
Jeffrey H. Reed, Ph.D.

Professor and Associate Director
The Mobile and Portable Radio Research Group
The Bradley Department of Electrical and Computer Engineering
Virginia Tech
432 Durham Hall, Mail code 0350
Blacksburg, VA 24061
Voice: (540) 231-2972
FAX: (540) 231-2968
Email: reedjh@vt.edu

Vitae

Section I: Experience and Education

Current

Position: **Professor** of the Bradley Department of Electrical and Computer Engineering
Associate Director of the Mobile and Portable Radio Research Group (MPRG)

Professional

Interest: Research and teaching in signal processing and communication systems

Specific Research Interests

DSP-based Receivers
Interference Rejection
Wireless Networks
Smart Antennas
Communication System Planning
Location Technology

Specific Teaching Interests

Digital and Analog Communications
Discrete Time and Digital Signal Processing
Cellular and Personal Communications
DSP-based Communication System Design
Software Radios
Adaptive Filtering

Education:

- Ph.D.** Electrical and Computer Engineering, December 1987, University of California, Davis
Awarded American Electronics Fellowship for Faculty Development
Major: Statistical Signal Processing; Minor: Control Systems and Statistics
Dissertation: *Interference Rejection Using Time-Dependent Adaptive Filters*
- Attended part-time at University of Santa Clara, September 1980 through June 1983
- M.S.** Electrical and Computer Engineering, June 1980, University of California, Davis
M.S. Project Topic: An EEG Data Acquisition and Analysis System
- B.S.** Electrical and Computer Engineering, March 1979, University of California, Davis

Employment: **Professor**, Virginia Tech, April 2001-present
Associate Professor, Virginia Tech, 1997-2001
Co-founder, Dot Mobile, Inc., March 2000-2001
Consultant, Reed Engineering (Self-Employed), 1987-present.
Assistant Professor, Virginia Tech, 1992-1997
Research Engineer, University of California, Davis, 1992
Lecturer, University of California, Davis, 1988-1992
Associate Instructor, University of California, Davis, 1985-1987
Teaching Assistant, University of California, Davis, 1984-1985
Member of Technical Staff, Signal Science, Inc., Santa Clara, CA and Hanover, MD, 1980-1985

Professional

Affiliations: Member of **Tau Beta Pi Honor Society**
Member of **Phi Kappa Phi Honor Society**
Senior Member of **IEEE**

Journal Reviewing

Activities: **IEEE Transactions on Signal Processing**
IEEE Transactions on Circuits and Systems
IEEE Transaction on Communications
IEEE Transactions on Selected Areas of Communications
IEEE Signal Processing Letters
IEEE Communications Magazine
International Journal on Wireless Information Networks

Funding Agency

Reviewer: **NSF**
University of California, MICRO
Kansas 2000

Section II: Funded Research (Principal Investigator or Co-Principal Investigator)

UWB Propagation Measurements, Modeling, and Communication System Enhancements,
DARPA, 08/16/01-08/15/02, \$688,620

Tactical Communications Architecture and Implementation Plan for the U.S. Customs Service,
Naval Surface Warfare Center, Dahlgren, 8/16/01-8/15/02, \$402,000.

ACN Independent Innovative Research Component, Raytheon Systems, 12/1/01-11/30/02
\$11,250.

Foundation Wireless Network for Medical Applications, Carilion Biomedical Institute, 8/6/01-
6/30/02, \$75,000.

Interference, Propagation, and Antenna Placement Issues for XM Radio, GM, 3/26/01-9/25/02, \$583,527.

AOL Fellowship in Wireless Home Networking Technologies, AOL, 01/01/01-12/31/02, \$70,000.

Reconfigurable Apertures and Space-Time Processing, Raytheon Systems, 05/00-09/02, \$841,350.

Advanced Wireless Technology for Aerospace Communications, Virginia Space Grant Consortium, 08/00 to 05/03, \$15,000

Research and Development for IMT-2000, LG Electronics, 05/15/00 to 09/31/01, \$350,000.

Motorola University Partnership in Research: Overloaded Array Processing, Motorola, 09/01/00 to 08/31/02, \$55,687.

Multuser Detection for Overloaded Antenna Arrays, Raytheon, 05/00 to 05/02, \$1,126,194.

An Investigation of Base Station Diversity For Cellular Applications – Phase II, Metawave, 02/29/00 to 02/28/01, \$104,000.

Broadband Channel-Adaptive Radio Modem for NGI Network Extension and Access, Hughes Research Laboratory, 10/01/99 to 11/30/01, \$81,412.

Research Into Signal Recovery Algorithms in Support of Spectral Spatial Interference Cancellation System (SSICS) – Phase II Research Effort, Raytheon Company, 02/01/00 to 05/15/01, \$149,756.

Navy Collaborative Integrated Information Technology Initiative (NVACITI), Office of Naval Research, 04/00 to 03/03, \$3,665,000 (Reed portion \$339,724)

Research into Spatial Signal Recovery Algorithms in Support of Spectral Spatial Interference Cancellation System - Phase I (SSICS), Raytheon Company, 08/02/99 to 01/10/00, \$97,857.

Low Power and Robust Communications Using Hand-Held Smart Antennas for Receiving and Transmitting, Texas Instruments, 07/01/98 to 06/30/00, \$331,993.

An Investigation of Base Station Diversity for Cellular Applications, Metawave Communications, 03/01/99 to 02/28/01, \$179,706.

International Wireless Communication Research Program, Virginia Tech Research and Graduate Studies' SEED Program, 01/01/99 to 06/30/00, \$7,500.

Navy Collaborative Integrated Information Technology Initiative (NAVCIITI), Office of Naval Research, 11/14/98 to 09/30/00, \$2,700,000.

Enhancing the Capacity of IMT-2000 Through Turbo Coding and Smart Antennas, LGIC, 10/01/98 to 09/30/99, \$122,904.

Low Power and Robust Communications Using Hand-Held Smart Antennas for Receiving and Transmitting, Texas Instruments, 07/01/98 to 06/30/99, \$132,000.

Techniques for Evaluating Location Technologies, Comcast, 05/01/98 to 12/31/98, \$112,154.

Development of Tools for CDMA Cellular Network Planning, Innovative Global Solutions (IGS), 04/01/98 to 01/31/99, \$42,889.

Configurable and Robust Wireless Communications Nodes, DARPA, 07/01/97 to 12/30/00, \$2,015,431.

Support of Telelink System Test, Global-Net, Inc., 09/25/96 to 09/24/97, \$50,000.

Sprint RFI and Evaluation, Sprint Spectrum L. P., 09/26/96 to 12/31/96, \$31,158.

Rural MayDay/800 Call-in System Feasibility, I-95 Corridor Coalition/ Virginia Department of Transportation, 02/01/96 to 01/31/97, \$299,176 (MPRG share \$157,988).

A Study of Reconfigurable Receivers for Cellular and PCS, Texas Instruments, 08/25/95 to 08/25/96, \$35,000.

CDMA/FM Evaluation Effort, Comdial Corporation/Sigtek, 08/28/95 to 12/31/95, \$25,000 (plus \$7,500 CWT match)

Measured DECT System Performance in Actual Radio Channels, National Semiconductor, 10/01/94 to 2/15/96, \$35,024.

Investigation of BMP Impacts on Nonpoint Source Pollution Using System Analysis Procedures, Virginia Water Resource Center/U.S. Dept. of Interior, 04/01/95 to 04/30/96, \$9,963.

Development and Implementation Of Interference Rejection Techniques for Cellular Communications, SAIC, Center for Wireless Telecommunications (CWT), \$50,000 (SAIC, 03/22/95 to 12/31/95) \$25,000 (CWT, 07/01/95 to 06/31/96).

Expanded Testing of a High Capacity Adaptive Wireless Receiver, ARPA/AASERT, 08/01/95 to 07/31/98, \$125,522.

Co-Channel Interference Rejection for FM Mobile Phone Systems, Motorola, 01/16/95 to 09/15/95, \$33,000.

A High Capacity Wireless Receiver Implemented with A Reconfigurable Computer Architecture, ARPA/WAMIS, 09/94 to 08/30/97, \$1,727,230 (\$533,250 for the first year, \$586,750 second year).

Development of a Low Power High Data Rate Spread-Spectrum Modem, Grayson Electronics, Virginia's Center for Innovative Technology (CIT), Center for Wireless Telecommunications (CWT), \$29,833 (Grayson, 03/01/94 to 11/30/94), \$13,204 (CIT, 03/01/94 to 10/31/94) and \$16,000 (CWT matching funds, 04/01/94 to 06/30/95).

Rejection of Interference in AMPS Cellular Communication, ARGOSystems, VA's Center for Innovative Technology (CIT), \$25,000 (ARGOSystems, 12/10/93 to 05/10/94) and \$12,500 (CIT, 04/01/94 to 07/31/94).

Capacity and Interference Resistance of Spread-Spectrum Automatic Vehicle Monitoring Systems in the 902-928 MHz Band, Southwestern Bell Mobile Systems, 10/01/93 to 08/15/94, \$70,007.

University Road Connection - A Smart Highway, Virginia Dept. of Transportation, 07/01/94 to 11/01/94, \$19,523.79.

Development of a Spread Spectrum Transceiver for the DECT System, National Semiconductor, 07/01/94 to 06/30/95, \$30,000.

Investigation of a Dynamic Range Enhancer for an Electro-optic Interface, Southwestern Bell Technology Resources, Inc., 08/01/93 to 06/01/94, \$45,000.

IVHS Research Center of Excellence, Federal Highway Administration (FHWA), 1993 to 1998, \$1 million/year for 5 years (MPRG total approximately \$390,000 over performance period, \$330,000 received in 93-94, 94-95, 95-96, 96-97 contract years).

