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Personal Data

- Born in Cyprus; Naturalized US citizen
- Married, three children
- Languages: Greek, English

General Research Interests

Information theory and communication theoretic aspects of receiver design; multi-input, multi-output (MIMO) systems; channel coding/decoding techniques, space-time coding; cognitive radio; information-theoretic security. Systems of interest: wireless, optical and magnetic recording.

Education

- 1983-1985: Washington University, D.Sc., Electrical Engineering
- 1981-1983: Washington University, M.Sc., Electrical Engineering
- 1976-1980: American University of Beirut, BE, Electrical Engineering (with distinction)

Professional Employment

- 2005-present: Department Head, Electrical & Computer Engineering, Texas A&M University
- 2002-present: Holder of the Delbert A. Whitaker Endowed Chair
- 1997-2005: Group Leader, Telecommunications and Signal Processing Group
- 1997-2002: J.W. Runyon Jr. Endowed Professor, College of Engineering, Texas A&M University
- 1996-1999: Co-Director, *VLSI-Telecommunications Research Center*
- 1995-present: Professor, Electrical Engineering Department, Texas A&M University
- 1991-1995: Associate Professor, Electrical Engineering Department, Texas A&M University
- 1985-1991: Assistant Professor, Electrical Engineering Department, Texas A&M University
- Summer 1985: Instructor, Electrical Engineering Department, Washington University
- Summer 1984: Instructor, Electrical Engineering Department, Washington University
- 1981-1985: Research Assistant, Electrical Engineering Department, Washington University
- Summer 1980: Instructor, Electrical Engineering Department, the American University of Beirut
- 1980-1981: Field Engineer, Compagnie Generale de Radiologie, Beirut, Lebanon

Affiliations

- Fellow of the IEEE, 1998. Citation: *For contributions to the theory of optimum receiver design.*
- Member of Electrical and Computer Engineering Department Head Association (ECEDHA), 2005-
- Member of ASEE
- Member, IEEE Communications Society
- Member, IEEE Information Theory Society
- Member, IEEE Communication Theory Technical Committee. Chair in 2004-2006.
- Member of Sigma Xi and Eta Kappa Nu

Honors and Awards

- Delbert A. Whitaker Endowed Chair Professor, 2002- present
- E.D. Brockett Professor, 2002-2003

- Keynote speaker, International Conference on *Wireless and Optical Communications* (WOC-2002), July 17-19, 2002, Banff, Canada
- Clear Lake Council of Technical Societies Educator of the Year Award, 2000
- Fellow of the IEEE, 1998 (*For contributions to the theory of optimum receiver design*)
- J.W. Runyon, Jr., Endowed Professorship, 1997-2002
- Halliburton Professor, Texas A&M University, 1995

Professional Service

Editorial Positions:

- Editor-in-Chief, *IEEE Communication Letters*, December 2005-December 2008.
- Guest Editor, *EURASIP Journal on Wireless Communications and Networking*, Special Issue on *Advanced Signal Processing Algorithms for Wireless Communications*, 2004-2005.
- Associate Editor, *IEEE Communication Letters*, 1997-2000
- Associate Editor for Communications, *IEEE Transactions on Information Theory*, 1994-1997
- Guest Editor, *IEEE Journal on Selected Areas in Communications* (J-SAC), 1995
- Associate Editor, *IEEE Transactions on Communications*, 1987-1995
- Publications Editor, *IEEE Transactions on Information Theory*, 1989-1992

Significant Professional Committee Membership:

- Panelist, ARISTEIA Research Program, Greek National Council for Research and Technology, 2011-
- Member, IEEE Richard W. Hamming Medal Committee, 2011-
- Member, IEEE Communications Society Conferences and Meetings Board, 2006-2007
- Chair, IEEE Communications Society Communications/Signal Processing Cluster, 2006
- Chair, IEEE Communication Theory Technical Committee (CTTC); international, elected position; December 2004-December 2006
- Member, State Strategy on Advanced Technology (SSAT) Software/Wireless Technology Working Group (TWG), 2004-2005
- Member, State Strategy on Advanced Technology (SSAT) Development Team (State level committee charged with creating leading edge R&D programs for the State; by invitation); 2004-2005
- Chair, IEEE Awards Committee for Joint Information Theory and Communication Societies' best paper award, 2003
- Chair, Awards Committee for the Canadian Award in Telecommunications, 2002
- Chair, IEEE Information Theory Society Fellows Evaluation Committee, 2003, 2004, 2005 and 2006
- Member, IEEE Information Theory Society Fellows Evaluation Committee, 2002-2006
- Member, IEEE Awards Committee for the joint Information Theory and Communication Societies' best paper award, 2002
- Member, IEEE Communications Society Awards Committee, 2001-2004
- Chair, Texas Telecommunications Engineering Consortium (TxTEC) ERC Vision committee, 2000-2002
- Member, Steering Committee, Texas Telecommunications Engineering Consortium (TxTEC), 1997-2008

Conference Organization:

Executive Committee Positions:

- Chair, Committee to select the Communication Theory Technical Committee Chair, 2010
- Chair, Communication Theory Workshop Venue Selection Committee, 2009-
- Technical Program Co-Chair, International Symposium on Communications, Control and Signal Processing (ISCCSP 2010), Limassol, Cyprus
- General Co-Chair, IEEE International Symposium on Information Theory (ISIT), Austin, Texas June 2010

- Chair, SPIE Fluctuations and Noise 2005 (FaN05) -Noise in Communication Systems Conference, Austin, Texas, May 2005
- Technical Program Chair, IEEE Communication Theory Workshop, Park City, Utah, June 2005
- General Chair, IEEE Information Theory Workshop 2004, San Antonio, Texas October 2004
- Co-Chair, SPIE Fluctuations and Noise 2004 (FaN04) -Noise in Communication Conference, Canary Islands, Spain, May 2004
- Chair, Fourth Texas Telecommunications Engineering Consortium (TxTEC) Conference, Texas A&M University, January 2002
- Chair, IEEE Communication Theory Symposium, San Antonio, Texas, November 2001
- Technical Program Chair, IEEE Communication Theory Workshop 2001
- Chair, Technical Program Committee, IEEE Vehicular Technology Conference, Houston, TX, May 1999
- Chair, Technical Program Committee, IEEE Communication Theory Mini Conference (CTMC), Phoenix, Arizona, November 1997
- Communication Theory Technical Committee Representative to IEEE Globecom '93, Geneva, Switzerland
- Deputy-Chair, IEEE Communication Theory Mini Conference (CTMC), Houston, Texas, November 1993
- Local Arrangements Chair, International Symposium on Information Theory (ISIT), San Antonio, Texas, January 1993

Technical Program Committee Membership:

- Member, International Program Committee, *The Seventh IASTED International Conference on Communication, Internet, and Information Technology*, CIIT 2012
- Member, Technical Program Committee, Communication Theory Symposium within Globecom 2012, Anaheim, California, December 3-7, 2012.
- Member, Technical Program Committee, Communication Theory Symposium within ICC 2012, Ottawa, Canada, June 10-15, 2012.
- Member, Technical Program Committee, Communication Theory Symposium within ICC 2011, Kyoto, Japan, June 5-9, 2011.
- Member, Technical Program Committee, Second International Conference on Emerging Network Intelligence, Florence, Italy October 25-30, 2010.
- Member, Technical Program Committee, Communication Theory Symposium within ICC 2010, Cape Town, South Africa, May 23-27.
- Member, Technical Program Committee, First International Conference on Emerging Network Intelligence, Sliema, Malta October 11-16, 2009.
- Member, Technical Program Committee, 2009 Information Theory Workshop, Volos, Greece, June 10-12, 2009.
- Member, Technical Program Committee of the Communication Theory Symposium of ICC 2009, Dresden, Germany, June 14-18 2009.
- Member, Technical Program Committee, Wireless Communication Symposium of Globecom 2008, New Orleans, November 30-December 4, 2008.
- Member, International Program Committee, IASTED International Conference on Communication, Internet and Information Technology (CIIT) 2007, Banff, Canada, July 2-4, 2007.
- Member, Technical Program Committee, IEEE First Wireless Euro-Mediterranean International Conference (WEMIC) 2006, Amman, Jordan, March 2006
- Member, Technical Program Committee, IEEE International Communications Conference (ICC) 2006, Istanbul, Turkey, 2006.
- Member, International Program Committee for the IASTED International Conference on Communications, Internet and Information Technology, Cambridge, USA, October 2005.

