Space Administration Contract NAS9-15477, 1978 – 1984. (Project Director and Principal Investigator).

"Development and Verification of Simulation Models for Analyzing Orbiter Digital Communication and Data Links and Onboard Monitoring Parameter Correlations," National Aeronautics and Space Administration Contract NAS9-14848, 1976 – 1977. (Project Director and Principal Investigator).

"Model Development and Verification Using the SYSTID Computer-Aided Design Program for Analyzing Data Systems and Communication Links," National Aeronautics and Space Administration Contract NAS9-13436, 1973 – 1974. (Project Director and Principal Investigator).

"An Interdisciplinary Investigation of Environmental Pollution by Lead, Copper, Zinc, Cadmium and Other Metals from Industrial Development in the New Lead Belt of Southeastern Missouri," National Science Foundation (RANN) Grant Number GI-35981, 1972 - 1974 and National Science Foundation (RANN) Grant Number ESR-74-22935, 1974 – 1976. (Co-Investigator).

"Mapping Vegetation Damage and Heavy Metal Concentration in the Soil of the New Lead Belt of Missouri," Joint research effort with the University of Kansas Center for Research, Inc. Jointly supported by the National Science Foundation, Grant GI-35981, and the National Aeronautics and Space Administration, Applications Grant NGL 17-004-024 (University of Kansas), 1973 – 1975. (Project Co-Director)

"Improvements of Communication Related Laboratories," NSF Instructional Scientific Equipment Program, Grant No. GY-7766, 1970 – 1972. (Project Director).

"A Study of the Use of Quadrature Multiplexed DSB (QDSB) in AM/FM Systems," University of Missouri-U-Wide Grant No. 69-AP 307, 1970 – 1971. (Project Director).

"Study and Analysis of FM/AM and SS/FM Telemetry Systems for the Saturn Vehicle," NASA Contract No. NAS8-20172, 1967 – 1969. (Research Associate).

"Study and Analysis of Telemetry Systems for the Saturn Vehicle," NASA Contract No. NAS8-5003, 1965 – 1967. (Research Assistant).

PUBLICATIONS:

Books

Tranter, W. H., Shanmugan, K. S., Rappaport, T. S., and Kosbar, K. L., *Principles of Communication Systems with Wireless Applications*, Upper Saddle River, NJ: Prentice Hall, 2003.

Ziemer, R. E. and Tranter, W. H., *Principles of Communications: Systems, Modulation, and Noise*, 5th ed. (Chinese), New York: Wiley, 2003.

R. E. Ziemer, W. H. Tranter, D. R. Fannin, *Principles of Communication: Systems, Modulation and Noise*, Fifth Edition, Prentice Hall, 2002.

R. E. Ziemer and W. H. Tranter, *Principles of Communications: Systems, Modulation and Noise*, Fourth Edition, John Wiley and Sons, Inc., 1995.

R. E. Ziemer and W. H. Tranter, *Principles of Communications: Systems, Modulation, and Noise*, Houghton-Mifflin Publishing Company, 1976, 1985, 1990. (Spanish language edition published in 1981. Taiwan edition published in 1985. Chinese language edition published in 1998. Korean language edition published in 1998.)

R. E. Ziemer, W. H. Tranter, and D. R. Fannin, *Signals and Systems: Continuous and Discrete*, Fourth Edition, Prentice Hall Publishing Company, 1998. (International edition published in 1998)

R. E. Ziemer, W. H. Tranter, and D. R. Fannin, *Signals and Systems: Continuous and Discrete*, Macmillan Publishing Company, 1983, 1989, 1993. (International Edition published in 1990.)

Books Edited

W. H. Tranter, B. D. Woerner, J. H. Reed, T. S. Rappaport and M. Robert (Editors), *Wireless Personal Communications: Bluetooth and Other Technologies*, Kluwer Academic Publishers, 2001.

W. H. Tranter, B. D. Woerner, T. S. Rappaport and J. H. Reed (Editors), *Wireless Personal Communications: Channel Modeling and Systems Engineering*, Kluwer Academic Publishers, 2000.

W. H. Tranter, T. S. Rappaport, B. D. Woerner and J. H. Reed (Editors), *Wireless Personal Communications: Emerging Technologies for Enhanced Communications*, Kluwer Academic Publishers, 1999.

T. S. Rappaport, B. D. Woerner, J. H. Reed and W. H. Tranter (Editors), *Wireless Personal Communications: Improving Capacity, Services and Reliability*, Kluwer Academic Publishers, 1997.

Contributed Chapters to Books

W. H. Tranter and K. L. Kosbar, "Computer-Aided Design and Analysis of Communication Systems," (Chapter 72 in *The Electrical Engineering Handbook*, Edited by Richard C. Dorf), CRC Press, pp. 1593-1609, 1993.

R. E. Ziemer and W. H. Tranter, "Information Theory" (Section 47.3 in *Handbook of Modern Electronics*, Edited by Charles Belove), Wiley-Interscience, pp. 1594-1605, 1986.

W. H. Tranter, "Coding for Error Detection and Correction," (Chapter 6 in *Digital Communications: Satellite/Earth Station Engineering* by Kamilo Feher), Prentice-Hall, pp. 256-293, 1983.

Book Reviews

W. H. Tranter, "Review of Simulation of Communication Systems by Michel J. Jeruchim, Philip Balaban and K. Sam Shanmugan," *IEEE Communications Magazine*, Vol. 31, No. 4, pp. 18-21, April 1993.

Transactions and Conference Journals Reviewing Complete Papers

"Comparing Decoding Algorithms for Multi-Layered Space-Time Block Codes," M. Mohammad, S. Al-Ghadhban, B. Woerner, and W. Tranter, *IEEE SoutheastCon 2004*, Greensboro, NC, March 26-28, 2004.

