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EDUCATION

Ph.D. in Electrical Engineering, **Texas A&M University at College Station**, August, 2002.
Dissertation: *Advanced Signal Processing Techniques for Interference Suppression in CDMA Communications.*

Advisor: Xiaodong Wang

M.S. in Electrical Engineering, **Texas A&M University at College Station**, August, 1998.
Thesis: *Sequence Estimation in Narrowband Interference via the EM Algorithm*

Advisor: Costas N. Georghiades

B.S. in Electrical Engineering, **University of Colorado at Boulder**, December, 1993.

PROFESSIONAL EXPERIENCE

Associate Professor (2008-present), Lane Department. of Computer Science and Electrical Engineering, West Virginia University, Morgantown, WV.

Assistant Professor (2002-2008), Lane Department. of Computer Science and Electrical Engineering, West Virginia University, Morgantown, WV.

Assistant Lecturer (2000-2002), Department of Electrical Engineering, Texas A&M University, College Station, TX. *Taught sections of a senior-level analog communications course.*

Graduate Assistant (1996-2000), Department of Electrical Engineering, Texas A&M University, College Station, TX. *Conducted funded research in the area of interference suppression in CDMA systems. Also taught sections of an undergraduate digital design laboratory.*

Electrical Engineer/Programmer (1994-1995), Cook-Hurlbert, Inc., Austin, TX. *Developed numerical algorithms for power distribution mapping software. Participated in "planning and discovery" meetings with clients to determine cost and feasibility of their needs.*

AWARDS AND HONORS

NSF Faculty Early Development (CAREER) award, "Multimodal Cooperative Networks: Design, Analysis, Prototyping, and Integrated Education", (2008-2013).

PROFESSIONAL SERVICES

Peer reviewer for various journals and conferences including:

IEEE Transactions on Information Theory

IEEE Transactions on Communications

IEEE Transactions on Signal Processing

IEEE Journal on Selected Areas in Communications

EURASIP Journal of Applied Signal Processing

IEEE Signal Processing Letters

IEEE Communications Letters

IEEE Journal on Vehicular Technology
IEEE Transactions on Wireless Communications

Associate editor for the *Journal of Communications and Networks* (JCN) (2004-2008).

Editor for *IEEE Transactions on Wireless Communications* (2008-2013).

GLOBECOM 2004, 2005, 2006, 2015 Technical Program Committee member

SPAWC 2005 Technical Program Committee member

VTC 2005, 2007 Technical Program Committee member

RWS 2005 Technical Committee member

MILCOM 2010 Technical Committee member

ICC 2008, 2009 Technical Committee member

Treasurer for the IEEE Upper Monongahela Subsection (2005-2008).

Vice President for the IEEE Upper Monongahela Subsection (2003).

President for the IEEE Upper Monongahela Subsection (2004).

Co-advisor for WVU IEEE Student Society (2006-present).

National Science Foundation panel reviewer (approximately 21 panels between 2003 and 2015).

TEACHING EXPERIENCE

Course Number	Course Title	Year(s)
ELEN 456*	Communication Theory	2000, 2002
EE 562†	Wireless Communication Systems	2003, 2005, 2006, 2009, 2010, 2011, 2014
EE 463†	Fundamentals of Digital Signal Processing	2003-2005, 2012-2016
EE 461†	Introduction to Communication Systems	2002-2016
EE 463†	Fundamentals of Digital Signal Processing	Spring 2004
EE 591G†	Statistical Signal Processing	2004
EE 327†	Signals and Systems I	2016
EE 329†	Signals and Systems II	2006-2008
EE 591T†	Signal Theory	2007
EE 223†	Electrical Circuits	2008-2010, 2013-2014, 2016
EE 691O†	Advanced Wireless Communication Systems	2010

*: course taught at Texas A&M University, College Station, TX.

†: course taught at West Virginia University, Morgantown, WV.