- International Conference on E-Business and Telecommunications Networks 2004 (ICETE 2004), October 3-7, 2005, Reading, UK
- Member, International Program Committee (IPC), IASTED International Conference on Communications, Internet and Information Technology (CIIT 2005), Cambridge, MA, October 2005
- IEEE International Communications Conference (ICC) 2005, Seoul, Korea, 2005
- International Symposium on Information Theory and its Applications (ISITA) 2004, Parma, Italy, October 2004
- Member of the International Program Committee (IPC) for the IASTED International Conference on Communications, Internet and Information Technology (CIIT 2004), St. Thomas, Virgin Islands, USA, November 22- 24, 2004
- International Conference on E-Business and Telecommunications Networks 2004 (ICETE 2004), August 25-28, 2004, Setúbal, Portugal
- IEEE Communication Theory Symposium, Paris, France, 2004
- IEEE Communication Theory Symposium, Dallas, Texas 2004
- IEEE Globecom 2004, Dallas, Texas 2004
- Member, International Program Committee, IASTED International Conference on Communications, Internet and Information Technology (CIIT 2003)
- International Program Committee (IPC), Conference on Wireless and Optical Communications (WOC), July 2003, Banff, Canada
- IEEE Vehicular Technology Conference (VTC) 2002, Vancouver, British Columbia, Canada, September 2002
- The Sixth International Conference on Computer Science and Informatics (CS&I'2002), March 8-14, 2002, Durham, NC, USA
- International Program Committee (IPC), Conference on Wireless and Optical Communications (WOC), 2002 and 2003, Banff, Canada
- Conference on Wireless and Optical Communications (WOC 2001), June 2001, Banff, Canada
- IEEE VTC 2001, May 2001, Rhodes, Greece
- The Fourth International Symposium on Wireless Personal Multimedia Communications (WPMC '01), September 2001, Aalborg, Denmark
- 1997 IEEE International Symposium on Information Theory (ISIT), Ulm, Germany
- Seventh IEEE International Conference on Personal, Indoor, and Mobile Radio Communications (PIMRC), Taipei, Taiwan, ROC, October 1996
- Eighth IEEE International Conference on Personal, Indoor, and Mobile Radio Communications (PIMRC), Finland, September 1997
- The 5th IEEE Mediterranean Conference on Control and Systems, Paphos, Cyprus, July 1997
- International Symposium on Information Theory and Its Applications, Mexico City, Mexico, November 1998
- Session organizer and chair in a number of national and international conferences

Other Professional Service:

- Member, Faculty Selection Committee, The University of Cyprus, 2011-2012
- Reviewer of proposals of Science Foundation Ireland
- Session Leader, "The Role of Ubiquitous Mobile Computing in the Enterprise," IBM Symposium on Future of Systems, Austin, Texas September 23, 2011
- Member, Advisory Council, Cyprus University of Technology, 2009-
- Member, Faculty Electoral Board, Cyprus University of Technology, 2009-
- Member, NSF panel on Expeditions in Computing, April 2009.
- Member of panel to evaluate a Science Foundation Ireland project, Dublin, Ireland, May 2008
- Member, NSF Panel for CAREER Awards, 1998, 2002, 2006, 2007
- External reviewer for faculty promotions, Kuwait University, 2006, 2007

- External Ph.D. dissertation reviewer for McGill University (Canada), the University of Sydney (Australia), and the University of Science and Technology (India)
- Member, NSF ITR Panel, 2001
- Member of review panel to evaluate the Electrical Engineering Department at the University of Utah, 2001

Academic Service

- Chair, Industrial and Systems Engineering Head Search Committee, Elected, 2011-2012
- Chair, Industrial and Systems Engineering Head Search Committee, Appointed, 2010-2011
- Member (elected position), College of Engineering, Engineering Chair Council (ECC) 2007-2010
- Department Head, ECE Department, Texas A&M University, September 2005-present
- Member, Interdisciplinary Life Sciences Building (ILSB) Scientific Advisory Committee, 2006-2007
- Member (elected position), Electrical Engineering Awards Committee, 2004-2005
- Member, TI Analog Chair Search Committee, 2004-2005
- Chair, Endowed Professorship Search Committee, 2004
- Member (elected position), College of Engineering, Engineering Chair Council (ECC) 2004-2007
- Member, Electrical Engineering Hiring Committee, 2003-2005
- Member, College of Engineering Awards Committee, 2003, 2004
- Chair, Graduate Recruiting Subcommittee, Engineering Chair Council (ECC), appointed, 2003
- Member (elected position), College of Engineering, Engineering Chair Council (ECC) 2003-2004.
- Member (elected position), Electrical Engineering Advisory Committee, 2003-2005
- Member, Electrical Engineering Distinguished Speaker Committee, 2003-2005
- Member, College of Engineering Tenure and Promotion Advisory Committee, 2002-2004
- Member, Analog Chair Search Committee, 2002-2003
- Chair (elected), Electrical Engineering Department Promotion and Tenure Committee, 2002-2004
- Member, Analog/VLSI Chair Professorship search committee, 2001
- Co-Chair, Telecommunications and Informatics Task Force (TITF) (University level), 2000-2003
- Member, Telecommunications and Informatics Task Force (TITF) (University level), 1999-2000
- Member, Faculty Development Leave Evaluation Committee, College of Engineering, 2000, 2003, 2004
- Member Energy Efficiency proposal evaluation committee (University level), 2000
- Member (elected position), Electrical Engineering Tenure and Promotions Committee, 1999-2001
- Member Energy efficiency proposal evaluation committee (University level), 1999
- Member, Jack Kilby Chair Professor search committee, 1998-1999
- Member, Webb Professorship search committee, 1998-1999
- Member, Strategic Planning Committee (elected), 1998-1999
- Member, Distinguished Speaker Committee, 1997-
- Member, TxTEC Steering Committee, 1997-
- Group Leader, Telecommunication and Signal Processing Group, 1997-2005
- Member, Electrical Engineering Department Post Tenure Review Committee, 1996
- Chairman (elected), Distinguished Speaker Committee, Department of Electrical Engineering, 1989-1996
- Chairman (elected), Electrical Engineering Advisory Committee, 1996-1997
- Member (elected), Electrical Engineering Tenure and Promotions Committee, 1996-1997
- Member (elected), Awards Committee, Department of Electrical Engineering, 1992-1993, 1995-1996
- Member, Electrical Engineering Head Search Committee, 1996-1997
- Energy efficiency proposal evaluation committee (University level), 1994

Invited Papers and Presentations

- *On the Secrecy Capacity per Unit Cost of the Wiretap Channel*, University of Cyprus, Nicosia, Cyprus, March 19, 2009.