"High-Speed Downlink Packet Transmission with Spatial Multiplexing and Scheduling," J. Jiang, R. M. Buehrer, and W. H. Tranter, *IEEE WCNC 2004*, Atlanta, GA, March 21-25, 2004.

"Antenna Diversity in Multiuser Data Networks," J. Jiang, R. M. Buehrer, and W. H. Tranter, *IEEE Transactions on Communications*, Vol. 52, Issue 3, March 2004, pp. 490-497.

"A Model-Based Approach to Demodulation of Co-Channel MSK Signals," Y. Ahmed, J.H. Reed, W.H. Tranter, and R.M. Buehrer, *IEEE Global Communications Conference-GLOBECOM 2003*, San Francisco, California, December 1-5, 2003.

"Spatial T-H Precoding for Packet Data Systems with Scheduling," J. Jiang, R. M. Buehrer, and W. H. Tranter, *IEEE VTC 2003-Fall*, Orlando, FL, October 4-9, 2003.

“BMSL: A Binding Schema Markup Language for Data Interchange in PSEs,” A. Verstak, N. Ramakrishnan, L. T. Watson, J. He, C. A. Shaffer, K. K. Bae, J. Jiang, W. H. Tranter, and T. S. Rappaport, *Scientific Programming*, Vol. 11, No. 3, August 2003, pp. 199-224.

“Nonlinear Tapped Delay Line Digital Predistorter for Power Amplifiers with Memory,” M. A. Nizamuddin, P. J. Balister, W. H. Tranter, and J. H. Reed, *IEEE Wireless Communications and Networking Conference - WCNC 2003*, March 16-20, New Orleans, Louisiana, March 16-20, 2003.

“Downlink WCDMA Performance Analysis with Diversity Techniques Combined with Beamforming,” J. Jiang, K. Bae, and W. H. Tranter, *IEEE Wireless Communications and Networking Conference - WCNC 2003*, March 16-20, 2003, New Orleans, Louisiana.

“Bit Error Rate Estimation Using Probability Density Function Estimators,” J.D. Laster, J.H. Reed, and W.H. Tranter, *IEEE Transactions on Vehicular Technology*, Vol. 52, No. 1, pp. 260-267, January, 2003.

“Site-Specific System Simulator for Wireless Communications (S4W),” K. K. Bae, J. Jiang, W. H. Tranter, A. Verstak, N. Ramakrishnan, J. He, L. T. Watson, C. R. Anderson, T. S. Rappaport, S. Mishra, and C. A. Shaffer, *12th Virginia Tech/MPRG Symposium on Wireless Personal Communications*, Blacksburg, VA, June 5-7, 2002.

“The Performance of Linear Space Time Processing in Overloaded Environments,” J.E. Hicks, J. Tsai, J.H. Reed, W.H. Tranter, and B.D. Woerner, *14th International Conference on Wireless Communications-Wireless 2002*, Calgary, Alberta, Canada, July 8-10, 2002, pp. 83-89.

“WCDMA STTD Performance Analysis with Transmitter Location Optimization in Indoor Systems Using Ray-tracing Technique,” K. Bae, J. Jiang, W. H. Tranter, J. He, A. Verstak, L. T. Watson, N. Ramakrishnan, C. R. Anderson, T. S. Rappaport, and C. A. Shaffer, *IEEE Radio and Wireless Conference - RAWCON 2002*, Boston, MA, Aug. 11th-14th, 2002, pp. 123-128.

“High Capacity Communications Using Overloaded Array,” W. H. Tranter, J. H. Reed, D. Ha, D. McKinstry, M. Buehrer, and J. Hicks, *COMMTEC 2002*, Chantilly, VA, September 16-20, 2002.

“Downlink WCDMA Bit Error Rate Performance in Indoor System Applications,” J. Jiang, K. Bae, and W. H. Tranter, *IEEE Semi-Annual Vehicular Technology Conference - VTC 2002-Fall*, Vancouver, British Columbia, Canada, September 24-29, 2002, pp. 825-828.

“In-Building Wideband Multipath Characteristics at 2.5 & 60 GHz,” C. R. Anderson, T. S. Rappaport, K. Bae, A. Verstak, N. Ramakrishnan, W. H. Tranter, C. A. Shaffer, and L. T. Watson, *IEEE Semi-Annual Vehicular Technology Conference - VTC 2002-Fall*, Vancouver, British Columbia, Canada, September 24-29, 2002, pp. 97-101.

“DFSE Equalization of Dual-h CPM Over UHF MILSATCOM Channels,” B. Peterson, D. Stephens, and W. H. Tranter, Presented at *Military Communications Conference - MILCOM 2002*, Anaheim, California, October 7-10, 2002.

“BSML: A Binding Schema Markup Language for Data Interchange in Problem Solving Environments,” A. Verstak, N Ramakrishnan, L. T. Watson, J. He, C. A. Shaffer, K. K. Bae, J. Jiang, W. H. Tranter, and T. S. Rappaport, *Scientific Programming*, Vol. 10, No. 4, Dec. 2002.

“Dynamic Data Structures for a Direct Search Algorithm,” J. He, L. T. Watson, N. Ramakrishnan, C. A. Shaffer, A. Verstak, J. Jiang, K. Bae, and W. H. Tranter, *Computational Optimization and Applications*, Vol. 23, No. 1, pp. 5-25, October 2002.

S. H. Kim, W. H. Tranter, S. F. Midkiff, “Middleware for a Distributed Reconfigurable Simulator,” *Advanced Simulation Technologies Conference - ASTC 2002*, San Diego, California, April 14-18, 2002, pp.253-258.