Center for Wireless Communications, Center for Innovative Technology, 09/01/93 to 08/31/98, \$300,000 for first year. Anticipated total funding approximately \$1,490,835 plus an additional \$357,551 of cost sharing by Virginia Tech.

The Performance and Feasibility of Time-Dependent and Non-Linear Adaptive Filters for Rejecting High-Power Co-Located Co-Channel Interference, US Navy via Systems Research Center, 05/15/93 to 09/01/93, Amount: 1/2 summer session support (value approximately \$3,750).

Evaluation of an NTP-Based Protocol for Paging and Advanced Data Services, MobileComm, 07/01/93 to 09/30/93, \$39,986.

Grants and Gifts:

Monetary Grants and Gifts

Analog Devices, 2001, un-restricted research, \$12,500.

HRL, Smart Antenna Research, 2000, \$40,000.

Flexible Communications Using Reconfigurable Computing, Rockwell, 1998, \$25,000.

MPRG Industrial Affiliates Membership 1993-2001: Grant total split between the five MPRG faculty (total paid \$3,861,500 and an additional \$426,000 committed to date). Services provided to sponsors include advanced copies of thesis and dissertations, informal consulting, and special opportunities to employ students.

Curriculum Innovation for Simulation and Design of Wireless Communications Systems, National Science Foundation, 8/16/95 to 7/31/98, \$289,291.

Investigation of CDMA, donation from ITT, December 1996, \$100,000.

Equipment Grants and Gifts

Altera, MAX + Plus II Fixed Node Subscription (FPGA board), \$2,000.

Texas Instruments, Evaluation Module incl. Code Composer Studio, 6/2001, \$19,960.

Texas Instruments, ADC-Converter, 3/2001, \$99.

Analog Devices, Evaluation Boards (5), Visual DSP software (2), In-Circuit Emulators (2), \$3,790

Wireless Valley Communications, 2001, 2 copies SitePlanner w/LanFielder \$49,980, 1 copy SiteSpy on SMT \$995, \$50,975

Analog Devices, receiver, processor, and receiver chip set, \$645

Texas Instruments, boards, 2001, \$2,495

HRL, 2000, Diversity Antenna, \$200

Altera, development package, 2000, \$995

Altera, (2) MAX+ PLUS II Fixed Node Subscription for PC, (1) design lab package, (1) Micro-Chip; \$4,765.

Motorola, 56311EVM computer board with DSP and 56311 on it, software, documentation, tutorial, and input/output capabilities, 12/2000, \$2000.

Texas Instruments, Evaluation software and manuals, 1998, \$2,500.

Texas Instruments, Evaluation Software, 1997, \$1,000.

Altera, Development Tools for Programming Configurable Logic Devices, \$350.

Texas Instruments, DSP Development Systems and Software, 1997, \$11,475.

Texas Instruments, DSP Hardware and Software, 1997, \$27,500.

Analog Devices, DSP Development Boards, 1996, \$3,200.

Altera, Software Materials, 1996, \$5,000.

SIGTEK, Spread Spectrum Receivers, 1995, \$10,000.

Section III. Teaching and Advising

Classes

Taught:

Graduate Courses

Cellular and Personal Communications (ECE6644)

Software Radios: A Modern Approach to Radio Engineering (ECE5674)

Digital Signal Processing (ECE5624)

Undergraduate Courses

Implementation of Communication Systems (ECE4654)

Signal Processing (ECE4624)

Courses

Communication Systems (ECE3604)

Developed:

Implementation of Communication Systems (ECE 4654)
(Lab materials also developed)

Software Radios: A Modern Approach to Radio Engineering (ECE 5674)

Advising:**Completed Ph.D. Dissertations**

Tom Biedka, *Analysis and Development of Blind Adaptive Beamforming Algorithms*, August 2001

Srikathyayani Srikanteswara, *Design and Implementation of a Soft Radio Architecture for Reconfigurable Platforms*, July 2001

Rich Ertel, *Antenna Array Systems: Propagation and Performance*, July 1999.

Nitin Mangalvedhe, *Development and Analysis of Adaptive Interference Rejection Techniques for Direct Sequence Code Division Multiple Access Systems*, July 1999.

Nishith Tripathi, *Generic Handoff Algorithms Using Fuzzy Logic and Neural Networks*, November 1997.

Paul Petrus, *Novel Adaptive Array Algorithms and Their Impact on Cellular System Capacity*, April 1997.

Jeff Laster, *Robust GMSK Demodulation Using Demodulator Diversity and BER Estimation*, January 1997.

Rong He, *AMPS Co-Channel Interference Rejection Techniques and their Impact on System Capacity*, August 1996.

Current Ph.D. Students

Raqibul Mostafa, Expected Completion Date May 2002 .

William Newhall, Expected Completion Date May 2002.

Pablo (Max) Robert, Expected Completion Date August 2002.

Yash Vasavada, Expected Completion Date May 2002.

James Hicks, Expected Completion Date June 2002.

Completed M.S. Theses

M. Soni, *Computing Engine for Reconfigurable Software Radio*, Oct. 2001

Christian Rieser, *Channel Sounder for LMDS*, May 2001(co-advisor)

James Hicks, *Overloaded Array Processing with Spatially Reduced Search Joint Detection*, May 2000.

Zhong Hu, *Evaluation of Joint AOA and DOA Estimation Algorithms Using the Antenna Array Systems*, May 1999.

Kim Phillips, *Probability Density Function Estimation for Minimum Bit Error Rate Equalization*, May 1999.

Pablo (Max) Robert, *Simulation Tool and Metric for Evaluating Wireless Digital Video Systems*, May 1999.

Steven F. Swanchara, *An FPGA-Based Multiuser Receiver Employing Parallel Interference Cancellation*, July 1998.

Don Breslin, *Adaptive Antenna Arrays Applied to Position Location*, August 1997.

Steve Nicoloso, *Investigation of Carrier Recovery Techniques for PSK Modulated Signals in CDMA and Multipath Mobile Environments*, May 1997.

Brian Fox, *Analysis and Dynamic Range Enhancement of the Analog-to-Digital Interface in Multimode Radio Receivers*, February 1997.

Nena Zecevic, *Interference Rejection Techniques for the Mobile Unit Direct-Sequence CDMA Receiver*, August 1996.

Kevin Saldanha, *Performance Evaluation of DECT in Different Radio Environments*, August 1996.

Milap Majmundar, *Adaptive Single-User Receivers for Direct Sequence CDMA Systems*, February 1996.

Yash Vasavada, *Performance Evaluation of a Frequency Modulated Spread Spectrum System*, February 1996.

Scott Elson, *Simulation and Performance Analysis of CDPD*, January 1996.

Matthew Welborn, *Co-channel Interference Rejection Using Model-based Demodulator*, January 1996.

Francis Dominique, *Design and Development of a Frequency Hopper Based on the Dect System for the 902-928 MHz ISM Band*, December 1995.

Nitin Mangalvedhe, *An Eigenstructure Technique for Direct Sequence Spread Spectrum Synchronization*, April 1995.

Paul Petrus, *Blind Adaptive Arrays for Mobile Communications*, December 1994.

Sihano (Raymond) Zheng, *Channel Modeling and Interference Rejection for CDMA Automatic Vehicle Monitoring Systems*, November 1994.

Fu-Sheng (Frank) Cheng, *A New Approach to Dynamic Range Enhancement*, September 1994.

Volker Aue, *Optimum Linear Single User Detection In Direct-Sequence Spread-Spectrum Multiple Access Systems*, March 1994.

Completed M.S. Projects

Sujayeendar Sachindar, May 2000.

Saffet Bayram, December 2000.

Kazi Zahid, December 2000.

Ariful Hanan, August 2000.

Kau Yao, October 1994.

Mala Subramanian, August 1994.

Tahir Qazi, March 1994.

Allen Alexander

Shankari Panchapakesan

Current M.S. Students

Yasir Ahmed, Expected Completion Date, August 2002.

Phillip Ballister, Expected Completion Date, August 2002.

Bing-leung (Patrick) Cheung, Expected Completion Date, September 2002.

Seshagiri Krishnamoorthy, Expected Completion Date, September 2002.

Jody Neel, Expected Completion Date, July 2002.

Ramesh Chembil Palat, Expected Completion Date, July 2002.

Maheshkumar Sivasubramanian, Expected Completion Date, December 2002.

Srinivasan Vasudevan, Expected Completion Date, October 2002.

Recent Consulting

Clients:

Analog Devices
Tantivy, Inc.
Cubic Communications
La Barge
Norticom
Research in Motion
Luna
HNS

Section IV. Publications List

Books Authored or Co-Authored

1. Jeffrey H. Reed, *Software Radio: A Modern Approach to Radio Design*, May 2002, Prentice Hall.
2. Nishith D. Tripathi, Jeffrey H. Reed, Hugh F. VanLandingham, "Radio Resource Management in Cellular Systems," Kluwer Academic Publishers, Spring 2001

Books Edited

1. W. H. Tranter, B. D. Woerner, J. H. Reed, T. S. Rappaport, and P. M. Robert, *Wireless Personal Communications – Bluetooth and Other Technologies*, Kluwer Academic Publishers, 2000.
2. W. H. Tranter, B. D. Woerner, T. S. Rappaport, and J. H. Reed, *Wireless Personal Communications – Channel Modeling and Systems Engineering*, Kluwer Academic Publishers, 1999, 253 pages.
3. W. H. Tranter, T. S. Rappaport, B. D. Woerner, J. H. Reed, editors, *Wireless Personal Communications: Emerging Technologies for Enhanced Communications*, Kluwer Press, 1998, 329 pages.
4. T. S. Rappaport, B. D. Woerner, J. H. Reed, W. H. Tranter, editors, *Wireless Personal Communications: Improving Capacity, Services, and Reliability*, Kluwer Press, 1997, 225 pages.
5. J. H. Reed, B. D. Woerner, T. S. Rappaport, editors, *Wireless Personal Communications: Advances in Coverage and Capacity*, Kluwer Press, 1997, 223 pages.
6. T. S. Rappaport, B. D. Woerner, J. H. Reed, editors, *Wireless Personal Communications: The Evolution of PCS*, Kluwer Press, 1996, 216 pages.
7. B. D. Woerner, T. S. Rappaport, J. H. Reed, editors, *Wireless Personal Communications: Research Developments*, Kluwer Press, 1995, 295 pages.
8. T. S. Rappaport, B. D. Woerner, J. H. Reed, editors, *Wireless Personal Communications: Trends and Challenges*, Kluwer Press, 1994, 266 pages.