JOURNAL PUBLICATIONS AND BOOK CHAPTERS

1. H. Palakurthi and D. Reynolds, "A scaling law for wireless networks with supplementary non-broadcast links", accepted, *Open Transactions on Information Processing*, 2015.
2. K. Vardhe and D. Reynolds, "The performance of multistage cooperation in relay networks", revised, *Journal of Communications and Networks*, vol. 17, no. 5, pp. 499-505, October 2005
3. A. Ammar and D. Reynolds, "An adaptive relay scheduling scheme for cooperative energy harvesting networks", *Journal of Communications and Networks*, vol. 17, no. 3, June 2015.

4. D. Reynolds, W. Zhou, and R. Hussmann, "Outage probability for multiple relay networks with supplementary non-broadcast links", *IEEE Communications Letters*, vol. 17, no. 11, pp 2048-2051, November, 2013.
5. D. Reynolds and M.C. Valenti, "Distributed space-time block codes", chapter 6 of *Cooperative Cellular Wireless Networks*, Cambridge University Press, 2011, p. 153-175.
6. K. Vardhe and D. Reynolds, "Joint power allocation and relay selection for multiuser cooperative communication", *IEEE Transactions on Wireless Communications*, vol. 9, no. 4, pp. 1255-1260, April 2010.
7. K. Vardhe, D. Reynolds, and M.C. Valenti, "The performance of multi-user cooperative diversity in an asynchronous CDMA uplink," *IEEE Transactions on Wireless Communications*, vol. 7, no. 5, pp. 1930-1940, May 2008.
8. K. Vardhe and D. Reynolds, "User cooperation in an asynchronous cellular uplink", *Signal Processing (Elsevier)*, vol. 87, no. 7, pp. 1799-1807, July 2007.
9. D. Reynolds, X. Wang, and K. Modi, "Interference suppression and diversity exploitation for multi-antenna CDMA with ultra-low complexity receivers", *IEEE Transactions on Signal Processing*, vol. 53, no. 8, Part 2, pp. 3226-3237, August 2005.
10. I. Berenguer, X. Wang, M. Donaire, D. Reynolds, and A. Høst-Madsen, "Linear precoding and user scheduling for downlink TDD-CDMA", *IEEE Transaction on Wireless Communications*, vol. 6, no. 3, pp. 780-786, March 2007.
11. H.V. Poor, D. Reynolds, and X. Wang, "Multiuser detection in fading channels", a chapter in *Advances in Multiuser Detection*, Wiley and Sons, 2009.
12. H. Dai, S. Jayaweera, H.V. Poor, D. Reynolds, and X. Wang, "Receiver structures for multiuser MIMO systems", a chapter in *MIMO Wireless Communications*, Cambridge University Press, London, 2006.
13. D. Reynolds, X. Wang, and H.V. Poor, "Multiuser MIMO communications", a chapter in *Space-Time Wireless Systems: From Array Processing to MIMO Communications*, Cambridge University Press, London, 2006.
14. C. Li, X. Wang, and D. Reynolds, "Utility-based joint power and rate allocation for downlink CDMA with blind multiuser detection", *IEEE Transactions on Wireless Communications*, vol. 4, no. 3, pp. 1163-1174, May 2005.
15. D. Reynolds, A. Høst-Madsen, and X. Wang, "Adaptive transmitter precoding for time division duplex CDMA in fading multipath channels: strategy and analysis," *EURASIP Journal of Applied Signal Processing*, vol. 2002, no. 12, pp. 1325-1334, Dec. 2002.
16. D. Reynolds and X. Wang, "Adaptive transmitter optimization for blind and group-blind multiuser detection," *IEEE Transactions on Signal Processing*, vol. 51, no. 3, pp. 825-838, Mar. 2003.
17. D. Reynolds, X. Wang, and H.V. Poor, "Blind adaptive space-time multiuser detection with multiple transmitter and receiver antennas," *IEEE Transactions on Signal Processing*, vol. 50, no. 6, pp. 1261-1276, June 2002.
18. D. Reynolds and X. Wang, "Turbo multiuser detection with unknown interferers," *IEEE Transactions on Communications*, vol. 50, no. 4, pp. 616-622, Apr. 2002.