W. H. Tranter, J. He, J. Jiang, K. K. Bae, C. Anderson, L. T. Watson, A. Verstak, N. Ramakrishnan, and T. S. Rappaport, “Globally Optimized Design of Wireless Communication Systems,” *International Parallel and Distributed Processing Symposium – IPDPS 2002*, Fort Lauderdale, FL, April 15-19, 2002.

J. E. Hicks, J. Tsai, J. H. Reed, W. H. Tranter, and B. D. Woerner, “Overloaded Array Processing with MMSE-SIC,” *IEEE Semi-Annual Vehicular Technology Conference - VTC Spring 2002*, Birmingham, Alabama, May 6-9, 2002.

J. He, A. Verstak, L.T. Watson, T.S. Rappaport, C.R. Anderson, N. Ramakrishnan, C.A. Shaffer, W.H. Tranter, K. Bae, and J. Jiang, “Global Optimization of Transmitter Placement in Wireless Communication Systems,” *High Performance Computing Symposium - HPC '02*, San Diego, California, April 14-18, 2002, pp. 328-333.

T.E. Biedka, J.H. Reed and W.H. Tranter, “Statistics of Blind Spatial Signature Estimators.,” *IEEE 34th Asilomar Conference on Signals, Systems and Computers*, Monterey, California, October 29-November 1, 2000, pp.847-850.

J. Hicks, S. Bayram, W. H. Tranter, R. J. Boyle and J. H. Reed, “Overloaded Array Processing with Spatially Reduced Joint Search Detection,” *IEEE Journal on Selected Areas in Communications*, Vol. 19, No. 8, August 2001.

K. A. Phillips, J. H. Reed and W. H. Tranter, “Minimum BER Adaptive Filtering,” *Proceedings of the 2000 IEEE International Conference on Communications*, New Orleans, Louisiana, June 18-22, 2000, pp.1675-1680.

T. E. Biedka, W. H. Tranter and J. H. Reed, "Convergence Analysis of the Least Squares Constant Modulus Algorithm in Interference Cancellation Applications," *IEEE Transactions on Communications*, Vol. 48, No. 3, March 2000, pp. 491-501.

J. H. Park and W. H. Tranter, "Pseudo-Decorrelating Multiuser Receivers for Asynchronous Code Division Multiple Access (CDMA) Systems in a Rayleigh Fading Environment," *IEICE Transactions on Communications*, Vol. E82-B, No. 5, May 1999, pp. 721-730.

J. H. Park and W. H. Tranter, "Pseudo-Decorrelating Multiuser Receivers for Asynchronous Code Division Multiple Access (CDMA) Systems," *IEICE Transactions on Communications*, Vol. E81-B, No. 11, Nov. 1998, pp. 2197-2204.

W. J. Ebel and W. H. Tranter, "The Performance of Reed-Solomon Codes on a Bursty Noise Channel," *IEEE Transactions on Communications*, Vol. 43, No. 2/3/4, Feb./ Mar./Apr., 1995, pp. 298-306.

W. H. Tranter and K. L. Kosbar, "Simulation of Communication Systems," *IEEE Communications Magazine*, Vol. 32, No. 7, July 1994.

K. Schneider and W. H. Tranter, "Efficient Simulation of Multicarrier Communication Systems in Nonlinear Channel Environments," *IEEE Journal on Selected Areas in Communications*, Vol. 11, No. 3, Apr. 1993.

W. Ebel and W. H. Tranter, "The Error Probability of Reed-Solomon Coding and Interleaving on a Bursty-Noise Channel," *Proceedings of the 1992 IEEE Military Communications Conference*, pp. 13.4.1-13.4.5, Oct. 1992.

K. Schneider and W. H. Tranter, "Efficient Simulation of Multicarrier Communication Systems in Nonlinear Channel Environments," *Proceedings of the 1992 IEEE Military Communications Conference*, pp. 13.5.1-13.5.6, Oct. 1992.

D. B. Koch and W. H. Tranter, "Processing Considerations for Hybrid Waveforms Utilizing Complementary Phase Coding and Linear Frequency Stepping," *Record of the 1990 International Radar Conference*, pp. 606-611, May 1990.

W. H. Tranter and C. R. Ryan, "Simulation of Communication Systems Using Personal Computers," *IEEE Journal on Selected Areas in Communications*, Vol. SAC-6, No. 1, pp. 13-23, Jan. 1988.

J. D. Morgan and W. H. Tranter, "Industry-University Cooperation with Emphasis on a Machines and Drives Laboratory," *IEEE Transactions on Education*, Vol. E-29, No. 2, pp. 115-119, May 1986.

D. B. Koch and W. H. Tranter, "A Hybrid Radar Design Technique for Improving Slant Range Resolution in a Synthetic Aperture Radar System," *Record of the 1985 IEEE Radar Conference*, pp. 391-396, May 1985.

R. E. Ziemer, W. H. Tranter, and C. R. Ryan, "Millimeter Wave Communications Systems," (A Guest Editorial), *IEEE Journal on Selected Areas in Communications*, Vol. SAC-1, No. 4, pp. 577-579, Sept. 1983.

R. E. Ziemer and W. H. Tranter, "A Survey and Analysis of Electrical Engineering Curricula in Communications and Signal Processing," *IEEE Communications Magazine*, pp. 5-12, Mar. 1980

W. H. Tranter, "A Performance Evaluation Postprocessor for Computer-Aided Design and Analysis of Communication Systems," *Proceedings of the 1979 National Telecommunications Conference*, Nov. 1979.

W. H. Tranter, "Performance Evaluation of Telecommunications Systems Using Computer Simulation," (Invited Paper), *Proceedings of the International Symposium on Computer-Aided Design of Electronics for Space Applications*, Bologna, Italy, pp. 197-206, Sept. 1979.