Book Contributions

1. J. H. Reed, and C. J. Rieser, "Software Radio: Technical, Business and Market Implications," *World Market Series Business Briefing Wireless Technology 2001*, WMRC PLC – World Markets Research Centre, ISBN 1-903140-36-1, October 2000, pp. 146-150.
2. P. Petrus and J. H. Reed, "Co-channel Interference in Wireless Communication Systems," *Encyclopedia of Electrical and Electronics Engineering*, John Wiley & Sons, Inc., February 1999 (invited paper).

3. N. R. Mangalvedhe and J. H. Reed, "Analysis of an Eigenstructure Technique for DSSS Synchronization," *Wireless Personal Communications: The Evolution of PCS*, Kluwer Press, 1996 (also appears in *Virginia Tech's Sixth Annual Symposium on Wireless Personal Communications*, June 1996), pp. 201-214.
4. J. D. Laster and J. H. Reed, "A Survey of Adaptive Single Channel Interference Rejection Techniques for Wireless Communications," *Wireless Personal Communications: Research Developments*, Kluwer Press, 1995 (also appears in *Virginia Tech's Fourth Annual Symposium on Wireless Personal Communications*, June 1994), pp.29-54.
5. I. Howitt, J. H. Reed, V. Vemuri, T.C. Hsia, "Recent Developments In Applying Neural Nets to Equalization And Interference Rejection," *Wireless Personal Communications: Trends and Challenges*, Kluwer Press, 1994 (also appears in *Virginia Tech's Third Symposium on Wireless Personal Communications*, June 1993), pp.49-58.

Papers in Refereed Journals

1. P.Petrus, J.H. Reed, T.S. Rappaport, "Geometrical-based Statistical Macrocell Channel Model for Mobile Environments," *IEEE Transactions on Communications*, Vol. 50, No. 3, March 2002.
2. Raqibul Mostafa, Fakhru Alam, Kyung Kyoon Bae, J.H. Reed, W.H. Tranter, B.D. Woerner, "3G-Around the world and back again," published in *RF Design*, February 2002.
3. J. Hicks, S. Bayram, W.H. Tranter, R.J. Boyle, and J.H. Reed, "Overloaded Array Processing with Spatially Reduced Search Joint Detection," *IEEE Journal on Selected Areas in Communication*, Vol. 19, No. 8, August 2001, pp. 1584-1593.
4. T. Li, Y. M. Vasavada, B. D. Woerner, and J. H. Reed, "A Novel Direct Sequence Spread Spectrum CDMA System with Analog Frequency Modulation," *International Journal on Wireless Information Networks*, Vol. 7, No.1, 2000, pp. 43-53.
5. R.B. Ertel and J.H. Reed, "Angle and Time of Arrival Statistics for Circular and Elliptical Scattering Models," *IEEE Journal on Selected Areas in Communications: Wireless Communications Series*, pp. 1829-1840, Vol. 17, No. 11, November 1999.
6. M. Majmundar, N. Sandhu, and J. H. Reed, "Adaptive Single-User Receivers for Direct-Sequence Spread-Spectrum CDMA Systems," *IEEE Transactions on Vehicular Technology*, Vol. 49, No. 2, March 2000, pp. 379-389.
7. 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.
8. S. Srikanteswara, J. H. Reed, P. Athanas, and R. Boyle, "A Soft Radio Architecture for Reconfigurable Platforms," *IEEE Communications Magazine*, February 2000. pp. 140-147.
9. R. B. Ertel and J. H. Reed, "Angle and Time of Arrival Statistics for the Geometrically Based Single Bounce Vector Channel Models," *IEEE Journal on Selected Areas in Communications: Wireless Communications Series*, Vol. 17, No. 11, November 1999, pp. 1829-1840.

10. N. Tripathi and J. H. Reed, "Handoffs in Cellular Systems," *IEEE Personal Communications*, December 1998, pp. 26-37.
11. R. B. Ertel and J. H. Reed, "Generation of Two Equal Power Correlated Rayleigh Fading Envelopes," *IEEE Communications Letters*, Vol. 2, No. 10, October 1998, pp. 276-278.
12. 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).
13. Jeffrey H. Reed, Kevin J. Krizman, Brian D. Woerner, and Theodore S. Rappaport, "An Overview of the Challenges and Progress in Meeting the E911 Requirement for Location Service," *IEEE Communications Magazine*, April 1998, pp. 30-37.
14. P. Petrus, R. B. Ertel, and J. H. Reed, "Capacity Improvement using Adaptive Arrays in an AMPS System," *IEEE Trans. on Vehicular Technology*, Vol. 47, No. 3, August 1998, pp. 717-727.
15. P. Petrus, J. H. Reed, and T. S. Rappaport, "Geometrically Based Statistical Macrocell Channel Model for Mobile Environments," *IEEE Transactions on Communications*, accepted, no publication date at this time.
16. R. B. Ertel, P. Cardieri, K. W. Sowerby, T. S. Rappaport, and J. H. Reed, "Overview of Spatial Channel Models for Antenna Array Communication Systems," *IEEE Personal Communications Magazine*, February 1998, pp. 10-22 (also appears in *Smart Antennas: Adaptive Arrays, Algorithms, & Wireless Position Location*, IEEE, Inc., 1998, pp.447-456).
17. P. Petrus and J. H. Reed, "Performance Analysis of the Spectral Correlation Discriminator Array," *International Journal on Wireless Personal Communications* (special issue), February 1998, pp. 337-359.
18. Z. Rong, P. Petrus, T. S. Rappaport, and J. H. Reed, "Despread-Respread Multi-Target Constant Modulus Array for CDMA Systems," *IEEE Communications Letters*, July, 1997, pp. 114-116.
19. J. Laster and J. H. Reed, "Interference Rejection in Digital Wireless Communications," *IEEE Signal Processing Magazine*, May, 1997, pp. 37-62.
20. P. Petrus, J. H. Reed, and T. S. Rappaport, "Effects of Directional Antennas at the Base Station on the Doppler Spectrum," *IEEE Communications Letters*, March, 1997, p. 40-42 (also appears in *Smart Antennas: Adaptive Arrays, Algorithms, & Wireless Position Location*, IEEE, Inc., 1998, pp.489-91).
21. F. Dominique and J. H. Reed, "Estimating Spectral Correlations using the Least Mean Square Algorithm," *IEE Electronic Letters*, January 30, 1997, pp. 182-184.
22. F. Dominique and J. H. Reed, "A Despread Data Rate Update Multi-target Adaptive Array for CDMA Signals," *IEE Electronic Letters*, January 16, 1997, pp. 119-121.
23. F. Dominique and J. H. Reed, "A Simple PN Code Sequence Estimation and Synchronization Techniques Using the Constrained Hebbian Rule," *IEE Letters*, January 2, 1997, pp. 37-38.
24. B.G. Agee, R. J. Kleinman, and J. H. Reed, "Soft Synchronization of Direct Sequence Spread Spectrum Signals," *IEEE Transactions on Communications*, November, 1996, pp.1527-1536.

25. T. S. Rappaport, J. H. Reed, B. D. Woerner, "Position Location Using Wireless Communications on Highways of the Future," *IEEE Communications Magazine*, vol. 34, no. 10, October, 1996, pp. 33-41, invited paper (also appears in *Smart Antennas: Adaptive Arrays, Algorithms, & Wireless Position Location*, IEEE, Inc., 1998, pp.393-401).
26. N. Mangalvedhe and J. H. Reed, "Evaluation of a Soft Synchronization Technique for DS/SS Signals," *IEEE Journal on Selected Areas in Communications*, vol. 14, no. 8, October 1996, pp.1643-1652.
27. F. Dominique and J. H. Reed, "A Robust Frequency Hop Synchronization Algorithm," *IEE Electronics Letters*, vol. 32, no. 16, August 1, 1996, pp. 1450-1451.
28. P. Petrus and J. H. Reed, "Time Dependent Adaptive Arrays," *IEEE Signal Processing Letters*, vol. 2, no. 12, December 1995, pp. 219-222.
29. J. H. Reed, N. Yuen, and T. C. Hsia, "An Optimal Receiver Implemented Using A Time-Dependent Adaptive Filter," *IEEE Transactions on Communications*, vol. 43, no. 2/3/4, February-March-April, 1995, pp. 187-190.
30. B. D. Woerner, J. H. Reed, T. S. Rappaport, "Simulation Issues for Future Wireless Modems," *IEEE Communications Magazine*, vol. 32, no. 7, July 1994, pp. 42-53, invited paper.
31. R. Mendoza, J. H. Reed, T. C. Hsia, and B. G. Agee, "Interference Rejection Using The Generalized Constant Modulus Algorithm And The Hybrid CMA/SCD," *IEEE Transactions on Signal Processing*, vol. 39, no. 9, September 1991, pp. 2108-2111.
32. J. H. Reed and T. C. Hsia, "The Performance Of Time-Dependent Adaptive Filters For Interference Rejection," *IEEE Transactions on Acoustics, Speech, and Signal Processing*, vol. 38, no. 8, August 1990, pp. 1373-1385.