- *On the Secrecy Capacity per Unit Cost of the Wiretap Channel*, Cyprus University of Technology, Limassol, Cyprus, March 18, 2009.
- *Secrecy Capacity per Unit Cost for the Gaussian MIMO Wiretap Channel*, Information Theory and Applications (ITA) Symposium, UCSD, February 9-13, 2009 (with Mustafa El-Halabi and Tie Liu).
- *On the insufficiency of linear solutions for the index coding problem*, Information Theory and Applications Symposium, UCSD, January 27-February 1, 2008 (with Salim Yaacoub El Rouayheb and Alex Sprintson).
- *Recursive Precoder Quantization for MIMO-OFDM Systems over Frequency Selective Channels*, IST Mobile and Wireless Communications Summit, Budapest, Hungary, July 2007.
- *On the Estimator-Correlator and the Search for the Optimum Transmit Point*, Distinguished Lecturer Series, Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas, March 2007.
- *Robust Network Coding for Bidirected Networks*, Information Theory and Applications Symposium, UCSD, January 29-February 2, 2007 (with Salim Yaacoub El Rouayheb and Alex Sprintson).
- *On the Error Exponent of the Wideband Relay Channel*, European Signal Processing Conference (EUSIPCO), Florence, Italy, September 2006.
- *Designing Failure-tolerant Network Codes*, IEEE Communication Theory Workshop (CTW), Puerto Rico, May 2006 (with Salim Yaacoub El Rouayheb and Alex Sprintson)
- *Simple Network Codes for Instantaneous Recovery from Edge Failures in Unicast Connections*, Information Theory and Applications –Inaugural Symposium, UCSD, February 6-10, 2006 (with Salim Yaacoub El Rouayheb and Alex Sprintson)
- *A Low Complexity Iterative Detector for MIMO Systems*, Proceedings of the 2004 Asilomar Conference, Pacific Grove, CA, November 2004 (with Y. Xie).
- *On the Estimator-Correlator Receiver Structure and its Application to MIMO Fading Channels*, University of Cyprus, Nicosia, Cyprus, July 2004
- *SAGE-aided, List-BLAST Detection for MIMO Systems*, 2004 Asilomar Conference, Pacific Grove, CA, November 2004 (with Y. Xie and Q. Li)
- *Some Implications of the Estimator-Correlator Structure on Receiver Design*, University of Athens, Greece, May 2004
- *On Channel Estimation for MIMO Fading Channels*, IEEE Communication Theory Workshop, Capri Island, Italy, May 2004
- *The Estimator-Correlator Receiver and its Impact on Receiver Design*, Harvard University, November 1, 2002
- *The Estimator-Correlator Receiver: The Gift that Keeps on Giving*, Texas Instruments, Inc., October 15, 2002
- *Some Results on the Sum-Rate Capacity of MIMO Fading Channels*, (with Y. Xie) IEEE International Symposium on Advances in Wireless Communications (ISWC'02), Victoria, BC, Canada September 23-24, 2002
- Keynote talk, International Conference on *Wireless and Optical Communications* (WOC-2002), July 17-19, 2002, Banff, Canada
- *Some Results on Channel Estimation and Detection for Space-Time OFDM Systems*, (with Y. Xie) IEEE Information Theory Workshop, Cairns, Australia, September 2001
- *Receiver Design for Space-Time Coded Systems*, University of Texas at Austin, March 2, 2001
- *Receiver Design for Space-Time Coded Systems*, Texas Instruments, Inc., October 2000
- *Sequence Estimation for Space-Time Coded Systems*, Motorola Inc., August 2000
- *Exploiting Faster-than-Nyquist Signaling*, Texas Instruments, Inc., September 2000

- *On The Application of the EM Algorithm in Telecommunications*, Donald L. Snyder Workshop, Washington University, St. Louis, January 14-15, 2000
- *On the Use of Trellis-Coded Modulation for 3G CDMA Systems*, Nortel Networks Wireless Forum, Dallas, Texas, October 1999.
- *Implicit Diversity Combining Based on the EM Algorithm for Fading Channels with Correlated Path Components*, (with P. Spasojevic) WCNC '99, Baton Rouge, LA, September 1999
- *Approximate ML Multi-User Detectors for Synchronous DS/CDMA Channels*, (with Q. Li) CISS '99, Johns Hopkins University, Baltimore, MD, March 1999
- *On the Use of the EM Algorithm in Telecommunications*, University of Texas at Austin, March 1999
- *Sequence Estimation in Interference Via the EM Algorithm* (with P. Spasojevic) IEEE Communication Theory Workshop, Captiva Island, Florida, May 1998
- *Sequence Estimation for Degraded Channels via the EM Algorithm*, AT&T Labs-Research, March 20, 1998
- *Interference Rejection for Spread-Spectrum Systems Using the EM Algorithm*, Tyrrhenian International Workshop on Digital Communications, Italy, September 1997
- *Sequence Estimation for Channels With Memory Via the EM Algorithm*, IEEE Communication Theory Workshop, Tucson, Arizona, April 1997
- *Carrier Acquisition for QAM Constellations*, Rice University, April 1996
- *Block-by-Block Channel and Sequence Estimation for ISI/Fading Channels*, 1995 Tyrrhenian International Workshop on Digital Communications, Viareggio, Italy, September 1995
- *On the Application of the EM Algorithm to Sequence Estimation for Degraded Channels*, University of Texas, San Antonio, November 1994
- *Chip Synchronization for Optical OPPM*, XXIVth General Assembly of the International Union of Radio Science (URSI), Kyoto, Japan, August 1993
- *The Near-Far Problem in Spread-Spectrum Road-Automobile Communications*, American Control Conference (ACC), Chicago, IL, June 1992
- *A Position Estimation Algorithm for Vehicle Following*, American Control Conference (ACC), Chicago, IL, June 1992.
- *Algorithms for Joint Synchronization and Detection*, 1991 Tyrrhenian International Workshop on Digital Communications, Tyrrhenia, Italy, September 1991
- *Sequence Estimation in the Presence of Phase-Errors Via the EM Algorithm*, at the Fourth Texas Systems Day, Austin, Texas, November 10, 1990
- *Synchronization for Optical Communication Systems*, at the IEEE Communication Theory Workshop, Florida, April 1987

Short Courses Taught

- *Introduction to ADSL*, Advanced Micro Devices (AMD), Austin, Texas, July 23 1999
- *Digital Communications*, Phoenix, AZ, December 1-3, 1997
- *Telecommunications for ITS*, Texas Transportation Institute, January 1996
- *Digital Communications and Synchronization* at Bell Northern Research (BNR), Richardson, Texas, April 26, 1990
- *Digital Communications*, Dallas Texas, April 10-12, 1989

Papers Under Review

1. Mustafa El-Halabi, Tie Liu, Costas N. Georghiades and Shlomo Shamai, *Secret Writing on Dirty Paper: A Deterministic View*, submitted to the IEEE Transactions on Information Theory, March 2011.

2. Armin Banaei, Costas N. Georghiades and Shuguang Cui, *Study of Large Overlaid Cognitive Radio Networks: From Throughput Scaling to Asymptotic Multiplexing Gain*, submitted to the IEEE/ACM Transactions on Networking March 2011.
3. Armin Banaei, Darren B.H. Kline, Costas N. Georghiades and Shuguang Cui, *On the Random 1/2-Disk Routing Scheme in Wireless Ad Hoc Networks*, submitted to the IEEE/ACM Transactions on Networking March 2011.