J. H. Park and W. H. Tranter, "Conference Tutorials - An Opportunity for Continuing Education," *Proceedings of the IEEE*, pp. 972-976, Aug. 1978.

W. H. Tranter, R. E. Ziemer, and M. J. Fashano, "Performance Evaluation Using SYSTID Time Domain Simulation," *Proceedings of the 1975 International Conference on Communications*, June 1975.

R. E. Ziemer and W. H. Tranter, "Fade, Exceedance and Burst-Error Statistics for Transionospheric Scintillation Channels," *Proceedings of the 1974 International Conference on Communications*, June 1974.

W. H. Tranter and C. B. Abshier, "Cascade Phase-Lock Loops for the Generation of Harmonic and Subharmonic Components," (Invited Paper), *Proceedings of the 1972 National Telecommunications Conference*, Dec. 1972.

C. T. Dawson and W. H. Tranter, "SYSTID - A Flexible Tool for the Analysis of Communication Systems," *Proceedings of the 1972 National Telecommunications Conference*, Dec. 1972.

B. G. Wixson and W. H. Tranter, "An Investigation of Environmental Pollution by Lead and Other Heavy Metals From Industrial Development in Southeastern Missouri," *Proceedings of the 1972 National Telecommunications Conference*, Dec. 1972.

R. S. Simpson and W. H. Tranter, "Baseband AGC in an AM/FM Telemetry System," *IEEE Transactions on Communication Technology*, pp. 59-63, Feb. 1970.

R. S. Simpson and W. H. Tranter, "Baseband AGC in AM/FM Systems," *Proceedings of the 1969 National Telemetry Conference*, pp. 241-246, Apr. 1969.

W. H. Tranter, R. S. Simpson, and W. O. Frost, "Considerations in the Use of AGC in AM/FM Telemetry Systems," *Journal of the International Foundation for Telemetry*, pp. 19-23, Feb./Mar. 1969.

R. S. Simpson and W. H. Tranter, "Effect of Recorder Time-Base Error on an AM-Baseband Telemetry System," *IEEE Transactions on Communications Technology*, pp. 316-320, Apr. 1968.

R. S. Simpson and W. H. Tranter, "Carrier Synthesis from Perturbed DSB/SC Signals," *Proceedings of the 1967 International Telemetry Conference*, pp. 371-381, Oct. 1967.

R. S. Simpson and W. H. Tranter, "Effect of Recorder Flutter on Coherent Demodulation in an AM-Baseband System," *Proceedings of the 1967 National Telemetry Conference*, pp. 46-49, May 1967.

Other Publications

"Mobile Radio Communications," R. Ziemer, W. H. Tranter, T. S. Rappaport, R. M. Buehrer. *Encyclopedia of Telecommunications*, Wiley 2002.

T. S. Rappaport, A. Annamalai, R. M. Buehrer, W.H. Tranter, "Wireless Communications: Past Events and a Future Perspective," published in *IEEE Communications Magazine*, 50th Anniversary Issue, May 2002, pp. 148-161.

P. Balister, M. Nizamuddin, M. Robert, W. Tranter and J. Reed, "Role of Signal Envelope Distribution in Predicting the Performance of a Multicarrier Communication System," *Proceedings of the IEEE Radio and Wireless Conference (RAWCON)*, 2001.

A. Verstak, M. Vass, N. Ramakrishnan, C. Shaffer, L. T. Watson, K. K. Bae, J. Jiang, W. H. Tranter, and T. S. Rappaport, "Lightweight Data Management for Compositional Modeling in Problem Solving Environments," *Proceedings of the 2001 High Performance Computing Symposium*, (A. Tentner, editor), International Society for Modeling and Simulation, San Diego, CA, 2001, pp. 148-153.

B. T. E. Biedka, J. H. Reed and W. H. Tranter, "Mean Convergence Rate of a Decision Directed Adaptive Beamformer with Gaussian Interference," *Proceedings of the First IEEE Sensor Array and Multichannel Signal Processing Workshop*, Cambridge, MA, March 2000.

W. H. Tranter and L. A. Ferrari, "The Graduate Program in Information Technology at Virginia Tech", *Proceedings of the 1999 Frontiers in Education Conference*, Nov. 1999.

Peter J. Athanas, Jeffrey H. Reed, and William H. Tranter, "A Prototype Software Radio Based on Configurable Computing," *Advancing Microelectronics, 1998 Special Wireless Issue*, vol. 5, no. 3, pp. 33-38 (invited paper).

T. E. Biedka, W. H. Tranter and J. H. Reed, "Convergence Analysis of a Least Squares Constant Modulus Algorithm," *Proceedings of the Asilomar Conference on Signals, Systems and Computers*, pp. 716-720, Nov. 1996.

T. S. Rappaport, W. H. Tranter, B. D. Woerner, J. H. Reed and D. M. Krizman, "The Role of Simulation in the Teaching of Communications," *Proceedings of the 1996 IEEE Frontiers in Education Conference*, Nov. 1996.

T. S. Rappaport, W. H. Tranter, B. D. Woerner, J. H. Reed and D. M. Krizman, "Curriculum Innovation for Simulation and Design of Wireless Communications Systems," *Proceedings of the ASEE 1996 Annual Conference*, June 1996.

W. H. Tranter and O. H. Lee, "On the Use of Signal-to-Noise Ratio Estimation for Establishing Hidden Markov Models," *Proceedings of the 5th Virginia Tech Symposium on Wireless Personal Communications*, May 1995.