Conference Papers

Accepted on the basis of peer review

1. J. Hicks, J. Tsai, J.H. Reed, W.H. tranter, "Overloaded Array Processing with MMSE-SIC," presented at VTC 2002 Spring, Birmingham, AL, May 6-10, 2002.
2. M.C. Valenti, M. Robert, J.H. Reed, "On the Throughput of Bluetooth Data transmissions," presented at WCNC 2002, Orlando, FL, March 17-21, 2002, vol. 1, pp. 119-123.
3. W. Newhall, J.H. Reed, "A Geometrically Based Radio Channel Model for Air-to-Ground Communications," presented to the Virginia Space Grant Consortium, March 2002.
4. S. Srikanteswara, J. Neel, J.H. Reed, P. Athanas, "Soft Radio Implementations for 3G and Future High Data Rate Systems," presented at GLOBECOM 2001, San Antonio, TX, November 25-29, 2001, vol. 6, pp. 3370-3374.
5. R. Mostafa, A. Hannan, J.H. Reed, W.H. Tranter, "Narrowband Transmit Diversity Measurements at the Handset for an Indoor Environment," accepted but not presented at ICICS 2001, Mandrin, Singapore, October 28-31, 2001.

6. J. Kim, Y.M Vasavada, J.H. Reed, "Spatio-temporal Searcher Structure for 3G W-CDMA Smart Antenna Systems," presented at VTC 2001 Fall, Atlantic City, New Jersey, October 7-11, 2001, vol. 3, pp. 1635-1639.
7. J.Kim, K.Zahid, J.H. Reed, "Performance Evaluation of 3G W-CDMA Smart Antenna Systems for Rural Area Multi-Path Fading Environments," accepted but not presented WPMC 2001, Aalborg, Denmark, September 9-12, 2001.
8. R. Gozali, R. Mostafa, R.C. Palat, S. Marikar, P.M. Robert, W.G. Newhall, C. Beaudette, S.A. Tsaikkou, B.D. Woerner, J.H. Reed, "Virginia Tech Space-Time Advanced Radio," presented at RAWCON 2001, August 19-22, 2001, pp. 227-231.
9. P. Balister, M. Nizamuddin, M. Robert, W.H. Tranter, J.H. Reed, "Role of Signal Envelope Distribution in Predicting the Performance of a Multicarrier Communication System," presented at RAWCON 2001, Boston, MA, August 19-22, 2001, pp. 245-248.
10. R. Gozali, S. Bayram, J. Tsai, B.D. Woerner, J.H. Reed, "Interpolation Based Data-Aided Timing Recovery Scheme for Multi-User CDMA Receivers," presented at Wireless 2001, Calgary, Alberta, Canada, July 9-11, 2001, pp. 544-548.
11. M. Robert, J.H. Reed, "Software Design Issues in Networks with Software-Defined-Radio Nodes," presented at WETICE '01, June 20-21, 2001, pp. 55-59.
12. T. E. Biedka, J. H. Reed, and W. H. Tranter, "Mean Convergence Rate of a Decision Directed Adaptive Beamformer with Gaussian Interference," *SAM 2000 – IEEE Sensor Array and Multichannel Signal Processing Workshop*, Cambridge, MA, March 16-17, 2000.
13. N. D. Tripathi, J. H. Reed, and H. F. VanLandingham, "Pattern Classification Based Handoff Using Fuzzy Logic and Neural Nets," *ICC '98 -- International Conference on Communications*, Atlanta, Georgia, June 7-11, 1998, Section 48, Paper 2.
14. S. K. Yao and J. H. Reed, "GMSK Differential Detectors with Decision Feedback in Multipath and CCI Channels," *1996 Globecom Conference*, London, November 1996, pp. 1830-1834.
15. P. Petrus, T. S. Rappaport, J. H. Reed, "Geometrically Based Statistical Macrocell Channel Model for Mobile Environments," *1996 Globecom Conference*, London, November 1996, pp. 1197-1201.
16. N. Mangalvedhe and J. H. Reed, "An Eigenstructure Technique for Soft Synchronization of Spread Spectrum," *1996 IEEE Conference on Acoustics, Speech and Signal Processing*, Atlanta, May 7-10, 1996, pp. 1751-1754.
17. P. Petrus, I. Howitt, J. H. Reed, "Evaluation of Outage Probability Due to Co-channel Interference in Fading for an AMPS System with an Ideal Beamformer," *Wireless 1996*, Alberta Canada, July 1996, pp. 29-40.
18. R. He and J. H. Reed, "AMPS Interference Rejection by Exploiting the SAT Information," *Personal, Indoor, and Mobile Radio Communications*, Toronto, September 1995, p.597-602.
19. P. Petrus and J. H. Reed, "Co-Channel Interference Rejection for AMPS Signals Using Spectral Correlation Properties and an Adaptive Array," *IEEE Vehicular Technology Conference*, Chicago, July 1995, pp. 30-34.
20. P. Petrus and J. H. Reed, "Least Squares CM Adaptive Array for Co-Channel Interference Rejection for AMPS and IS-54," *Wireless 95*, Calgary, July 1995, pp. 7.41-7.47.

21. F.J. Cheng, P. Lemson, J. H. Reed, I. Jacobs, "A Dynamic Range Enhancement Technique for Fiber Optic Microcell Radio Systems," *IEEE Vehicular Technology Conference*, Chicago, July 1995, pp. 774-778.
22. S. P. Neugebauer and J. H. Reed, "Prediction of Maximal Length Pseudorandom Sequences Using Neural Networks" *ANNIE '94* (Artificial Neural Networks In Engineering), November 1994, pp. 675-80.
23. R. J. Holley and J. H. Reed, "Time Dependent Adaptive Filters for Interference Cancellation in CDMA Systems," *Workshop on Cyclostationary Signal Processing*, Monterey, August 1994.
24. I. Howitt, R. Vemuri, J. H. Reed, T. C. Hsia, "Comparison of Center Estimation Methods for RBF Networks," *IMAC 94*, Atlanta, July 1994, 1304-1306.
25. I. Howitt, R. Vemuri, J. H. Reed, T.C. Hsia, "RBF Growing Algorithm Applied to Equalization and Co-channel Interference Rejection Problem," *IEEE World Congress on Computational Intelligence/International Conference on Neural Networks*, Orlando, FL, June 26-July 2 1994, pp. 3571-3576.
26. T. Yang, J. H. Reed, and T.C. Hsia, "Spectral Correlation Of BPSK and QPSK Signals In A Nonlinear Channel With AM/AM and AM/PM Conversions," *IEEE International Conference on Communications*, Chicago, 1992, pp. 627-632.
27. J. H. Reed, A. A. Quilici, and T. C. Hsia, "A Frequency Domain Time-Dependent Adaptive Filter for Interference Rejection," *IEEE Military Communications Conference*, San Diego, October 1988, pp. 391-397.
28. J. H. Reed and T. C. Hsia, "A Technique For Sorting And Detecting Signals In Interference," *IEEE Military Communications Conference*, San Diego, October 1988, pp. 425-430.

Accepted on the basis of abstract

1. S. Srikanteswara, J. Neel, J.H. Reed, P. Athanas, "Designing Soft Radios for High-Data Rate Systems and Integrated Global Services," presented at the 35th Asilomar Conference, Pacific Grove, CA, November 4-7, 2001, vol. 1, pp. 51-55.
2. F. Alam, K. Zahid, B.D. Woerner, J.H. Reed, "Performance Comparison Between Pilot Symbol Assisted and Blind Beamformer-Rake Receivers at the Reverse Link of Third Generation CDMA System," presented at VTC 2001 Fall, Atlantic City, New Jersey, October, 7-11, 2001, vol. 1, pp. 353-357.
3. Y.M Vasavada, J.Kim, J.H. Reed, "Receiver Structure for W-CDMA Space-time Processing," presented at VTC 2002 Fall, October 7-11, 2001, vol. 4, pp. 1965-1969.
4. R. Mostafa, K. Dietze, R.C. Palat, W.L. Stutzman, J.H. Reed, "Demonstration of Real-time Wideband Transmit Diversity at the Handset in the Indoor Wireless Channel," presented at VTC 2001 Fall, Atlantic City, New Jersey, October 7-11, 2001, vol. 4, pp. 2072-2076.
5. S. Bayram, J. Hicks, R. J. Boyle and J. H. Reed, "Overloaded Array Processing in Wireless Airborne Communication Systems," *MILCOM 2000 – IEEE Military Communications Conference*, Los Angeles, CA, (proceedings on CD ROM), October 22-25, 2000.