Journal Publications

1. Salim Y. El Rouayheb, A. Sprintson, and C.N. Georghiades, *Robust network codes for unicast connections: A Case Study*, IEEE/ACM Transactions on Networking, Vol. 19, No. 6, December 2010.
2. S. El Rouayheb, A. Sprintson and C.N. Georghiades, *On the Index Coding Problem and its Relation to Network Coding and Matroid Theory*, IEEE Transactions on Information Theory, vol. 56, No. 7, pp. 3187-3195, July 2010.
3. Qiang Li, Jing Zhu, Qinghua Li and C. N. Georghiades, *Efficient Spatial Covariance Estimation for Asynchronous Co-channel Interference Suppression in MIMO-OFDM Systems*, IEEE Transactions on Wireless Communications, Vol. 7, No. 12, pp. 4849-4853, December 2008.
4. Y. Xie, Q. Li, and C.N. Georghiades *On Some Near Optimal Low Complexity Detectors for MIMO Fading Channels*, IEEE Transactions on Wireless Communications, Vol. 6, pp. 1182-1186, April 2007.
5. Vladimir M. Stankovic, Angelos D. Liveris, Zixiang Xiong, Costas N. Georghiades, *On Code Design for the Slepian-Wolf Problem and Lossless Multiterminal Networks*, IEEE Transactions on Information Theory, Vol. 52, April 2006.
6. Y. Xie, C.N. Georghiades, and K. Rohani, *Optimal Bandwidth Allocation for the Data and Feedback Channels in MISO-FDD Systems*, IEEE Transactions on Communications, Vol. 54, pp. 197-203, February 2006.
7. Yongzhe Xie, Costas N. Georghiades, *Some Results on the Sum-rate Capacity of MIMO Fading Broadcast Channels*, IEEE Transactions on Wireless Communications, Vol. 5, pp. 377-383, February 2006.
8. W. He and C.N. Georghiades, *Computing the Capacity of a MIMO Fading Channel Under PSK Signaling*, IEEE Transactions on Information Theory, Vol. 51, pp. 1794-1803, May 2005.
9. Yongzhe Xie, Costas N. Georghiades and Ari Arapostathis, *Minimum Outage Probability Transmission with Imperfect Feedback for MISO Fading Channels*, IEEE Transactions on Wireless Communications, Vol. 4, pp. 1084-1091, May 2005.
10. S. Choe and C.N. Georghiades, *A Trellis-Coded DS/CDMA System in Rayleigh Fading Channels*, IEEE Transactions on Communications, Vol. 53, pp. 405-407, March 2005.
11. Lori A. Dalton and Costas N. Georghiades, *A Full Rate, Full Diversity Four Antenna Quasi-Orthogonal Space-Time Block Code*, IEEE Transactions on Wireless Communications, Vol. 4, No. 2, pp. 363-366, March 2005.
12. J. Li, K. Narayanan and C.N. Georghiades, *An Efficient Algorithm to Compute the Euclidean Distance Spectrum of A General Inter-symbol Interference Channel and Its Applications*, IEEE Transactions on Communications, Vol. 52, pp. 2041-2046, December 2004.
13. M. Uysal and C.N. Georghiades, *Upper Bounds on the BER performance of MTCM-STBC Schemes over Shadowed Rician Fading Channels*, EURASIP Journal on Applied Signal Processing, Special issue on *Advances in Smart Antennas*, vol. 2004, no. 9, p. 1238-1245, August 2004.
14. M. Uysal and C.N. Georghiades, *Effect of Shadowing on the Performance of Space-Time Trellis Coded Systems*, IEEE Transactions on Wireless Communications, Vol. 3, pp. 1037-1042, July 2004.
15. M. Uysal and C.N. Georghiades, *On the Error Performance Analysis of Space-Time Trellis Codes*, IEEE Transactions on Wireless Communications, Vol. 3, pp. 1118-1123, July 2004.
16. T. Cassaro and C.N. Georghiades, *Frame Synchronization for Coded Systems over AWGN Channels*, IEEE Transactions on Communications. Vol. 52, pp. 484 – 489, March 2004.

17. J. Li, Y. Cai, K. Narayanan, A. Lucero, A. Pilipetskii and C.N. Georghiades, *On the Bit-Error Rate of Product Accumulate Codes in Optical Fiber Communications*, IEEE Journal of Lightwave Technology, vol. 22, No. 2, February 2004.
18. J. Li, K. Narayanan and C.N. Georghiades, *Product Accumulate Codes: A Class of Capacity-Approaching, Low Complexity Codes*, IEEE Transactions on Information Theory, Vol. 50, No. 1, pp. 31-46, January 2004.
19. Q. Li, C.N. Georghiades and X. Wang, *Blind Multiuser Detection in Uplink CDMA with Multipath Fading: A Sequential EM Approach*, IEEE Transactions on Communications, Vol. 52, pp. 71-81, January 2004.
20. Y. Li, C.N. Georghiades and G. Huang, *Transmit Diversity Over Quasi-Static Fading Channels Using Multiple Antennas and Random Signal Mapping*, IEEE Transactions on Communications, Vol. 51, pp. 1918-1926, November 2003.
21. A.D. Liveris and C. N. Georghiades, *Exploiting Faster-than-Nyquist Signaling*, IEEE Transactions on Communications, Vol. 51, No. 9, pp. 1502-1511, September 2003.
22. Z. Cai, M. Lu and C.N. Georghiades, *Topology-Transparent TDMA Broadcast Scheduling in Multihop Packet Radio Networks*, IEEE Transactions on Vehicular Technology, Vol. 52, No. 4, pp. 970-984, July 2003.
23. M. Uysal and C.N. Georghiades, *An Efficient Implementation of a Maximum-Likelihood Detector for Space-Time Block Coded Systems*, IEEE Transactions on Communications, Vol. 51, pp. 521 -524, April 2003.
24. Y. Xie and C.N. Georghiades, *Two EM-Type Channel Estimation Algorithms For OFDM With Transmitter Diversity*, IEEE Transactions on Communication, Vol. 51, No. 1, pp. 106-115, January 2003.
25. M. Uysal and C.N. Georghiades, *New Non-orthogonal Space-time Block Codes for 3-TX Antennas*, IEE Electronic Letters, Vol. 25, pp. 1689 -1691, December 2002.
26. S. Choe and C.N. Georghiades, *On the Performance of a Novel Quasi-Synchronous Trellis-Coded CDMA System*, IEEE Transactions on Communications Vol. 50, pp. 1984 -1993, December 2002.
27. A.D. Liveris, Z. Xiong and C.N. Georghiades, *Compression of Binary Sources with Side Information at the Decoder Using LDPC Codes*, IEEE Communications Letters, Vol. 6, No. 10, pp. 440-442, October 2002.
28. A.D. Liveris, Z. Xiong and C.N. Georghiades, *A Distributed Source Coding Technique for Correlated Images Using Turbo-Codes*, IEEE Communications Letters, vol. 6, No. 9, pp. 379-381, September 2002.
29. S. Choe, C.N. Georghiades and K. Narayanan, *Improved Upper Bounds on Error Probability for Biorthogonal Trellis-Coded CDMA Systems*, IEEE Communication Letters, vol. 6, No. 9, pp. 361-363, September 2002.
30. Q. Li, X. Wang, and C.N. Georghiades, *Turbo Multiuser Detection for Turbo-Coded CDMA in Multipath Fading Channels*, IEEE Transactions on Vehicular Technology, Vol. 51, pp. 1096-1108 September 2002.
31. J. Li, K. Narayanan, E. Kurtas and C.N. Georghiades, *On the Performance of High-rate TPC-SPC Codes and LDPC Codes Over Partial Response Channels*, IEEE Transactions on Communications, vol. 50, pp. 723-734, May 2002.
32. U. Dasgupta and C.N. Georghiades, *Turbo Decoding of Quantized Data*, IEEE Transactions on Communications, Vol. 50, pp. 56-64, January 2002.
33. Murat Uysal, Naofal Al-Dhahir and Costas N. Georghiades, *A Space-Time Block-Coded OFDM Scheme for Unknown Frequency-Selective Fading Channels*, IEEE Communication Letters, Vol. 5, pp. 393-395, October 2001.
34. P. Spasojevic and C.N. Georghiades, *The Slowest Descent Method and Its Application to Sequence Estimation in Single Path Channels*, IEEE Transactions on Communications, vol. 39, pp. 1592 -1604, September 2001.
35. J. Li, E. Kurtas, K. Narayanan and C.N. Georghiades, *On the Performance of Turbo Product Codes over Partial Response Channels*, IEEE Transactions on Magnetics, vol. 37, pp. 1932 -1934, June 2001.