19. D. Reynolds and X. Wang, "Adaptive group-blind multiuser detection based on a new subspace tracking algorithm," *IEEE Transactions on Communications*, vol. 49, no. 7, pp. 1135-1141, July 2001.
 20. D. Reynolds and X. Wang, "Low complexity turbo-equalization for diversity channels," *Signal Processing*, vol. 81, no. 5, pp. 989-995, May 2001.
 21. C.N. Georghiades and D. Reynolds, "Sequence estimation in narrowband interference via the EM algorithm," a chapter in *Broadband Wireless Communications*, Springer-Verlag, London, 1998.
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SELECTED CONFERENCE PUBLICATIONS

1. W. Zhou, X. Li, and D. Reynolds, "Image assisted upsampling of depth map via nonlocal similarity", proceedings of *2014 Asilomar Conference on Signals, Systems, and Computers (Asilomar 2014)*, Pacific Grove, CA.
2. C. Nicklow and D. Reynolds, "Achievable Rates for Gaussian relay networks with a supplementary non-broadcast link", proceedings of the *2013 Conference on Information Sciences and Systems (CISS 2013)*, Princeton, NJ.
3. A. Ammar and D. Reynolds, "A practical relay scheduling scheme for wireless sensor networks with energy harvesting", proceedings of the *2013 Conference on Information Sciences and Systems (CISS 2013)*, Baltimore, MD.
4. C. Nicklow and D. Reynolds, "Achievable Rates for Multi-Level Relay Networks with Supplementary Non-Broadcast Links", proceedings of the *2012 Conference on Information Sciences and Systems (CISS 2012)*, Princeton, NJ.
5. R. Hussman and D. Reynolds, "Outage probability for multimodal cooperative networks", proceedings of the *2011 Conference on Information Sciences and Systems (CISS 2011)*, Baltimore, MD.
6. H. Palakurthi and D. Reynolds, "The performance of asynchronous cooperative diversity with SIC receivers", proceedings of the *2011 Virginia Tech Wireless Symposium (MPRG 2011)*, Blacksburg, VA.
7. K. Boppana and D. Reynolds, "Traffic optimization for multimodal cooperative networks", proceedings of the *2011 Virginia Tech Wireless Symposium (MPRG 2011)*, Blacksburg, VA, June 2011.
8. K. Vardhe, C. Zhou, and D. Reynolds, "On the Energy Efficiency of Multistage Cooperation in Sensor Networks", proceedings of *2010 Global Communications Conference (GLOBECOM 2010)*, Maimi, FL.
9. K. Vardhe and D. Reynolds, "On the Performance of Multistage Cooperative Networks", proceedings of *2010 Allerton Conference on Communication, Control, and Computing*, Allerton House, IL.
10. K. Vardhe, D. Reynolds, and B. Woerner, "Power Allocation and Relay Selection in Cooperative Wireless Networks", proceedings of *2010 Military Communications Conference (MILCOM 2010)*, San Jose, CA, 2010.
11. K. Vardhe, D. Reynolds, and M.C. Valenti, "Outage Probability of a Multi-User Cooperation Protocol in an Asynchronous CDMA Cellular Uplink", *2007 Conference on Information Sciences and Systems (CISS '07)*, Baltimore, MD.