6. S. Bayram, J. Hicks, R. J. Boyle, and J. H. Reed, "Joint Maximum Likelihood Approach in Overloaded Array Processing," *VTC Fall 2000 – IEEE Vehicular Technology Conference*, Boston, MA, pp. 394-400, September 24-28, 2000.
7. S. Srikanteswara, M. Hosemann, J. H. Reed and P. M. Athanas, "Design and Implementation of a Completely Reconfigurable Soft Radio," *RAWCON 2000 – IEEE Radio and Wireless Conference*, Denver, Colorado, pp. 7-11, September 10-13, 2000.
8. M. Hosemann, S. Srikanteswara and J. H. Reed, "A Code Tracking Technique for Direct Sequence Spread Spectrum Using Adaptive Filtering," *RAWCON 2000 – IEEE Radio and Wireless Conference*, Denver, CO, pp. 25-28, September 10-13, 2000.
9. W. L. Stutzman, J. H. Reed, C. B. Dietrich, B. Kim, and D. G. Sweeney, "Recent Results From Smart Antenna Experiments – Base Station and Handheld Terminals," *2000 IEEE RAWCON*, Denver, CO, September 10-13, 2000.
10. T. Biedka, C. Dietrich, K. Dietze, R. Ertel, B. Kim, R. Mostafa, W. Newhall, U. Ringel, J. H. Reed, D. Sweeney, W. L. Stutzman, R. J. Boyle, and A. Tikku, "Smart Antenna for Handsets," *DSPTS Fest 2000*, Houston, Texas, proceedings not yet published, August 2-4, 2000.
11. R. Mostafa, N. D. Tripathi and J. H. Reed, "DSP Implementation of Communication Systems," *DSPTS Fest 2000*, Houston, Texas, proceedings not yet published, August 2-4, 2000.
12. S. Bayram, J. Hicks, R. J. Boyle, and J. H. Reed, "Overloaded Array Processing: Non-Linear vs. Linear Signal Extraction Techniques," *Wireless 2000 – 12th Annual International Conference on Wireless Communications*, Calgary, Alberta, Canada, Vol. 2, pp. 492-498, July 10-12, 2000.
13. K. A. Phillips, J. H. Reed, and W. H. Tranter, "Minimum BER Adaptive Filtering," *ICC 2000 – IEEE International Conference on Communications*, New Orleans, LA, June 18-22, 2000, pp. 310-321.
14. P.M. Robert, A. Darwish, and J.H. Reed, "Fast Bit Error Generation for the Simulation of MPEG-2 Transmissions in Wireless Systems," *WCNC '99 – IEEE Wireless Communications and Networking Conference*, New Orleans, LA, September 21-24, 1999.
15. P. M. Robert, A. Darwish, and J. H. Reed, "MPEG Video Quality Prediction in a Wireless System," *VTC '99 – IEEE Vehicular Technology Conference*, Houston, TX, Vol. 2, pp. 1490-1495, May 17-21, 1999.
16. N. D. Tripathi, J. H. Reed, and H. F. VanLandingham, "Fuzzy Logic Based Adaptive Handoff Algorithms for Microcellular Systems," *VTC '99 – IEEE Vehicular Technology Conference*, Houston, TX, pp. 1419-1424, May 17-21, 1999.
17. N. D. Tripathi, J. H. Reed, and H. F. VanLandingham, "Adaptive Handoff Algorithms for Cellular Overlay Systems Using Fuzzy Logic," *VTC '99 – IEEE Vehicular Technology Conference*, Houston, TX, Vol. 2, pp. 1413-1418, May 17-21, 1999.
18. R. B. Ertel, Z. Hu, and J. H. Reed, "Antenna Array Hardware Amplitude and Phase Compensation Using Baseband Antenna Array Outputs," *VTC '99 – IEEE Vehicular Technology Conference*, Houston, TX, pp. 1759-1763, May 17-21, 1999.
19. P. M. Robert, A. Darwish, and J. H. Reed, "Effect of Error Distribution in Channel Coding Failure on MPEG Wireless Transmission," *SPIE '99- Electronic Imaging*, San Jose, CA, Jan. 23-29, 1999.

20. S. Srikanteswara, P. Athanas, J. H. Reed, and W. H. Tranter, "Configurable Computing for Communication Systems," *IMAPS 98 – International Microelectronics and Packaging Society*, San Diego, CA, Nov. 2-4, 1998.
21. Nishith D. Tripathi, Jeffrey H. Reed, and Hugh F. VanLandingham, "Pattern Classification Based Handoff Using Fuzzy Logic and Neural Nets," *ICC '98 -- International Conference on Communications*, Atlanta, Georgia, June 7-11, 1998, Section 48, Paper 2.
22. R. B. Ertel and J. H. Reed, "Impact of Path Loss on the Doppler Spectrum for the Geometrically Based Single Bounce Vector Channel Models," *VTC '98 -- Vehicular Technology Conference*, Ottawa, Ontario, Canada, May 18-21, 1998, vol. 1, pp. 586-590.
23. N. D. Tripathi, J. H. Reed, and H. F. VanLandingham, "An Adaptive Direction Biased Fuzzy Handoff Algorithm with Unified Handoff Selection Criterion," *VTC '98 -- Vehicular Technology Conference*, Ottawa, Ontario, Canada, May 18-21, 1998, vol. 1, pp. 127-131.
24. Nishith D. Tripathi, Dr. Jeffrey H. Reed, and Dr. Hugh VanLandingham, "An Adaptive Handoff Algorithm Using Neural Encoded Fuzzy Logic System," *Annie '97*, Saint Louis, Missouri, November 9-12, 1997.
25. J. H. Reed, R. Ertel, P. Cardieri, T. S. Rappaport, "Vector Channel Models," *1997 Stanford Workshop on Smart Antennas*, Stanford, CA, July 24-25, 1997 (invited presentation).
26. Z. Rong, T. S. Rappaport, P. Petrus, and J. H. Reed, "Simulation of Multi-target Adaptive Array Algorithms for CDMA System," *IEEE Vehicular Technology Conference*, May 1997 (also appears in *Smart Antennas: Adaptive Arrays, Algorithms, & Wireless Position Location*, IEEE, Inc., 1998, pp.321-5).
27. N. Zecevic and J. H. Reed, "Blind Adaptation Algorithms For Direct-Sequence Spread-Spectrum CDMA Single-User Detection," *IEEE Vehicular Technology Conference*, May 1997.
28. N. Mangalvedhe and J. H. Reed, "Blind CDMA Interference Rejection in Multipath Channels," accepted to *1997 IEEE Vehicular Technology Conference*, May 1997.
29. W. C. Ting, and J. H. Reed, "Interference Rejection for AMPS Using Time Dependent Adaptive Filter and Model-Based Demodulation," *IEEE Vehicular Technology Conference*, May 1997.
30. R. He and J. H. Reed, "Cell Average Carrier to Interference Coverage Improvement by Using DSP Interference Rejection Techniques," *1997 IEEE Vehicular Technology Conference*, May 1997.
31. D. G. Sweeney and J. H. Reed, "License Free Wireless Operation," *Southeastcon '97*, Blacksburg, VA, April 12-14, 1997.
32. T. E. Biedka, B. D. Woerner, and J. H. Reed, "Direction Finding Methods for CDMA Systems," *IEEE Asilomar Conference*, November 1996, 637-641.
33. T. E. Biedka, W. H. Tranter, and J. H. Reed, "Convergence Analysis of the Least Squares Constant Modulus Algorithm," *IEEE Asilomar Conference*, November 1996, 541-545.
34. N. R. Mangalvedhe, J. H. Reed, "Analysis of an Eigenstructure Technique for DSSS Synchronization," *Virginia Tech's Sixth Annual Symposium on Wireless Personal Communications*, June 1996 (also appearing in *Wireless Personal Communications: The Evolution of PCS*, Kluwer Press, 1996).

35. B. Tranter, T. S. Rappaport, B. D. Woerner, J. H. Reed, D. Krizman, "The Role of Simulation in Teaching of Communications," *1996 Frontiers in Education Conference*, Salt Lake City, Utah, Nov. 6-9, 1996, paper 7a1.1.
36. T. S. Rappaport, W.H. Tranter, J. H. Reed, B. D. Woerner, D. M. Krizman, "Curriculum Innovation for Simulation and Design of Wireless Communications Systems", *American Society of Engineering Education Conference*, June 1996, (CD ROM version only, location 162644ms.pdf).
37. F. S. Cheng, P. Lemson, J. H. Reed, I. Jacobs, "The Dynamic Range Enhancement Technique Applied to an AMPS and CDMA Cellular Environment," *1996 IEEE Vehicular Technology Conference*, April 1996, pp.1057-1059.
38. M. Welborn and J. H. Reed, "Co-Channel Interference Rejection Using a Model-based Demodulator for AMPS and NAMPS," *1996 IEEE Vehicular Technology Conference*, April 1996, pp. 1312-1316.
39. M. Majmundar, J. H. Reed, P. Petrus, "Interference Rejection for IS-54 Signals," *1996 IEEE Vehicular Technology Conference*, April 1996, pp.1321-1325.
40. R. He and J. H. Reed, "A Robust Co-Channel Interference Rejection Technique for Current Mobile Phone System," *1996 IEEE Vehicular Technology Conference*, April 1996, pp. 1007-1011.
41. T. E. Biedka, L. Mili, J. H. Reed, "Robust Estimation of the Cyclic Correlation in Contaminated Gaussian Noise," *IEEE Asilomar Conference on Signals, Systems and Computers*, Pacific Grove, California, Nov. 1995, pp. 511-515.
42. R. He and J. H. Reed, "Spectral Correlation of AMPS Signals and its Application to Interference Rejection," *IEEE Military Communications Conference*, October 1994, pp. 1007 – 1011, invited paper.
43. V. Aue and J. H. Reed, "An Interference Robust CDMA Demodulator That Uses Spectral Correlation Properties," *IEEE Vehicular Technology Conference*, Stockholm, Sweden, June 8, 1994, pp. 563 - 567.
44. J. D. Laster and J. H. Reed, " A Survey of Adaptive Single Channel Interference Rejection Techniques for Wireless Communications," *Virginia Tech's Fourth Annual Symposium on Wireless Personal Communications*, June 1994, pp. 2.1-2.25 (also appears in *Wireless Personal Communications: Research Developments*, Kluwer Press, 1995.)
45. I. Howitt, J. H. Reed, V. Vemuri, T.C. Hsia, "Recent Developments In Applying Neural Nets to Equalization And Interference Rejection," *Virginia Tech's Third Annual Symposium on Wireless Personal Communications*, June 1993, pp. 1.1-1.12 (also appears in *Wireless Personal Communications: Trends and Challenges*, Kluwer Press, 1994.)
46. B. G. Agee, K. Cohen, J. H. Reed, T.C. Hsia, "Simulation Performance Of A Blind Adaptive Array For A Realistic Mobile Channel," *IEEE Vehicular Technology Conference*, NJ, 1993, pp. 97-100.
47. J. H. Reed and B.G. Agee, "A Technique for Instantaneous Tracking of Frequency Agile Signals in the Presence of Spectrally Correlated Interference," *1992 Asilomar Conference on Signals, Systems, and Computers*, Asilomar, 1992, pp. 1065-1071.
48. J. H. Reed and T. C. Hsia, "The Theoretical Performance of Time-Dependent Adaptive Filters for Interference Rejection," *1990 IEEE Military Communications Conference*, pp. 961-965.