36. Y. Li, C.N. Georghiades and G. Huang, *Iterative Maximum Likelihood Sequence Estimation for Space-time Coded Systems*, IEEE Transactions on Communications, Vol. 49, pp. 948-951, June 2001.
37. Q. Li, C.N. Georghiades and X. Wang, *An Iterative Receiver for Turbo-Coded Pilot-Symbol Assisted Modulation in Fading Channels*, IEEE Communication Letters, Vol. 5, No. 4, April 2001.
38. E. Panayirci, C.N. Georghiades and A. Huq, *Non-data-aided ML Carrier Frequency and Phase Synchronization in OFDM Systems*, European Transactions on Telecommunications, Vol. 12, Issue No. 2, pp. 83-94, March/April 2001.
39. P. Spasojevic and C.N. Georghiades, *Complementary Sequences for ISI Channel Estimation*, IEEE Transactions on Information Theory, Vol. 47, No. 3, March 2001.
40. M. Uysal and C.N. Georghiades, *Effect of Spatial Fading Correlation on the Performance of Space-Time Codes*, IEE Electronic Letters, Vol. 37, No. 3, pp. 181-183, February 2001.
41. P.D. Papadimitriou and C.N. Georghiades, *On Asymptotically Optimum Rate $1/n$ Convolutional Codes for a Given Constraint Length*, IEEE Communication Letters, Vol. 5, No. 1, pp. 25-27, January 2001.
42. M. Uysal and C.N. Georghiades, *Error Performance Analysis of Space-Time Codes over Rayleigh Fading Channels*, Journal of Communications and Networks (JCN), Special Issue on Adaptive Antennas for Wireless Communications, Vol. 2, No. 4, December 2000.
43. Q. Li and C.N. Georghiades, *On a Geometric View of Multiuser Detection for Synchronous DS/CDMA Channels*, IEEE Transactions on Information Theory, vol. 46, No. 7, pp. 2723-2731, November 2000.
44. M. Uysal and C.N. Georghiades, *Performance of Space-Time Coded CDMA Systems for Wireless Communications*, IEE Electronic Letters, vol. 36, No. 14, pp. 1231-1232, July 2000.
45. P. Spasojevic and C.N. Georghiades, *Blind Self-Noise Free Frequency Detectors for a Subclass of MSK-type Signals*, IEEE Transactions on Communications, Vol. 4, pp. 704-715, April 2000.
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111. E. Soljanin and C.N. Georghiadis, *Two-track Codes for Magnetic Recording Channels*, Proceedings of the *International Symposium on Information Theory*, Trondheim, Norway, June 1994.
112. C.N. Georghiadis, *Modulation and Coding for High Rate Optical Intersatellite Links*, Proceedings of the *15th AIAA International Communications Satellite Systems Conference*, San Diego, CA, March 1994.
113. E. Soljanin and C.N. Georghiadis, *On Coding in Multi-Track, Multi-Head, Digital Recording Systems*, Proceedings of the *Communication Theory Mini Conference*, Houston, Texas, November 1993.
114. J.C. Han and C.N. Georghiadis, *Maximum-Likelihood Sequence Estimation for Fading Channels Via the EM Algorithm*, Proceedings of the *Communication Theory Mini Conference*, Houston, Texas, November 1993.
115. C.N. Georghiadis, *Signaling over High Speed Optical Intersatellite Links*, Proceedings of the *Global Telecommunications Conference*, Houston, Texas, November 1993.
116. C.N. Georghiadis, *On the Capacity, Cutoff-Rate and Error-Probability of Optical Multi-Pulse PPM*, Proceedings of the *International Conference on Digital Signal Processing and II International Conference on Computer Applications to Engineering Systems*, Nicosia, Cyprus, July 1993.
117. C.N. Georghiadis and L.M. Cavalheiro, *Performance of Sampled Receivers with Raised-Cosine Signaling*, Proceedings of the *International Conference on Digital Signal Processing and II*

- International Conference on Computer Applications to Engineering Systems*, Nicosia, Cyprus, July 1993.
118. K.F. Hayek and C.N. Georghiades, *Chip-Synchronization for Optical OPPM*, Proceedings of the XXIVth General Assembly of the International Union of Radio Science (URSI), Kyoto, Japan, August 1993.
 119. N. Kong and C.N. Georghiades, *On the Effects of Integrate-and-dump Prefiltering on Sampled Receiver Performance*, Proceedings of the Conference on Information Sciences and Systems, John Hopkins University, March 1993.
 120. E. Soljanin and C.N. Georghiades, *The Near-Far Problem in Spread-Spectrum Road-Automobile Communications*, Proceedings of the American Control Conference (ACC), Chicago, IL, June 1992.
 121. K. Chang and C.N. Georghiades, *A Position Estimation Algorithm for Vehicle Following*, Proceedings of the American Control Conference (ACC), Chicago, IL, June 1992.
 122. S. Patarasen and C.N. Georghiades, *Symbol Synchronization and Detection of Chip-Synchronized OPPM Sequences*, Proceedings of the 26th Annual Conference on Information Sciences and Systems, Princeton University, Princeton, NJ, March 1992.
 123. C.N. Georghiades and J.K. Crutcher, *Throughput Efficiency Considerations for Optical OPPM*, Proceedings of the Global Telecommunications Conference, Phoenix, Arizona, December 1991.
 124. N. Kong and C.N. Georghiades, *Joint Synchronization and Detection from Samples Taken Through Integrate and Dump*, Proceedings of the Twenty-Fifth Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA November 1991.
 125. S. Patarasen and C.N. Georghiades, *Infrared Road-Automobile Communications*, Proceedings of the American Control Conference, Boston, MA, June 1991.
 126. E. Soljanin, W. Wills and C.N. Georghiades, *Spread-Spectrum Road-Automobile Communications*, Proceedings of the American Control Conference, Boston, MA, June 1991.
 127. C.N. Georghiades and J.C. Han, *Optimum Decoding of TCM in the Presence of Phase-Errors*, Proceedings of the International Symposium on Information Theory and its Applications, Hawaii, November 1990.
 128. S. Patarasen and C.N. Georghiades, *Maximum-Likelihood Frame Synchronization for OPPM Optical Systems*, Proceedings of the Princeton Conference on Information Sciences and Systems, Princeton, New Jersey, March 1990.
 129. C.N. Georghiades and M. Moeneclaey, *Joint Synchronization and Detection from Multiple Samples per Symbol*, Proceedings of the International Symposium on Information Theory, San Diego, California, January 1990.
 130. C.N. Georghiades, *Jointly Optimal Receivers: An Application to Joint Acquisition and Detection for DS-SS Systems*, Proceedings of the Allerton Conference, Urbana, Illinois, September 1989.
 131. C.N. Georghiades and D.L. Snyder, *An Application of the Expectation-Maximization Algorithm to Sequence Detection in the Absence of Synchronization*, Proceedings of the Johns Hopkins Conference on Information Sciences and Systems, Baltimore, Maryland, March 1989.
 132. C.N. Georghiades, *An Application of Trellis-Coded Modulation to Optical Direct-Detection Channels*, Proceedings of the Johns Hopkins Conference on Information Sciences and Systems, Baltimore, Maryland, March 1989.
 133. C.N. Georghiades, *An Optimum Sequence Estimation Approach in the Absence of Synchronization*, Proceedings of the Allerton Conference, Urbana, Illinois, September 1988.
 134. C.N. Georghiades, *Detection and Synchronization of PPM Sequences*, Proceedings of the International Symposium on Information Theory, Kobe, Japan, June 1988.
 135. C.N. Georghiades, *Trellis Coded Modulation for the Optical Direct-Detection Channel*, Proceedings of the International Symposium on Information Theory, Kobe, Japan, June 1988.
 136. C.N. Georghiades, *PPM Sequence Design Using Difference Sets*, Proceedings of the International Communications Conference, Seattle, June 1987.