N. Hubing, W. H. Tranter and M. Takatz, "Visualizing Wavelet Transforms Using MATLAB," *Electronic Proceedings of the ASEE Midwest 30th Annual Meeting*, Wichita, Kansas, Mar. 1995.

W. H. Tranter and N. Hubing, "An Example of the Use of MATLAB in the Study of Communications Systems," *Electronic Proceedings of the ASEE Midwest 30th Annual Meeting*, Wichita, Kansas, Mar. 1995.

W. H. Tranter and N. Hubing, "A Comparison of the Application of MATLAB and MathCAD to Problems in Communications and Signal Processing," *Proceedings of the ASEE Midwest Section 29th Annual Meeting*, Lincoln, Nebraska, Mar. 1994.

W. H. Tranter, "The Use of Phasor Diagrams and MathCAD for Understanding Thresholding in Non-linear Communication Systems," *Proceedings of the ASEE Midwest Section 28th Annual Meeting*, Apr. 1993.

O. H. Lee and W. H. Tranter, "Estimation of Signal-to-Noise Ratios in Communication Systems with Complex Quadrature Baseband Signals," *Proceedings of the Second Annual Midwest Electro-Technology Conference*, (Ames, Iowa), Apr. 1993.

K. W. Schneider and W. H. Tranter, "Modeling of Intermodulation Products for Efficient Simulation of Non-Linear Frequency Division Multiplexed Digital Communication Systems," *Proceedings of the First Annual Electro-Technology Conference*, (Ames, Iowa), April 1992.

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W. H. Tranter and B. Greenberg, "On the Equivalent-Noise Bandwidth of Digital Filters," *Proceedings of the Thirty-First Midwest Symposium on Circuits and Systems*, Aug. 1988.

W. H. Tranter, "Simulation of Communication Systems Using Enhanced Microcomputers," *Proceedings of the IMACS 1988 12th World Congress on Scientific Computation*, (Paris, France) Volume 3, pp. 464-466, July 1988.

W. H. Tranter, "The Use of Computers in Electrical Engineering Education - A Slightly Biased Overview," *IBM Academic Computing Conference (Session Preprint)*, June 1988.

W. H. Tranter and J. T. Davis, "Simulation of Tracking Loops Using Micro-computers," *Proceedings of the Nineteenth Southeastern Symposium on System Theory*, pp. 6-10, Mar. 1987.

W. H. Tranter, "A Comparison of Envelope and Log-Envelope Detection with Postdetection Filtering," *Proceedings of the 1986 IEEE MONTECH Conference on Antennas and Communications*, pp. 222-225, Sept. 1986.

E. C. Bertnolli, John T. Park, and W. H. Tranter, "The Missouri Research Assistance Act," *Proceedings of the IEEE 15th Annual Frontiers in Education Conference*, pp. 312-314, Oct. 1985.

D. B. Koch and W. H. Tranter, "Optimum Amplitude Weighting for Range Sidelobe Suppression in a High Resolution Radar Hybrid Waveform Design," *Proceedings of the Twenty-Second Allerton Conference on Communications, Control and Computing*, pp. 459-468, Oct. 1984.

W. H. Tranter and S. Fast, "Phase-Lock Loop Performance in High Interference Environments," *Proceedings of the Twenty-Seventh Annual Midwest Symposium on Circuits and Systems*, pp. 24-27, June 1984.

W. H. Tranter, "Array Coding for Large Data Memories," *1982 IEEE National Telesystems Conference Record*, pp. B4.3.1-B4.3.5, Nov. 1982.

E. C. Bertnolli and W. H. Tranter, "Curriculum Planning for Undergraduate Electrical Engineering Programs in Developing Countries," *Proceedings of the Twenty-Third Annual Midwest Symposium on Circuits and Systems*, Aug. 1980.

J. C. Jennett, B. G. Wixson, E. Bolter, I. Lowsley, D. Hemphill, W. H. Tranter, N. L. Gale, and P. Purushotaman, "Transport and Distribution Around Mines, Mills and Smelters," Chapter 7 in *Lead in the Environment*, W. R. Boggess, editor, U.S. Government Printing Office, NSF/RANN-770214, pp. 135-178, 1977.

M. D. Turner, W. H. Tranter, and T. W. Eggleston, "The Estimation of Signal-to Noise Ratios in Digital Computer Simulations of Lowpass and Bandpass Systems," *1977 IEEE MIDCON Conference*, Nov. 1977.

W. H. Tranter and C. T. Dawson, "Evaluation of Communication Systems Using Both Time and Frequency Domain Techniques," *Proceedings of the 1974 National Electronics Conference*, Oct. 1974.

W. H. Tranter and J. L. Sandvos, "A Scheme for the Determination of Optimum Sampling Sites for Soil and Vegetation," *Proceedings of the Second Annual NSF-RANN Trace Contaminants Conference*, pp. 149-155, Aug. 1974.

J. C. Jennett, E. Bolter, N. L. Gale, W. Tranter, and M. G. Hardie, "The Viburnum Trend, S. E. Missouri: The Largest Lead-Mining District in the World--Environmental Effects and Controls," *Proceedings of the Minerals and the Environment Symposium*, Institute of Mining and Metallurgy, London, England, 1974.

W. H. Tranter and C. T. Dawson, "Noise Studies of Communication Systems Using the SYSTID Computer Aided Analysis Program," *Proceedings of the 1973 National Electronics Conference*, pp. 114-119, Oct. 1973.

W. H. Tranter, J. L. Sandvos, J. C. Jennett, and E. Bolter, "The Development of Ground Truth for Correlation with Remotely Sensed Data," *Proceedings of the 1973 National Electronics Conference*, pp. 151-156, Oct. 1973.