49. R. Mendoza, J. H. Reed, T. C. Hsia, and B. G. Agee, "Interference Rejection Using A Time-Dependent Constant Modulus Algorithm," *1989 Asilomar Conference on Signals, Systems and Computers*, Asilomar, 1989, pp. 273-278.
50. J. H. Reed, C. D. Greene, and T. C. Hsia, "Demodulation Of A Direct Sequence Spread-Spectrum Signal Using An Optimal Time-Dependent Receiver," *IEEE Military Communications Conference*, Boston, October 1989, pp. 657-662.
51. C. D. Greene, J. H. Reed, and T. C. Hsia, "An Optimal Receiver Using A Time-Dependent Adaptive Filter," *1989 IEEE Military Communications Conference*, Boston, October 1989, pp. 650-666.
52. R. Mendoza, J. H. Reed, and T. C. Hsia, "Interference Rejection Using A Hybrid Constant Modulus Algorithm And Spectral Correlation Discriminator," *1989 IEEE Military Communications Conference Proceedings*, Boston, October 1989, pp. 491-497.
53. J. H. Reed and T. C. Hsia, "Decision-Directed Demodulation," *IEEE Conference on Decision and Control*, 1985, pp.1286-1287.
54. J. H. Reed and T. C. Hsia, "Application Of Adaptive Short-Term Correlation Algorithms to Interference Rejection," *Asilomar Conference on Signals, Systems, and Computers*, 1985, pp. 441-445.
55. J. H. Reed and T. C. Hsia, "A Technique For Separating Short And Long-Duration Signals And Its Application To Interference Rejection," *Fourth Yale Workshop on Applications of Adaptive System Theory*, Yale University, 1985.

Papers, Talks, and Lectures Presented at Professional Meetings

1. R.M. Buehrer, J.H. Reed, "Robust Ad-Hoc, Short-Range Wireless Networks for Tracking and Monitoring Devices," presented th the Marine Corp., April 2002.
2. J.H. Reed, "Overloaded Array Processing with Spatially Reduced Search Joint Detection," presented th the Dresden University of Technology, September 24, 2001.
3. B. Kim, W. L. Stutzman, D. G. Sweeney, and J. H. Reed, "Space, Polarization, and Angle Diversity for Cellular Base Stations Operating in Urban Environments," *2000 IEEE Antennas and Propagation International Symposium*, Salt Lake City, UT, pp. 940-943, July 16-21, 2000.
4. B. Kim, W. L. Stutzman, D. G. Sweeney, and J. H. Reed, "Initial Results from an Experiemental Cellular Base Station with Space, Polarization, and Angle Diversity Operating in Urban Environments," *10th Virginia Tech/MPRG Symposium on Wireless Personal Communications*, Blacksburg, VA, June 14-16, 2000.
5. Dr. Reed presented an invited lecture series to several Korean companies, compliments of Samsung Advanced Institute of Technologies. The list of companies included: Samsung, LGIC, and ETRI. Spring 2000.
6. J. H. Reed, "The Future of Wireless," invited talk, Atlantic City, NJ, November 15, 1999.
7. J. H. Reed, "Software Radios," Motorola Futures Forum, invited talk to corporate strategists, Pheonix, AZ, November 8, 1999.

8. P. Robert and J. H. Reed, "Digital Video Transmissions in a Wireless System," *Ninth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
9. M. Hosemann and J. H. Reed, "Synchronization Techniques for Spread Spectrum Signals," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
10. S. Srikanteswara, and J. H. Reed, "Development of a Software Radio Architecture Using Reconfigurable Computing," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
11. J. Hicks, P. Roy, J. Tilki, L. Beex, J. Reed, and W. Farley, "Simulation Tool for Speech Recognition over Wireless," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
12. R. Ertel and J. Reed, "Optimum SINR Antenna Array Performance Analysis," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
13. R. Banerjee, B. Woerner and J. Reed, "Case Studies in Software Radios," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
14. P. M. Robert, A. M. Darwish, and J. H. Reed, "Fast Bit Error Generation for the Simulation of MPEG-2 Transmissions in Wireless Systems," invited presentation, IEEE Wireless Communications and Networking Conference 1999, New Orleans, LA, proceedings on CD Rom, September 21-24, 1999.
15. J. H. Reed and Srikathyayani Srikanteswara, "Software Radio Architecture for a Reconfigurable Computing Platform," presented at the *IEEE Communications Theory Workshop*, Aptos, CA, May. 23-26, 1999.
16. R. Ertel , Z. Hu and J. H. Reed, "Antenna Array Vector Channel Modeling and Data Collection System," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
17. P. M. Robert and J. H. Reed, "Digital Video Transmissions in a Wireless System," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
18. S. Swanchara, S. Srikanteswara, P. Athanas, and J. H. Reed, "Implementation of a Multiuser Receiver on a Reconfigurable Computing Platform," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
19. Maheshwara, Biedka, Dietrich, Dietz, Ertel, Harper, He, Hu, Kim, Mangalvedhe, Mostafa, Pechanec, Phillips, Smavatkul, Srikanteswara, Swanchara, Torres, Wu, You, Chung, Dominique, Howitt, Hughes, Nealy, Athanas, Midkiff, Reed, Stutzman, Tranter and Woerner, "Reconfigurable Software Radio," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
20. K. Phillips and J. H. Reed, "PDF Estimation," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
21. N. Mangalvedhe and J. H. Reed, "Performance of Reduced Complexity Algorithms in Adaptive CDMA Receivers," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).

22. R. Mostafa, J. H. Reed, "Study of Smart Antenna as an Interference Rejection Technique for the Handset," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
23. N. Mangalvedhe and J. H. Reed, "Adaptive Receivers for Multi-Rate DS-SS-CDMA Systems," *Eighth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
24. J. H. Reed and B. D. Woerner, "Analog to Digital Conversion and Digital Signal Synthesis for Software Radios," a half-day tutorial presented at the *IEEE Ninth International Symposium on Personal, Indoor, and Mobile Radio Communications*, Boston, MA, September 13-16, 1998 (invited tutorial).
25. J. H. Reed, "The Software Radio: Modern Radio Engineering," Dresden University of Technology Guest Lecture, Dresden, Germany, November 25, 1997.
26. J. H. Reed, "Adaptive Antenna Arrays," Dresden University of Technology Guest Lecture, Dresden, Germany, November 26, 1997.
27. J. H. Reed, "Overview of Fundamental Wireless Systems In Today's Telecommunications Technology," *46th Annual International Wire and Cable Symposium*, Philadelphia, PA, November 17-20, 1997 (invited tutorial).
28. J. H. Reed and R. D. James, "Position Location: Overview and Business Opportunities," *Wireless Opportunities Workshop*, Roanoke, VA, October 22-23, 1997.
29. R. Ertel and J. H. Reed, "Geometrically Based Spatial Channel Models," *Seventh Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
30. A. Hannan and J. H. Reed, "GloMo Radio API (Application Program Interface)," *Seventh Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
31. S. Swanchara, J. H. Reed and P. Athanas, "Design and Implementation of the GloMo Multiuser Receiver on a Reconfigurable Computing Platform," *Seventh Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
32. N. D. Tripathi, J. H. Reed and H. VanLandingham, "High Performance Handoff Algorithms Using Fuzzy Logic and Neural Networks," *Seventh Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
33. D. Breslin and J. H. Reed, "Multi-Sensor Testbed Hardware Development at the Mobile and Portable Radio Research Group," *Seventh Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
34. N. Mangalvedhe and J. H. Reed, "Blind CDMA Interference Rejection in Multipath Channels," *Seventh Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
35. K. Phillips, J. Laster and J. H. Reed "Adaptive Signal Processing by Bit Error Rate (BER) Estimation," *Seventh Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1997 (poster session).
36. T. S. Rappaport, J. H. Reed, T. E. Biedka, "Position Location & E-911: Techniques for Wireless Systems," invited tutorial, *IEEE International Conference on Universal Personal Communications*, Cambridge, MA, October 1, 1996 (invited tutorial).

37. N. Tripathi and J. H. Reed, "DSP Implementation of Communications Systems: An NSF Sponsored Curriculum Development Initiative," *Sixth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1996 (poster session).
38. B. Fox, G. Aliftiras, I. Howitt, J. H. Reed, B. D. Woerner, "Flexible Hardware Architectures for Multimode Wireless Handsets," *Sixth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1996 (poster session).
39. P. Petrus and J. H. Reed, "Geometrically Based Statistical Single Bounce Macrocell Channel Model for Mobile Environments," *Sixth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1996 (poster session) (also appears in *Smart Antennas: Adaptive Arrays, Algorithms, & Wireless Position Location*, IEEE, Inc., 1998, pp.483-7).
40. GloMo team, "GloMo Adaptive Antenna Array Research," *Sixth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1996 (poster session).
41. GloMo team, "GloMo Mobile User Research," *Sixth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1996 (poster session).
42. J. D. Laster and J. H. Reed, "Improved GMSK Demodulation Using Non-coherent Receiver Diversity," *Sixth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1996 (poster session).
43. Khawar Khan, J. H. Reed, I Howitt, "Interference Mitigation in AMPS/NAMPS and CMP Using Artificial Neural Networks," *Sixth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1996 (poster session).
44. N. Tripathi, J. H. Reed, and H. VanLandingham, "Neural Net & Fuzzy Logic Approaches to Handoffs in Cellular Systems," *Sixth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1996 (poster session).
45. K. Saldanha and J. H. Reed, "Performance Evaluation of an AMPS Digital Base Station with Automatic Gain Control," *Sixth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1996 (poster session).
46. R. He and J. H. Reed, "System Capacity Improvement by Using DSP Interference Rejection Techniques," *Sixth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1996 (poster session).
47. B. D. Woerner, T. S. Rappaport, and J. H. Reed, "Improved Spectral Efficiency for CDMA Systems," *Wireless Technology Conference and Exposition Proceedings*, Stamford, CT, September 1995.
48. P. Petrus and J. H. Reed, "New Blind Multichannel Filtering Techniques," *Fifth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1995 (poster session).
49. N. Zecevic and J. H. Reed, "Comparative Study of Adaptive CDMA Interference Rejection Techniques," *Fifth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1995 (poster session).
50. M. Majmundar and J. H. Reed, "Interference Rejection for IS -54," *Fifth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1995 (poster session).