137. C.N. Georghiades, *Detecting Random PPM Sequences in the Absence of Synchronization*, Proceedings of the 1988 *Conference on Information Sciences and Systems*, Princeton, NJ, March 1988.
138. C.N. Georghiades, *Simultaneous Slot and Symbol Synchronization for the PPM Optical Channel*, Proceedings of the *Global Telecommunications Conference*, December 1986.
139. C.N. Georghiades, *A Receiver Structure that Accounts for Laser Phase Instability in Heterodyne Optical Communication*, Proceedings of the *International Symposium on Information Theory*, Brighton, England 1985.
140. C.N. Georghiades, *A Proposed Receiver Structure for Heterodyne Optical Communication Systems*, D.Sc. dissertation, Department of Electrical Engineering, Washington University, St. Louis, Missouri, May 1985.
141. C.N. Georghiades and D.L. Snyder, *A Heterodyne Receiver for an Optical Communication System With an Unstable Laser Local Oscillator*, Proceedings of the *Allerton Conference*, University of Illinois, Urbana, Illinois, October 1984.
142. C.N. Georghiades and D.L. Snyder, *Optimum Frame Synchronization in Optical Communications*, Proceedings of the *Global Telecommunications Conference*, p. 421, San Diego, CA, December 1983.
143. C.N. Georghiades and D.L. Snyder, *Signal Design for Power Efficient Optical Communications in a Multiple Access Channel*, Proceedings of the *International Conference on Communications*, pp. 218-220, Boston, MA, June 1983.
144. C.N. Georghiades, *Optimum Modulation and Frame Synchronization in Optical Communications*, MS thesis, Department of Electrical Engineering, Washington University, St. Louis, Missouri, May 1983.
145. D.L. Snyder and C.N. Georghiades, *Signal Design for Power Efficient Optical Communications*, Proceedings of the *Allerton Conference*, pp. 965-966, University of Illinois, Urbana, Illinois, October 1982.

Books/Book Chapters

- C.N. Georghiades and E. Serpedin, *The Mobile Communications Handbook, Third Edition*, Chapter on *Synchronization*, CRC Press, 2011.
- S. El Rouayheb, and C. N. Georghiades, "Graph-Theoretic Methods in Coding Theory," invited paper, book in honor of David Middleton, in *Semi-classical and Quantum Noise*, Springer 2011.
- Panayiotis Papadimitriou and Costas N. Georghiades, *Code Design Based on Metric-Spectrum and Applications*, VDM Verlag Dr. Mueller, 2008.
- Arzu Karaer and Costas N. Georghiades, *Optimum Bit-by-Bit Power Allocation for Minimum Distortion Transmission*, VDM Verlag Dr. Mueller, 2008
- *Wiley Encyclopedia of Electrical and Electronics Engineering*, Chapter on *Information Theory of Codes and Waveforms*, 2007.
- P. Vijay Kumar, Moe Z. Win, Hsiao-feng Lu and C.N. Georghiades, *Error Control Coding Techniques and Applications*, in *Optical Fiber Telecommunications*, Academic Press, 2002.
- C.N. Georghiades and E. Serpedin, *The Communications Handbook*, Chapter on *Synchronization*, CRC Press, 2002.
- C.N. Georghiades and Predrag Spasojevic, *Wiley Encyclopedia of Telecommunications*, Chapter on *The EM Algorithm in Telecommunications*, 2003.
- C.N. Georghiades and D. Reynolds, *Interference Rejection for Spread-Spectrum Systems Using the EM Algorithm*, Springer-Verlag, London, 1998.
- *Wiley Encyclopedia of Electrical and Electronics Engineering*, Chapter on *Information Theory of Codes and Waveforms*, 1998.
- CRC Press, 1996, *The Communications Handbook*, Chapter on *Synchronization*.

Patents Issued

- *Method and System of Doppler Correction for Mobile Communications Systems*. With P. Spasojevic. Patent Number 5,995,045, issued November 30, 1999; technology was licensed to Final Analysis Communication Systems (FACS).
- *Apparatus, and Associated Method, for Selecting Codes of a Code Set for Coding Data Communicated During Operation of a Multi-Access Communication System*. With P. Papadimitriou. Patent Number 7,616,609, issued November 10, 2009.
- *Multi-source Data Encoding, Transmission and Decoding Using Slepian-Wolf Codes Based on Channel Code Partitioning*. With V. Stankovic, A. Liveris and Z. Xiong. Patent number 7,653,867, issued January 26, 2010.
- *Multi-source Data Encoding, Transmission and Decoding Using Slepian-Wolf Codes Based on Channel Code Partitioning*. With V. Stankovic, A. Liveris and Z. Xiong. Patent number 7,779,326, issued August 17, 2010.

Patent Applications Pending and Technology Disclosures

- *Multi-source Data Encoding, Transmission and Decoding Using Slepian-Wolf Codes Based on Channel Code Partitioning*. With V. Stankovic, A. Liveris and Z. Xiong. Filed July 30, 2010. Application number: 20110029846.
- *Zero-Padded OFDM with Improved Performance Over Multipath Channels*. With P.D. Papadimitriou. Patent applied for in June 2004 by NOKIA Inc. Application number: 20050031018.
- *Design of Slepian-Wolf Codes by Channel Code Partitioning*, TAMUS 2109, (with V. Stankovic, A. Liveris and Z. Xiong). Patent applied for March 2005.
- *Fast Viterbi Implementation in MATLAB*, TAMUS 1339, (with P. Papadimitriou)
- *Fast Blind Frequency Compensation for a Subclass of CPM with $h=1/2$* , TAMUS 1345, (with P. Spasojevic).
- *Method and System for Data Decoding*, TAMUS 1487 (with U. Dasgupta).
- *Product Accumulate Codes*, TAMUS 1724 (with J. Li, K. Narayanan)
- *A Four Transmit Antenna Orthogonal Space-Time Block Code with Full Diversity and Rate*, TAMUS 1951, Fall 2002 (with Lori Dalton).

Significant Technical Reports

- C.N. Georghiades, S. Patarasen, E. Soljanin, H. Jardak and W. Wills, *Communications in Intelligent Vehicle Highway Systems: Part I*, Research Report 1245-2, Texas Transportation Institute, November 1991.
- C.N. Georghiades, E. Soljanin, Kuor-hsing Chang, Ramaiah Velidi and Luis Cavalheiro Matias, *Communications in Intelligent Vehicle Highway Systems: Part II*, Research Report 1245-3, Texas Transportation Institute, November 1991.
- C.N. Georghiades, *Decoding of TCM in the Presence of Random Parameters Via the EM Algorithm*, Progress Report for National Science Foundation Grant NCR-9016329, April 1992.
- C.N. Georghiades, *Modulation, Coding and Synchronization for Throughput-Efficient Free-Space Optical Systems*, Progress Report to NASA Lewis Research Center for Grant NAG 3-1353, November 1992.
- C.N. Georghiades, *On the Effect of Bandwidth on the Performance of AVM Systems Operating in the 902-925 MHz ISM Band*, research report to Pinpoint Communications, Inc., Dallas, Texas, 1994.

Consulting

- Benjamin-Cummings, Aksen Associates, Kluwer, and Addison-Wesley, Prentice-Hall Publishing Companies
- Pinpoint Communications, Inc.

- Final Analysis Communication Systems, Inc.
- Allied Signals, Inc.
- Expert witness for Mills, Shirley, Eckel & Bassett, L.L.P.
- Invocon, Inc.