R. E. Ziemer and W. H. Tranter, "The Communications Curriculum at the University of Missouri," *Proceedings of the 1973 National Electronics Conference*, pp. 197-199, Oct. 1973.

W. H. Tranter, "A Generalized Analysis of Coherent Demodulation in the Presence of Noise and Phase Jitter," *Proceedings of the 15th Midwest Symposium on Circuit Theory*, Paper VI, May 1972.

W. H. Tranter and R. E. Ziemer, "Basic Circuit Requirements for a Modularized Communications Laboratory," *Proceedings of the 15th Midwest Symposium on Circuit Theory*, Paper VI, May 1972.

W. H. Tranter and C. B. Abshier, "Optimization of Frequency Dividers Using Cascade Phase-Lock Loops," *Proceedings of the Region III IEEE Conference*, Paper K5, Apr. 1972.

W. H. Tranter and D. R. Cunningham, "Effect of Time-Base Perturbations of an Analog System," *SWIEECO Record*, pp. 86-90, Apr. 1972.

W. H. Tranter, "The Performance of QDSB/FM Systems in the Presence of Additive Noise and Time-Base Perturbations," *Proceedings of the 1970 National Electronics Conference*, pp. 773-778, Dec. 1970.

W. H. Tranter and R. S. Simpson, "Effect of Transmitter Deviation Control in AM Baseband Systems," *Proceedings of the 1969 National Electronics Conference*, pp. 418-423, Dec. 1969.

W. H. Tranter, "Factors Affecting Demodulation Techniques in Suppressed-Carrier AM-Baseband Systems," *Digest of the 1967 International Conference on Communications*, pp. 66, June 1967.

R. S. Simpson and W. H. Tranter, "Easily Implemented, Real-Time Digital Data Filters," *Proceedings of the 1967 IEEE Region III Convention*, pp. 233-240, Apr. 1967.

INVITED PRESENTATIONS:

"Communications Channel Modeling," presented at the 2002 Software Defined Radio Technical Conference and Product Exposition, November 12, 2002, San Diego, California.

"Lightweight Data Management for Compositional Modeling Problem Solving Environments," A. Verstak, M. Vass, N. Ramakrishnan, C. Shaffer, L. T. Watson, K. K. Bae, J. Jiang, W. H. Tranter, and T. S. Rappaport. *Proceedings of the 2001 High Performance Computing Symposium*, (A. Tentner, editor), International Society for Modeling and Simulation, San Diego, CA, 2001, pp. 148-153.

"Computer Aided Design and Analysis of Communication Systems," (Plenary Lecture), *IEEE Wichita Conference on Communications, Networking, and Signal Processing*, Wichita, KS, Apr. 26, 1994.

"Simulation Tools for Space Communications Links," (with W. J. Ebel), workshop presentation at the 1993 International Conference on Communications Workshop on Advanced Satellite and Space Communication Technologies, Geneva, Switzerland, May 27, 1993.

"Analysis Techniques for Space Communications Links," (with W. J. Ebel), workshop presentation at the 1993 International Conference on Communications Workshop on Advanced Satellite and Space Communications Technologies, Geneva, Switzerland, May 27, 1993.

"Time Delay and Signal-to-Noise Ratio Estimation in Communication Systems," presented at the Electrical and Computer Engineering Spring Colloquium, University of Kansas, Lawrence, KS, Mar. 30, 1993.

"Communications and Tracking Communication Link Simulations," (with K. L. Kosbar, et.al.), presented at the 1990 IEEE Globecom Workshop on Space Station Freedom and Communication Systems, San Diego, CA, Dec. 6, 1990.

"Computer-Aided Design and Analysis of Communication Systems," tutorial lecture sponsored by the 1990 IEEE Military Communications Conference, Monterey, CA, Oct. 3, 1990.

"Computer-Aided Design, Analysis and Simulation of Communication Systems," series of four seminars delivered at the Electrical Engineering Department, University of Tennessee-Knoxville, May 21-22, 1990.

"Computer-Aided Design and Analysis of Communication Systems," tutorial lecture sponsored by the 1988 IEEE Military Communications Conference, San Diego, CA, Oct. 25, 1988.

"CAD Techniques for Communication Systems - A History and Overview," presented at Hewlett-Packard Laboratories, Bristol, England, July 21, 1988.

"Computer-Aided Analysis and Design of Communication Systems-An Overview," Naval Research Laboratory, Washington, D.C., July 15, 1987 and RCA Aerospace and Defense Co., Communication and Information Systems Division, Camden, NJ, July 17, 1987.

"Digital Computer Simulation of Communication Systems with Emphasis on the Estimation of Gain, Time Delay, Mean-Square Error, and Signal-to-Noise Ratios," Seminar in Communications Program at Iowa State University, Ames, IA, Feb. 17, 1987.(MASUA Honor Lecture)

"A Survey of Spectral Estimation Techniques with Emphasis on Maximum Entropy Methods," presented in the graduate seminar program, Department of Statistics, Oklahoma State University, Dec. 4, 1986. (MASUA Honor Lecture)

"Computer-Aided Analysis and Design of Communication Systems - Fundamental Concepts," Tutorial lecture sponsored by the 1986 IEEE Military Communications Conference, Monterey, CA, Oct. 6, 1986.

"CAD of Communication Systems - A State of the Art Review," presented at the 28th Midwest Symposium on Circuits and Systems, Louisville, KY, Aug. 20, 1985.

"Performance Measurement of Communication Systems Using Simulation," presented at a graduate seminar series, University of Toronto, Toronto, Ontario, Canada, July 2, 1985.

"Measurement of Mean-Square Error and Signal-to-Noise Ratios in Communication Systems," presented at University College Dublin, Dublin, Republic of Ireland, May 3, 1985.