51. D. Bailey and J. H. Reed, "MPRG: Signal Processing and Communications Laboratory," *Fifth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1995 (poster session).
52. R. He and J. H. Reed, "Co-channel Interference for AMPS and NAMPS Signals," *Fifth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1995 (poster session).
53. N. Mangalvedhe and J. H. Reed, "An Eigenstructure Technique for Soft Synchronization of DSSS Signals," *Fifth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1995 (poster session).
54. M. Welborn and J. H. Reed, "Interference Rejection Using Model-Based Spectral Estimation," *Fifth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1995 (poster session).
55. Ashwin Amanna, Robert James, and J. H. Reed, "Communications On the Smart Road," *Fifth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1995 (poster session).
56. F. Dominique and J. H. Reed, "Development of a Frequency Hopping System for the 902-928 MHz ISM Band," *Fifth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1995 (poster session).
57. S. Elson and J. H. Reed, "Modeling CDPD," *Fifth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1995 (poster session).
58. P. Petrus, F. Dominique, and J. H. Reed, "Spectral Redundancy Exploitation in Narrowband Interference Rejection for a PN-BPSK System," *Fifth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1995 (poster session).
59. F. Cheng and J. H. Reed, "Dynamic Range Enhancement Techniques for RF and Fiber Optic Interface," *Fifth Annual Symposium on Wireless Personal Communication*, Virginia Tech, June 1995 (poster session).
60. P. Petrus and J. H. Reed, "Blind Adaptive Arrays for Mobile Communications," *Fourth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1994 (poster session).
61. R. He and J. H. Reed, "Spectral Correlation of AMPS Signals with Applications to Interference Rejection," *Fourth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1994 (poster session).
62. R. Zheng and J. H. Reed, "System Modeling and Interference Rejection for Spread Spectrum CDMA Automatic Vehicle Monitoring Systems," *Fourth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1994 (poster session).
63. N. Mangalvedhe and J. H. Reed, "An Eigenstructure Technique for Soft Spread Spectrum Synchronization," *Fourth Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1994 (poster session).
64. R. Holley and J. H. Reed, "Time-Dependent Filters For CDMA Interference Rejection," *Third Annual Symposium on Wireless Personal Communications*, Virginia Tech, June 1993, (poster session).

MPRG Technical Reports

1. Ran Gozali, Raqibul Mostafa, P. Max Robert, Ramesh Chembil Palat, William G. Newhall, Brian D. Woerner, Jeffrey H. Reed, "Design Process of the VT-STAR Multiple-Input Multiple-Output (MIMO) Test Bed," MPRG-TR-01-12, Technical Report. August 2001
2. Raqibul Mostafa, Ran Gozali, William Newhall, Ihsan Akbar, Jeffrey H. Reed, Brian D. Woerner, William H. Tranter, "Navy Collaborative Integrated Information technology Initiative," Report # 15, MPRG-TR-01-11, Technical Report, July 31, 2001.
3. Srikathyayani Srikanteswara, Jeffrey H. Reed, "Design and Implementation of a Soft Radio Architecture for Reconfigurable Platforms," MPRG-TR-01-10, Dissertation, July 2001.
4. Raqibul Mostafa, Jeffrey H. Reed, "Feasibility of Transmit Smart Antenna at the Handset," MPRG-TR-01-07, Ph.D. Preliminary, December 2000.
5. James Hicks and Jeffrey H. Reed, "Overloaded Array Processing with Spatially Reduced Search Joint Detection," MPRG-TR-00-08, M.S. Thesis, May 2000.
6. Thomas E. Biedka and Jeffrey H. Reed, "A General Framework for the Analysis and Development of Blind Adaptive Algorithms," MPRG-TR-00-05, Ph.D. Preliminary, April 28, 2000.
7. Srikathyayani Srikanteswara and Jeffrey Reed, "Design and Implementation of a Soft Radio Architecture for Reconfigurable Platforms," MPRG-TR-00-02, Ph.D. Preliminary, November 1999.
8. Richard B. Ertel and Jeffrey Reed, "Antenna Array Systems: Propagation and Performance," Ph.D. Dissertation, July 1999.
9. Nitin R. Mangalvedhe and Jeffrey Reed, "Development and Analysis of Adaptive Interference Rejection Techniques for Direct Sequence Code Division Multiple Access Systems," Ph.D. Dissertation, July 1999.
10. Kim Phillips and Jeffrey Reed, "Probability Density Function Estimation for Minimum Bit Error Rate Equalization," MPRG-TR-99-04, Masters Thesis, May 1999.
11. Zhong Hu and Jeffrey Reed, "Evaluation of Joint AOA and DOA Estimation Algorithms Using the Antenna Array Systems," MPRG-TR-99-02, Masters Thesis, December 15, 1998.
12. Richard B. Ertel and Jeffrey Reed, "Antenna Array Systems: Propagation and Performance," MPRG-TR-98-12, Ph.D. Preliminary, December 1998.
13. Nitin R. Mangalvedhe and Jeffrey Reed, "Development and Analysis of Adaptive Interference Rejection Techniques for Direct Sequence Code Division Multiple Access Systems," MPRG-TR-98-13, Ph.D. Preliminary, December 1998.
14. Pablo Maximiliano Robert and Jeffrey Reed, "Simulation Tool and Metric for Evaluating Wireless Digital Video Systems," MPRG-TR-98-11, Masters Thesis, September 23, 1998.
15. Steven F. Swanchara and Jeffrey Reed, "An FPGA-Based Multiuser Receiver Employing Parallel Interference Cancellation," MPRG-TR-98-06, Masters Thesis, July 22, 1998.
16. Nishith Tripathi and Jeffrey Reed, "Generic Handoff Algorithms Using Fuzzy Logic and Neural Networks," Ph.D. Dissertation, MPRG-TR-97-18, November 1997.

17. Don Breslin and Jeffrey Reed, "Adaptive Antenna Arrays Applied to Position Location," MPRG-TR-97-14, Masters Thesis, August 1997.
18. Steve Nicoloso and Jeffrey Reed, "Investigation of Carrier Recovery Techniques for PSK Modulated Signals in CDMA and Multipath Mobile Environments," MPRG-TR-97-11, Masters Thesis, May 1997.
19. Nishith Tripathi, Jeffrey Reed, and Hugh VanLandingham, "An Adaptive Direction Biased Fuzzy Handoff Algorithm with Unified Handoff Candidate Selection Criterion," MPRG-TR-97-08, April 1997.
20. Nishith Tripathi, Jeffrey Reed, and Hugh VanLandingham, "An Adaptive Algorithm Using Neural Encoded Fuzzy Logic System," MPRG-TR-97-07, April 1997.
21. Nishith Tripathi, Jeffrey Reed, and Hugh Van Landing ham, "A New Class of Fuzzy Logic Based Adaptive Handoff Algorithms for Enhanced Cellular System Performance," MPRG-TR-97-06, April 1997.
- 22.** Brian Fox and Jeffrey Reed, "Analysis and Dynamic Range Enhancement of the Analog-to-Digital Interface in Multimode Radio Receivers," MPRG-TR-97-02, February 1997.
23. Alan Alexander, Shankari Panchapakesan, Don Breslin, Jeffrey Reed, Tim Pratt, and Brian Woerner, "The Feasibility of Performing TDOA Based Position Location on Existing Cellular Infrastructures," MPRG-TR-96-37, December 20, 1996.
24. Nishith Tripathi and Jeffrey Reed, "Handoffs in Cellular Systems: A Tutorial," MPRG-TR-96-35, November 1996.
25. Nena Zecevic and Jeffrey Reed, "Interference Rejection Techniques for the Mobile Unit Direct-Sequence CDMA Receiver," MPRG-TR-96-27, August 1996.
26. Kevin J. Saldanha and Jeffrey Reed, "Performance Evaluation of DECT in Different Radio Environments," MPRG -TR-96-28, August 5, 1996.
27. Rong He and Jeffrey H. Reed, "AMPS Co-Channel Interference Rejection Techniques and Their Impact on System Capacity," MPRG-TR-96-25, July 15, 1996.
28. Nevena Zecevic and Jeffrey H. Reed, "Techniques and Adaptation Algorithms for Direct Sequence Spread Spectrum Capacity," MPRG-TR-96-27, July 19, 1996.
29. Muhammad Khawar Khan, Jeffrey H. Reed, and Ivan Howitt, "Interference Mitigation in AMPS/NAMPS and GSM Using Artificial Neural Networks," MPRG-TR-96-24, June 1996.
30. Jeffrey H. Reed, Ted S. Rappaport, Brian D. Woerner, "What You Should Know Before Returning to School," *RF Design*, March 1996, pp. 67-69.
31. Tom Biedka and Jeffrey H. Reed, "Direction Finding Methods for CDMA Mobile Wireless Systems," MPRG-TR-96-20, June 1996.
32. Yash M. Vasavada and Jeffrey H. Reed, "Performance Evaluation of a Frequency Modulated Spread-Spectrum System," MPRG-TR-96-13, February 1996.
33. Milap V. Majmundar and Jeffrey H. Reed, "Adaptive Single-User Receivers for Direct Sequence CDMA Systems," MPRG-TR-96-12, January 1996.