12. R. Rajagopalan, D. Reynolds, M.C. Valenti, and B.D. Woerner, "The Impact of an Antenna Array in a Relay Network", proceedings of *IEEE International Conference on Communications (ICC '07)*, Glasgow, Scotland.
13. S.D. Gupta and D. Reynolds, "Position Dependant Power Allocation Strategies in Cooperative Relay Networks", proceedings of *2006 Military Communications Conference (MILCOM '06)*, Washington, DC.
14. K. Vardhe and D. Reynolds, "The Performance of Space-Time Coded Cooperative Diversity in an Asynchronous Cellular Uplink", proceedings of *2006 Military Communications Conference (MILCOM '06)*, Washington, DC.
15. R. Rajagopalan, D. Reynolds, and B.D. Woerner, "Performance of Cooperative Diversity Using MIMO Systems", proceedings of *2006 16th Annual Wireless Symposium (MPRG '06)*, Blacksburg, VA.
16. B. Berenguer, X. Wang, D. Reynolds, and A. Host-Madsen, "Linear Precoding Versus Linear Multiuser Detection in the Downlink of TDD-CDMA Systems", proceedings of *2005 IEEE Workshop on Signal Processing Advances in Wireless Communications (SPAWC '05)*, New York, NY.
17. K. N. Modi, D. Reynolds, and X. Wang, "Linear precoding for multi-antenna CDMA over multipath ISI channels", proceedings of *2004 Conference on Information Sciences and Systems (CISS '04)*, Princeton, NJ.
18. C. Li, X. Wang, and D. Reynolds, "Rate control and fairness scheduling for downlink utility-based power control systems", submitted to *2004 Global Telecommunications Conference (GLOBECOM '04)*, Dallas, TX.
19. D. Reynolds and K. N. Modi "Precoding with partial channel information for CDMA with ultra-low complexity receivers", proceedings of *2003 Allerton Conference on Communications, Control, and Computing*, Monticello, IL.
20. D. Reynolds, A. Høst-Madsen, and X. Wang, "Transmitter precoding for CDMA in fading multipath channels: strategy and analysis", proceedings of *2003 International Conference on Communications (ICC '03)*, Anchorage, AL.
21. D. Reynolds and X. Wang, "Power control for blind and group-blind multiuser detectors serving heterogeneous traffic", lecture presented at *2002 International Conference on Acoustics, Speech, and Signal Processing (ICASSP '02)*, Orlando, FL.
22. D. Reynolds and X. Wang, "Blind adaptive spreading code optimization for CDMA in multipath fading channels", proceedings of *2002 Conference on Information Sciences and Systems (CISS '02)*, Princeton, NJ.
23. D. Reynolds, X. Wang, and H.V. Poor "Blind adaptive space-time multiuser detection with multiple transmit and receive antennas", proceedings of *2001 Global Telecommunications Conference (GLOBECOM '01)*, San Antonio, TX.
24. D. Reynolds, X. Wang, and H.V. Poor "Blind adaptive space-time multiuser detection for multipath fading channels", proceedings of *2001 Military Communications Conference (MILCOM '01)*, Vienna, VA.
25. D. Reynolds and X. Wang, "Turbo multiuser detection with unknown interferers", proceedings of *2001 International Symposium on Information Theory (ISIT '01)*, Washington, DC.

26. D. Reynolds and X. Wang, "Adaptive group-blind multiuser detection based on a new subspace tracking algorithm", proceedings of *2000 Conference on Information Sciences and Systems (CISS '00)*, Princeton, NJ.
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SHORT BIO

Dr. Reynolds is a member of West Virginia University's (WVU) Wireless Communications Research Laboratory, which serves as the hub for research activity by WVU students and faculty in the area of wireless communications. Currently, the lab supports four full-time faculty, approximately 15 graduate students, and a small number of undergraduates. Major research thrusts include: (1) multimodal cooperative communication theory; (2) grid computing for wireless communication, (3) advanced error-control coding; (4) software radio, via the GNU-Radio project. Projects have been funded by NSF, the Department of Defense, The Department of Energy, NASA, Cisco Systems, and others. Dr. Reynolds was a recipient of the NSF CAREER award in 2008. His research interests fall in the general areas of communication theory, information theory, and statistical signal processing.