Projects/Funding

- Gift from National Instruments, \$50K (shared evenly with Dr. Robert Cui), 2011.
- EIC support, IEEE Communications Society, January 2005-December 31, 2008, \$70K.
- “Collaborative work between Texas A&M University at Qatar and Qatar Telecom,” Co-PI, \$625,180, January 2006-June 2007.
- SBC Foundation, \$10,000 for support of the Wireless Communications Laboratory, Spring 2005.
- *Efficient ML Decoding for MIMO Fading Channels Implemented on a National Instruments Platform*, \$80K, January 2005-December 2006.
- *Channel Prediction for Adaptive Modulation*, Motorola, Inc., \$23,653, September 2004-August 2005.
- *Channel Prediction for Adaptive Modulation*, Motorola, Inc., \$22,016, September 2003-August 2004.
- Texas Instruments Research and Development Center, \$40K, September 2002-August 2003.
- IEEE Student Travel Funds, 2002, \$4,336.75.
- Telecommunications and Informatics Taskforce (TITF), *The Texas A&M Advanced Wireless Telecommunications Initiative*, PI, \$486,000, September 2001-August 2004.
- Telecommunications and Informatics Taskforce (TITF), *Quantum Optics and Telecommunications*, Co-PI, \$500K, September 2001-August 2003.
- Motorola, *Advanced Signal Processing for Wireless Communications*, \$60,000, 2001.
- *Channel Prediction for Adaptive Modulation*, Motorola, Inc., \$44,032, September 2001-August 2003.
- NSF PSERC –Power System Monitoring Using Wireless Substation and System-Wide Communications, (with M. Kezunovic), \$38K, September 2000-August 2001.
- Texas Instruments (with S. Miller, X. Wang, K. Narayanan), \$40K, August 2000.
- Gift from Nortel Networks for student scholarships/fellowships, \$125K, April 2000.
- Gift from Nokia for student scholarships, \$10,500, January 2000.
- Motorola, *Advanced Signal Processing for Wireless Communications*, \$60,000, September 1999.
- *Advanced Techniques in Coding for 3G CDMA Systems*, Nortel Networks, December 1999-December 2000, \$20,000.
- *On the Use of Trellis-Coded Modulation for 3G CDMA Systems*, Northern Telecom, January 1, 1999-August 31, 1999, \$37,500.
- *Analysis, Design and DSP Implementation of a Faster than 56Kbps PCM Modem*, Texas Instruments, November 1, 1998-October 31, 2000, \$159,271.
- *Design, Simulation and Verification of Routing Algorithms for Reliable, High-Speed Wireless Data Networks*, \$142,871, *Texas Advanced Technology Program*, January 1998-December 31, 1999.
- *Power Control for Code-Division Multiple Access Wireless Communications*, \$120,000, May 1997-May 1998, *SK TELECOM* (previously Korea Mobile Telecom), co-Pi.
- *Research in Multi-carrier Modulation*, *Texas Instruments*, January 1997-January 1998, \$18,300.
- *Telecommunication Assessment: Narrowband Vs Wideband Signaling for Mobile Radio*, *Burlington Northern Santa Fe Railroad (BNSF)*, \$200,000, November 1996-October 1997.
- *Design and Implementation of Wireless Communication Systems Using BiCMOS Technologies*, *National Science Foundation*, \$154,842, October 1996-September 1999 (co-PI).
- *Center for Integrated VLSI/Communication System Design*, TEES Strategic Initiative proposals,

\$580,000 over three years (includes Departmental matching funds) (co-PI).

- *Fast Synchronization Techniques for Digital Radio*, ALCATEL Network Systems, \$40,000.
- *Telecommunications for ITS Systems, ITS Research Center of Excellence/Texas Department of Transportation*, \$66,000, January 1995-January 1996.
- *Remote Terminal Design for a Satellite-Based Store-and-Forward System, NASA/Center for Space Power*, \$90,186, November 1994-October 1995.
- *Maximum-Likelihood Based Techniques for Sequence Estimation and Tracking, Applied Physics Laboratory*, September 1994-August 1995, \$25,600.
- *Telecommunications for ITS, ITS Research Center of Excellence*, \$13,000, January 1994-January 1995.
- *Design of Joint Source/Channel Coding for Rayleigh Fading Channels (co-PI), National Science Foundation*, \$347,587, August 1994-January 31, 1999.
- *Modulation, Coding and Synchronization for Throughput-Efficient Free-Space Optical Systems, National Aeronautics and Space Administration*, \$45,069, June 1, 1992-September 30, 1992.
- *Decoding of TCM in the Presence of Random Parameters Via the EM Algorithm, National Science Foundation*, \$99,734, May 1991-May 1993.
- *A Study of Telecommunication Requirements for Intelligent Vehicle Highway Systems, Texas Transportation Institute*, \$191,500, January 1990-August 1992.
- *Institute of Electrical and Electronic Engineers*, \$21,000, September 1, 1989-August 31, 1992.
- *National Aeronautics and Space Administration (NASA), NAG 5-778*, \$66,922, May 1986-August 1987, (co-PI).
- *Engineering Excellence Grant, Texas A&M University*, \$17,684, January 1986-August 1986.

Equipment Grants

- National Instruments, ~\$80K, 2011.
- National Instruments IF RIO system donation (\$30K), 2005.
- DSP equipment donation, Motorola, 2002.
- DSP equipment donation by Motorola, September 2000
- DSP equipment donation by Texas Instruments (TI): \$75,000.
- *Acquisition of Instrumentation and Computational Equipment for the Experimental Laboratory on VLSI High Performance Signal Processing and Communications, National Science Foundation*, \$416,000, 1995.
- DSP equipment donation by Motorola: \$52,000.

Current Students

- Mustafa El-Halabi (Ph.D.), Ahsan Ul Aziz (Ph.D.), Armin Banaei (Ph.D.), Nariman Rahimian (Ph.D.), Marwa Ali (Ph.D.)

Ph.D. Students Advised

1. S. Patarasen, Ph.D., *Synchronization for Optical Overlapping Pulse-Position Modulation Systems*, August 1991. (Military Academy in Thailand)
2. Ning Kong, Ph.D., *Sequence Estimation and Synchronization from Nonsynchronized Samples*, May 1993. (With Zyray Wireless, Inc., San Diego, California)
3. Jae Choong Han, Ph.D., *Maximum-Likelihood Sequence Estimation Via the EM Algorithm in the Presence of Random Phase and Amplitude Fading*, August 1994. (With Myongji University, South Korea)

4. Emina Soljanin, Ph.D., *Coding for Improving Immunity in Multi-Track, Multi-Head Recording Systems*, December, 1994. (With the Mathematical Sciences Group, Bell Laboratories, Murray Hill, New Jersey)
5. Ramaiah Velidi, Ph.D., *Analysis of Direct-Detection Optical Communication Systems with Multi-Pulse Pulse Position Modulation*, August 1995. (Currently a Partner with Sevin Rosen Funds, a major venture capital firm in Dallas)
6. Kuor-Hsin Chang, Ph.D., *Joint Maximum-Likelihood Sequence and Channel Estimation for Intersymbol Interference Channels*, August 1995. (With a wireless startup company in California)
7. Warm Shaw, Ph.D., *Rapid Carrier Acquisition and ML Channel Estimation of Fading for Coherent Communication Systems*, May 1997. (With AMCC, San Diego, California (a fiber-optics company))
8. Predrag Spasojevic, Ph.D., *Sequence and Channel Estimation for Channels with Memory*, December 1999. (Associate Prof. at Rutgers University)
9. Udayan Dasgupta, Ph.D., *Low Complexity Techniques for Channel Decoding and Equalization*, May 2000. (With the Texas Instruments Research and Development Center, Dallas, Texas)
10. Qinghua Li, Ph.D., *Multiuser Detection for Turbo-Coded DS/CDMA Systems*, May 2001. (With Intel Laboratories)
11. Sangho Choe, Ph.D., *A Trellis-Coded CDMA System Based on Orthogonal Plane Sequence Modulation*, May 2001. (Faculty at The Catholic University of Korea, School of Information, Communications and Electronics Engineering)
12. Yingxue Li, Ph.D., *Wireless Communication System Design with Transmit Diversity*, May 2001. (With Interdigital, Florida)
13. Thomas Cassaro, Ph.D., *Channel Estimation for Coded Systems*, August 2001. (With ARL, Austin, Texas)
14. Jong-Hyune Kim, Ph.D., *Power Control and Adaptive Data Transmission for SC/MC-CDMA Systems*, August 2001. (With Samsung, Seoul, Korea)
15. Murat Uysal, PhD, *Analysis and Design of Space-Time Coded Systems for Wireless Communication*, December 2001. (Faculty at the University of Waterloo, Canada)
16. Jing Li (Co-chair), Ph.D., *Low Complexity Capacity Approaching Schemes: Design, Analysis and Applications*, December 2002. (Faculty at Lehigh University)
17. Yongzhe Xie, Ph.D., *On Adaptive Transmission, Signal Detection and Channel Estimation for Multiple Antenna Systems*, August 2004. (With the Prediction Company, Santa Fe, New Mexico.)
18. Angelos D. Liveris, Ph.D., *On Distributed Coding, Channel Quantization and Faster-than-Nyquist Signaling*, December 2004.
19. Panayiotis D. Papadimitriou, Ph.D., *Code Design Based on Metric Spectrum and Applications*, December 2004. (Currently with the Nokia Research Center (NRC).)
20. Qiang Li, Ph.D., *On Multiple-Antenna Communications: Signal Detection, Error Exponent and Quality of Service*, December 2007. (With Ericson Research Labs, Rayleigh North Carolina)
21. Sung Sik Nam, Ph.D., (co-Chair) *Adaptive Power Control for Single and Multiuser Opportunistic Systems*, December 2008.
22. Salim El Rouayheb, Ph.D., *Network and Index Coding with Application to Robust and Secure Communications*, December 2009. Currently a post-doc at UC Berkeley.