"Maximum Entropy Spectral Analysis - An Overview with a Few New Results," presented at University College Dublin, Dublin, Republic of Ireland, May 2, 1985.

"Coding for Satellite Communications," Tutorial lecture presented at the 1984 International Conference on Communications, Amsterdam, Netherlands, May 15, 1984.

"An Overview of Channel Models and Performance Characteristics of Digital Communication Systems", Bloudan, Syria, June 28-July 3, 1979.

"Modern Signal Processing Techniques-Analog and Digital", presented at the NEC Professional Growth in Engineering Seminar Program, Chicago, IL, Aug. 8-11, 1976; May 22-24, 1977; Nov. 13-15, 1977; May 3-5, 1978; Apr. 29-30, 1979; and Aug. 3-5, 1980.

"Discrete-Time Analysis Techniques" and "Z-Transforms and the Z-Plane," presented at the NEC Professional Growth in Engineering Seminar Program, Chicago, IL, Apr. 29-30, 1973; Nov. 12-13, 1973; and Apr. 1-2, 1974. Also presented at the NEC Professional Growth in Engineering Seminar Program, Miami, FL, Dec. 16-17, 1974.

"Remote Sensing and Ground Truth Correlation," presented to the Missouri Geological Survey and Water Resources, Rolla, MO, Sept. 24, 1973.

"Remote Sensing for Data Collection," presented at the First Annual NSF- RANN Trace Contaminants Conference, Oak Ridge National Laboratory, Oak Ridge, TN, Aug. 8, 1973.

"Discrete-Time Analysis Techniques," presented at the NEC Professional Growth in Engineering Seminar Program, Miami, FL, Nov. 28, 1972.

"SYSTID - A Flexible Tool for the Design and Analysis of a Communication System," presented at the University of Houston Graduate Seminar in Communications, Houston, TX, July 25, 1972.

"Analog Communication Systems for Use with Wideband Data," presented at the University of Minnesota Center for Control Science Data Communications Lecture Series, Minneapolis, MN, Nov. 1, 1971.

THESIS SUPERVISION:

"Markov Modeling of Third Generation Wireless Channels," Ihsan Ali Akbar, M.S., 2003.

"Distributed Reconfigurable Simulation for Communication Systems," Song Hun Kim, Ph.D., 2002.

"Pseudo-Decorrelating Multi-user Receivers for Asynchronous Code Division Multiple Access (CDMA) Systems," Joong Hoo Park, Ph.D., 1997.

"Modeling and Performance Evaluation of Multipath Fading Channels by Hidden Markov Models," Otto Hing-Bill Lee, Ph.D., 1995.

"Random Number Generation with a Desired Probability Density Function and a Desired Power Spectral Density," Joong Hoo Park, M.S., 1995.

"A Simulation Study of Adaptive Equalizers to Combat Intersymbol Interference in Multipath Channels," Deepa Soni, M.S., 1995.

"The Application of Mean-Square Error and Signal-to-Noise Ratio Estimation to Nonlinear Communication Systems," Krid Dusitsin, M.S., 1994.

"Computer Simulation and Analysis of a Multipath Fading Channel," Katayoun Sohrabi, M.S., 1993.

"BER Estimation in a Non-Linear Digital Communication System Using the Tail Extrapolation Technique," Kok-Ching Ong, M.S., 1992.

"A Computer Simulation of Phase-Locked Loops," Edith E. Lai, M.S., 1992.

"Modeling of Intermodulation Products for Efficient Simulation of Multi-Carrier Digital Communication Systems," Kevin W. Schneider, Ph. D., 1992.

"Simulation and Evaluation of Reed-Solomon Codes in a Burst-Noise Environment," William J. Ebel, Ph.D., 1991.

"Effect of I/Q Arm Unbalance on Costas Phase-Lock Loops," John P. Oliver, Ph.D., 1991.

"The Effect of Additive Gaussian Noise on the Performance of a Nonlinear Baseband Digital Communications Link," Denzil J. Radford, Ph.D., 1990.

"The Equivalent Noise Bandwidth of IIR Digital Filters Produced from Analog Prototypes," Bari E. Greenberg, M.S., 1990.

"Efficient Digital Filter Algorithms for Use in Monte Carlo Simulations of Communication Systems," Hans-Christian Perle, M.S., 1990.

"Digital Computer Simulation of an Optimum Type II Phase-Locked Loop with Transport Delay," Steven A. Wright, M.S., 1990.

"Viterbi Decoding Algorithm and Program Simulation," Kathryn E. Kusmec, M.S., 1990.

"A Computer-Aided Analysis of the Effect of Channel Nonlinearities in Digital Communication Systems," Otto H. B. Lee, M.S., 1990.

"An Investigation of the Tracking, Acquisition and Noise Performance of Charge-Pump Phase-Locked Loops," Ronan E. P. Dowling, M.S., 1990.

"Noise Generators for Use in Computer Simulation," Martina F. Schollmeyer, M.S., 1989.

"Evaluation of Estimation Techniques for the Probability of Symbol Error in the Simulation of Digital Communications Systems," Kevin W. Schneider, M.S., 1989.

"An Application of Least Squares Curve Fitting for Digital Filtering," Todd E. Vanhoogstrate, M.S., 1988.

"A Study of Various Autoregressive Spectral Estimators and the Effects of Varying the Data Block Length," Alexander G. Porakis, M.S., 1987.

"Simulation Analysis of an FM Communication System with a Phase-Locked Loop Discriminator Operating in the Presence of Gaussian Noise and Impulse Noise," Jon T. Davis, M.S., 1987.

"The Utilization of SNRMSE Computer Program to Evaluate Max and Uniform Quantizers," Tanya Vajaranant, M.S., 1986.