34. Rong He and Jeffrey H. Reed, "Co-Channel Interference Rejection Techniques for AMPS Signals Using Spectral Correlation Characteristics," MPRG-TR-96-11, January 1996.
35. J. Scott Elson and Jeffrey H. Reed, "Simulation and Performance Analysis of Cellular Digital Packet Data," MPRG-TR-96-08, February 1996.
36. Jeffrey D. Laster and Jeffrey H. Reed, "Improved GMSK Demodulation Emphasizing Single Channel Interference Rejection Techniques," MPRG-TR-96-05, February 1996.
37. Matthew Welborn and Jeffrey Reed, "Co-Channel Interference Rejection Using Model-based Demodulator" MPRG-TR-96-04, January 1996.
38. Francis Dominique and Jeffrey H. Reed, "Design and Development of a Frequency Hopper based on the DECT System for the 902-928 MHz ISM Band," MPRG-TR-96-02, January 1996.
39. Peter Athanas, Ivan Howitt, Ted Rappaport, Jeff Reed, and Brian Woerner, "A High Capacity Adaptive Wireless Receiver Implemented with a Reconfigurable Computer Architecture," MPRG-TR-18, November 1995.
40. Nitin Mangalvedhe and Jeffrey H. Reed, "An Eigenstructure Technique for Direct Sequence Spread Spectrum Synchronization," MPRG-TR-95-04, April 1995.
41. Y. M. Kim, N. R. Mangalvedhe, B. D. Woerner, and J. H. Reed, "Development of a Low Power High Data Rate Spread-Spectrum Modem," MPRG-PPR-95-01, February 10, 1995.
42. Y. M. Kim, N. R. Mangalvedhe, B. D. Woerner, and J. H. Reed, "Development of a Low Power High Data Rate Spread-Spectrum Modem," MPRG-PPR-95-02, June 30, 1995.
43. Paul Petrus and Jeffrey H. Reed, "Blind Adaptive Antenna Arrays for Mobile Communications," MPRG-TR-95-01, December 1994.
44. Steve Yao and Jeffrey H. Reed, "Differential Detection of GMSK Signals," MPRG-TR-94-27, October 1994.
45. Raymond Zheng, Jay Tsai, Rick Cameron, Lara Beisgen, Brian D. Woerner, and Jeffrey H. Reed, "Capacity and Interference Resistance of Spread-Spectrum Automatic Vehicle Monitoring Systems in the 902-928 MHz ISM Band," MPRG-TR-94-26, Final Report to Southwestern Bell Mobile Systems, October 14, 1994.
46. Fu-Sheng Cheng and Jeffrey H. Reed, "A New Approach to Dynamic Range Enhancement," MPRG-TR-94-25, October 16, 1994.
47. Raymond S. Zheng and Jeffrey H. Reed, "Channel Modeling and Interference Rejection for CDMA Automatic Vehicle Monitoring Systems," MPRG-TR-94-21, November 10, 1994.
48. Rong He and Jeffrey H. Reed, "AMPS Interference Rejection - Blind Time-Dependent Adaptive Filtering - Volume I," Final Report to ARGOSystems Inc., MPRG-TR-94-19, July 31, 1994.
49. Tahir H. Qazi and Jeffrey H. Reed, "Model-Based Demodulation of FM Signals - Volume II," MPRG-TR-94-17, Final Report to ARGOSystems, August, 1994.

50. Mala Subramanian and Jeffrey H. Reed, "Noncoherent Spread-Spectrum Communication Systems," MPRG-TR-94-14, August 10, 1994.
51. Frank Cheng, Anish Kelkar, Ira Jacobs, and J. H. Reed, "Performance Evaluation for the Dynamic Range Enhancement Technique (DRET)," MPRG-TR-94-10, Final Report to Southwestern Bell Technology Resources, September 7, 1994.
52. Volker Aue and Jeffrey H. Reed, "Optimum Linear Single User Detection in Direct-Sequence Spread-Spectrum Multiple Access Systems," MPRG-TR-94-03, March 1, 1994.
53. Rich Holley and Jeffrey H. Reed, "Time Dependent Adaptive Filters for Interference Cancellation in CDMA Systems," MPRG-TR-93-15, September 1993.

Other Papers and Reports

1. Jeffrey H. Reed, T.C. Hsia, and H. Etemad, "Differential Demodulation of BPSK Using Time Dependent Adaptive Filtering," Final Report to California MICRO Program, 1992.
2. Jeffrey H. Reed, "Adaptive Filters And Their Application To Interference Rejection," *Defense Electronics*, May 1989, pp. 85-86 and 89-90.
3. William Gardner, B.G. Agee, W. A. Brown, C. K. Chen, J. H. Reed, and R. S. Roberts, "A Comparison Of Fourier Transformation And Model Fitting Methods Of Spectral Analysis," Signal and Image Processing Lab Report No. SIPL-86-4, Department of Electrical and Computer Engineering, University of California, Davis, 1986. This work is included in *Statistical Spectral Analysis — A Non Probabilistic Theory* (Prentice-Hall).

Journal Papers in Review

1. Byungki Kim, Warren L. Stutzman, Jeffrey H. Reed, Dennis G. Sweeney, "A Comprehensive Investigation of Base Station Diversity Methods for Multipath Propagation Environments," submitted to *IEEE Transactions on Vehicular Technology*, Dec. 2001.

Conference Papers in Review

1. P. M. Robert and J. H. Reed, "Analysis of Bluetooth Throughput in the Presence of Interference from IEEE 802.11 FHSS Sources," submitted to VTC 2001.
2. J.E. Hicks, J. Tsai, J.H. Reed, W.H. Tranter, B.D. Woerner, "The Performance of Linear Space-Time Processing in Overloaded Environments," submitted to Wireless 2002, Feb. 14, 2002
3. J.E. Hicks, J. Tsai, J.H. Reed, W.H. Tranter, B.D. Woerner, "Overloaded Array Processing with MMSE-SIC," submitted to VTC Spring 2002, Feb. 14, 2002.

Selected Corporate Report Topics:

- * Software Radios
- * A DSP-Based Receiver for the New North American Digital Cellular Standard
- * Spread Spectrum Detection Techniques

- * Cyclic Spectral Analysis of Modulated Signals
- * Projection of Future High-Volume Digital Communication Systems
- * A High Speed Digital Filter for Sample Rate Conversion
- * A Least-Squares System Identification Method
- * Cyclic Adaptive Filtering for Interference Rejection
- * Implementation Issues of Adaptive Interference Rejection Techniques
- * Investigation of Modern Spectral Analysis Techniques
- * The Performance of Time-Dependent Adaptive Filtering of Real Data
- * A Maximum-Likelihood Estimator for Tracking and Detecting Frequency Hopping Signals
- * Digital Signal Processing Algorithms for Squelch Control
- * A Low-Cost Whitening Filter for Jammer Applications
- * Time-Dependent Single Channel and Multi-Channel Interference Rejection Algorithms

Section V. Public Service/Outreach

Recent Industrial Affiliate/ Outside Agency Contacts:

Strengthened relationship with CIT via collaboration with Jean Woods on venture capital funding mission

World International Disaster Risk Management Institute - collaborated with Bill Tranter, Arun Phadke, and Scott Midkiff on a position paper which led, in part, to the establishment of the new International Disaster Risk Management Institute, a partnership among the Swiss Federal Institutes of Technology, Virginia Tech, and the World Bank Disaster Management Facility to enable countries to use applied research in wireless systems and critical infrastructure support to mitigate loss of life and property from disasters.

Invited to help DARPA define a new program in bio-mimesis, the imitation of living organisms through electronics and mechanics. Assisted the Army Research Office in developing their five year research plan for communications.

Sponsorship:

Ahmed Darwish from Cairo University.
Yeongjee Chung from _____, January – August 1999.
Shinichi Miyamoto from Kobe, Japan, April 2001-March 2002
Young-Soo Kim from Seoul, Korea, February 2002-present

External

Professional Service

Committee assignments, councils or commissions, journal editor, reviewer:

- IEEE Transactions on Signal Processing
- IEEE Transactions on Antennas and Propagation
- IEEE Transactions on Wireless Communications
- IEEE Transactions on Communications
- IEEE Transactions on Selected Areas of Communications
- IEEE Signal Processing Letters
- Army Research Office Strategic Plan
- NSF Proposal Reviewer
- Workshop on Biomimic (sponsored by DARPA to define a new program)
- Member, Advisory board for TechContinuum

State/University Professional Service:

Committee/Task Force assignments:

- Participation within the Center for Wireless Telecommunications(CWT)
- Department Computing Committee
- Faculty Advisor to the Honor System
- EE Graduate Administrative Committee (Grad AdCom)
- Communications Area Committee
- US Student Recruitment Strategy Task Force
- Course supervisor of ECPE 5674 and ECPE 4654

Section VI. Industrial Experience

Industrial Experience:

March 2000 - 2001

Co-founded Dot Mobile, Inc.
Company specializes in mobile data applications including wireless-internet based applications.

March 1986 – present

Founded Reed Engineering
Company performs consulting in wireless communications and signal processing.

Selected past project:

- Expert witness in wireless location systems
- Evaluation of a wireless high-speed internet access system
- Evaluation of wireless/signal processing companies for acquisition
- Tutorials on software radio issues
- Adaptive interference rejection techniques
- Spread spectrum signal detection
- Expert witness for wireless power sources

August 1980

Member, Technical Staff
Signal Science, Inc.
Santa Clara, CA

Areas of specialization:

- Spread spectrum detection
- Foreign technology analysis
- Computer systems administration