MS Students Advised

1. Mahendra P. Advani, MS, *Jointly Optimal Receivers for the Optical Direct Detection Channel*, May 1988.
2. Hadi G. Jardak, M.S., *Trellis-Coded Modulation and Capacity for Multilevel Intensity Modulated Optical Systems*, August 1990.
3. Jae Choong Han, M.S., *Optimum Decoding of TCM in the Presence of Phase-Errors*, August 1990.

4. Barbara K. Kinard, M.S., *Sequence Estimation in the Presence of Timing-Errors for NRZ Signaling*, August 1990.
5. James K. Crutcher, M.S., *A Comparison of Optical PPM and Overlapping PPM Systems*, December 1990.
6. Wesley M. Wills, M.S., *Implementation Aspects of Nonsynchronized Binary Receivers*, December 1990.
7. Luis Manuel Matias Cavaleiro, MS, *Simulation Performance of Sampled Receivers with Narrowband Signaling*, May 1992.
8. Khalil Hayek, MS, *Chip Synchronization for Optical OPPM Channels*, December 1992.
9. Brandon M. Van Slyke, MS., *Implementation of a Sampled Receiver Using the TMS320C30 Digital Signal Processor*, August 1996.
10. Quan Zhang, MS., *Sequence Estimation in the Presence of Interference via the Expectation-Maximization Algorithm*, September 1996.
11. Jason Preston, MS, *Rapid Carrier Phase Acquisition for Large QAM Signal Constellations*, October 1996.
12. Franck Louichon, MS, *Multi-User CDMA Detectors for ITS Applications*, October 1996.
13. Daryl Reynolds, MS, *Sequence Estimation in Narrowband Interference Via the Expectation-Maximization Algorithm*, 1998
14. Pushkar R. Apte, MS, *Multicarrier CDMA Versus DS-CDMA: Simulation and Performance Evaluation Over a Multipath Rayleigh Fading Channel*, 1998.
15. Thierry Beck, MS, *A Comparison of Multi-User Receivers for Multipath Fading Channels*, 1998.
16. Lin Huang, MS (co-chair), *Performance of OFDM and Wavelet-Packet Based Multicarrier Communication*, 1998.
17. Ayesha Huq, MS, *Maximum-Likelihood Carrier Estimation in Orthogonal Frequency Division Multiplexing Systems*, 1998.
18. George Kent, MS, *W-CDMA Performance Evaluation of DS and MC-CDMA in the Presence of Multipath Fading and Partial-Band Interference*, 1998.
19. Mitsunobu Kimura, MS, *Comparison and Optimization of Two AGC Algorithms for Quadrature Amplitude Modulation*, 1998.
20. Richard Lambert, MS, *A Real-Time DSP GMSK Modem with All-Digital Symbol Synchronization*, 1998
21. Young-Ho Suh, MS, *GMSK Two-Bit Differential Detector Performance Enhancement with Symmetric Detection By Using Bit Stuffing*, 1998.
22. Ahsan Ul Aziz, MS, *A Frequency Compensated Real Time DSP GMSK Modem*, 1998.
23. Afshin Shaybani, MS, *Implementation of a Multi-Carrier Modulation Based Modem on the TI TMS320C54 DSP*, 1998.
24. Telesphore Pegnyemb, MS, *Multiple Description Source Coding for Mobile Radio Channels*, May 1999.
25. Noor Rajib Amin, MS, *Coding Analysis of the IS-95A Reverse Link*, August 1999.
26. Samir Thosani, MS, *An Economical Optical System Design Using Phase Diversity*, August 1999.
27. Ying Pei, *Analysis of Power Estimation Techniques in CDMA Systems*, December 1999.
28. Joseph Pautler, MS, *Maximum Likelihood Sequence Estimation for Multipath Fading Channels*, May 2000.
29. Luis Caraballo, MS, *System Level Design and Simulation of a PCM Voiceband Modem Compliant with the ITU V.90 Standard*, May 2000.
30. Terry Mayhue, MS, (co-chair), *A Hierarchical Wireless Communication System Design*, May 2000.
31. Shahedolla Molla, MS, *Implementation of the ITU-T V.90 Standard PCM Modem in a TMS320C6201 Digital Signal Processor*, May 2001.

32. Preeti Gopalan, *A Channel Estimation Algorithm for Space-Time OFDM Systems on the Starcore SC140 DSP*, December 2002.
33. Lori A. Dalton, *New Orthogonal Space-Time Codes with Full Diversity*, December 2002.
34. Arzu Karaer, *Optimum Bit-by-Bit Power Allocation for Minimum Distortion Transmission*, December 2005.
35. Spyros Spyrou, *Linear Block Codes for Block Fading Channels Based on Hadamard Matrices*, December 2005.
36. Dana Jaber, *MIMO Detection by a Colony of Ants*, May 2006. (Currently with Ericson, Dallas, Texas)
37. Wenyan He (MS), *Constrained Capacity of MIMO Rayleigh Fading Channels*, May 2011.

ME Students Graduated

Scott A. Slaton, ME, 1989, Edward C. Hudek, M.E., 1989, Benjamin M. Butchko, M.E., 1989, Young Chavez, ME, 1994, Christopher Money, ME, 1998, Andiko Syahriza, ME, 1998, Antony Nunley, ME, 1998, Nusrat Habib, ME, 1998, Sung-Hyun Jung, ME, 1998, Camille Lowerie, ME, 1998, Hussain Mizra, ME, 1998, John Lemons, ME, 1998, Ying-Wen Li, ME, 1998, Junmei Wang, ME, 1998, Briant Swint, ME, 1998, Shahid Ayyub, ME, 1999, Vidhya Krishnamoorthy, ME, May 2002.

Undergraduate Research Advising

- 2011: Andrew Young, “Channel Coding Using Sudoku”
- 2010: Andrew Young, “Noise Cancellation”
- 2004: Richard Graff, Jarrod Breclaw, Massimo Allegritti (Italy)
- 2003 Julia Croy, Daniel Shultz (Lamar University), John Lee
- 2002: Julia Croy
- 1986: Moe Win, Undergraduate thesis: *PPM Sequences with Desirable Correlation Properties* (currently, Associate Professor at MIT)