"A Study of the Final Prediction Error Criterion Used in the Maximum Entropy Method," Imad Al-Yafi, M.S., 1985.

"An Evaluation of Digital Filters Using a Mean-Square Error Criterion," John W. Nieto, M.S., 1985.

"Hybrid Waveform Design Utilization Complementary Phase Coding and Linear Frequency Stepping for Achieving Improved Slant Range Resolutions in a Synthetic Aperture Radar," Daniel B. Koch, Ph.D., 1984.

"A Simulation Study of Automatic Gain Control Systems," Kamyar Rohani, M.S., 1984.

"An Investigation of Methods of Surface Estimation with Application to the Interpolation of Antenna Patterns," Paul M. N. Feehan, M.S., 1984.

"Cubic Spline Surface Interpolation with Application to the Analysis of S-Band Antenna Patterns," Gary B. Green, M.S., 1982.

"A Study of a Noise Compensation Technique for the Maximum Entropy Method," Dennis M. Gottman, M.S., 1981.

"A Simulation Study of Loop Filter Quantization in a Phase Locked Loop," Yacine N. Houari, M.S., 1981.

"Surface Interpolation Using Samples Taken Along Straight Lines," Steven E. Turner, M.S., 1981.

"A New Algorithm for the Generation of Digital Sinusoidal Signals," Timothy J. Hoog, M.S., 1980.

"An Analysis of Error Detection and Retransmission Schemes for Use with Bi-dimensional Single Parity Check Codes," Mohammad Feknous, M.S., 1979.

"Evaluation of a Sub-Optimum Digital Receiver," Gregory C. Copeland, M.S., 1979.

"Computer-Aided Interpolation of Spatial Surfaces," Gary W. Wilcox, M.S., 1977.

"Investigation of a Binary Digital Communications System Simulation Technique," Terry L. Taylor, M.S., 1976.

"Signal-to-Noise Ratio Estimation in Digital Computer Simulation of Lowpass and Bandpass Systems with Applications to Analog and Digital Communications," Michael D. Turner, Ph.D., 1976.

"Analyzing the Digital Magnetic Recorder for Group-Coded and NRZ Recording," Curtis B. Abshier, Ph.D., 1976.

"Evaluation of a Performance Measuring Postprocessor," Onder K. Kefoglu, M.S., 1976.

"Computer-Aided Sampling and Surface Interpolation," Michael D. Turner, M.S., 1975.

"Performance Evaluation of Linear Systems Using the Fast Fourier Transform," Larry L. Lamano, M.S., 1975.

"Noise Power Estimation Based on Data of Finite Sample Size," John M. Koly, M.S., 1974.

"Design of an Auxiliary Indicator for a Fighter Aircraft," Jack L. Kubicek, M.S., 1974.

"A Discrete Approach to Surface Interpolation," Jerry L. Sandvos, M.S., 1974.

"A Study of the Measurement of Noise Power," Larry L. Heflin, M.S., 1973.

"Digital Registration of Stereo Images Using the Fast Fourier Transform," Victor F. Wilreker, M.S., 1972.

"Frequency Division Using Cascaded Phase-Locked Loops," Curtis B. Abshier, M.S., 1971.

"Characteristics of and Suggested Improvements in Communication Laboratory Equipment at the University of Missouri-Rolla," William E. Abernathie, M.S., 1971.

"A Laboratory Study of the Transmission of Signals Through Solid Material with Possible Application to Seismic Communication," Ronald W. Carter, M.S., 1971.

"An Analysis of a Doublesideband/Frequency Modulated Communication System," Denny R. Townson, M.S., 1970.

OTHER PROFESSIONAL ACTIVITIES:

Vice President – Technical Activities, IEEE Communications Society, 2002 – Present.

Senior Editor, *IEEE Journal on Selected Areas in Communications*, 2002 – Present.

Director of Education – IEEE Communications Society, 2004-2005.

Member, Steering Committee for the *IEEE Transactions on Wireless Communications*, 2004-2005.

Executive Committee Member-at-Large of the Virginia Mountain Section, IEEE Communications Society, 2002.

Board of Governors, IEEE Communications Society, 1999 - 2002.

Director of Journals, IEEE Communications Society, 1997 - 1999.

IEEE Awards Board, 1998 - Present.

Chair, IEEE A. G. Bell Medal Committee, 1998 – 2002.

Editor-in-Chief of the *IEEE Journal on Selected Areas in Communications*, 1988 - 2001.

IEEE Communications Society Publications Board, 1989 - Present.

IEEE Communications Society Awards Board, 1988 - 1992.

Co-author of the report "Research Priorities in Networking and Communications." Prepared for the National Science Foundation Division of Networking and Communications Research and Infrastructure by Members of the NSF sponsored workshop held Apr. 9-11, 1992, Airlie House, VA.

Senior Editor of the *IEEE Journal on Selected Areas in Communications*, 1984 - 1988.

Member of the Advisory Committee to the IEEE Technical Activities Board, 1987.

Corresponding member representing IEEE Division III, IEEE Educational Activities Board, 1984-1985

Member of the IEEE Communications Society Department of Meetings and Workshops, 1980-1989.

Co-Guest Editor for special issue of *IEEE Journal on Selected Areas in Communications* on Millimeter Wave Communications, September 1983.

Chairman of the Rolla Subsection of the St. Louis Section of IEEE, 1984-87.(Vice-Chairman, 1983-84).

Member of the IEEE Communications Society Advisory Council (1977-79).

Chairman of the IEEE Communication Society Data Communication System Committee (1976-77).

Editor of the *Proceedings of the National Electronics Conference* for 1979, 1977, and 1975.