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EDUCATION

- Ph.D., Electrical Engineering, Texas A&M University, December 1999.
  Dissertation title*: "Adaptive IIR Anti-Aliasing Filter Design"*
- M.S., Electrical Engineering, Texas A&M University, 1994.
- B.S., Electrical Engineering, Texas A&M University, 1992.

PROFESSIONAL MEMBERSHIPS

- IEEE (*Senior Member*)
  Society membership includes:
  - Digital Signal Processing Society
  - Instrumentation and Measurement Society
  - Geoscience and Remote Sensing Society
  - Education Society
- Professional Engineer (P.E.), State of Oklahoma
- American Meteorological Society
- Tau Beta Pi, engineering honor society
- Eta Kappa Nu, electrical engineering honor society
- Signal Processing, Computational and Applied Mathematics (SigCAM)
- Multifunction Phased Array Radar Consortium, MPAR.
- Prediction Trust Committee Member, NSF-CASA

PRIMARY RESEARCH INTERESTS & EXPERIENCE

- Radar signal processing, target/wx detection, image processing, SAR/ISAR
- Adaptive digital filter design, neural networks, and machine learning
- Applied mathematics in signal processing
- System modeling and large scale system simulations
- Computer engineering, architecture design applied to embedded DSP systems
- Stochastic signal processing: Kalman filtering, particle filtering
- Embedded DSP system design, including prototype development

EXPERIENCE

- *Hudson-Torchmark Presidential Professor,* endowed by Charles Hudson of the Torchmark Corp., University of Oklahoma, April 2010 to present.
- *Associate Professor (with tenure)* Department of Elect. & Comp. Engineering, University of Oklahoma, July 2008 to present. Responsibilities include:

a. Associate Director, Atmospheric Radar Research Center
b. Director, DSP and Embedded Systems Laboratory
c. Co-Director, Undergraduate Weather Radar Computing Laboratory

- *Assistant Professor,* Department of Electrical & Computer Engineering, University of Okla., Fall 2002 - June 2008. Responsibilities included:
  a. Principle Manager, Radar Innovations Laboratory, under ARRC
  b. Director, DSP and Embedded Systems Laboratory
  c. Co-Director, Undergraduate Weather Radar Computing Laboratory
- *Graduate Faculty Member,* University of Oklahoma, Fall 2002 to present
- *Raytheon,* Radar Signal Processing Group (SAS), Plano, TX. Summer 2009. Responsible for (1) orthogonal waveforms for an interferometric system; and (2) Ka band spread spectrum communication link w/Viterbi decoder
- *Raytheon,* Radar Signal Processing Group (SAS), Plano, TX. Summer 2008. Responsible for synthetic aperture radar (sar) and isar development.
- *Raytheon,* Radar Signal Processing Group (SAS), Plano, TX. Summer 2007. Responsible for rainfall influences on radar receiver performance.
- *Raytheon,* Radar Signal Processing Group (SAS), Plano, TX. Summer 2006. Responsible for target detection accuracy studies.
- *Raytheon,* Radar Signal Processing Group (SAS), Plano, TX. Summer 2005. Responsible for Kalman filter design for target tracking.
- *Raytheon,* Radar Signal Processing Group (SAS), Plano, TX. Summer 2004. Responsible for target modeling and detection algorithm development.
- *Raytheon,* Radar Signal Processing Group (NCS), Plano, TX. Summer 2003. Responsible for applying signal processing principles for the modeling and analysis of an array-based satellite communication system.
- *Raytheon,* Radar Signal Processing Group, Plano, TX. Summer 2002. Responsible for the design of an all digital system-on-a-chip for a Ka band radar.
- *Lecturer & Researcher (post-doc),* Department of Electrical Engineering, Texas A&M, Jan, 2000 to August, 2002.
- *Assistant Lecturer,* Department of Electrical Engineering, Texas A&M, Summer 1998 to Fall 1999.
- *Research Assistant,* Department of Electrical Engineering, Texas A&M, Fall 1997 to Spring 1998.
- *IBM,* International Business Machines, Austin, Texas; Summer 1995. Responsible for assisting with the floorplaning and place/routing of a PowerPC based ASIC.
- *Teaching Assistant,* Department of Electrical Engineering, Texas A&M; Jan., 1993 to May, 1996.
- *Undergraduate Summer Research Grant Program,* Texas Engineering Experiment Station, College Station, TX, Summer 1992.

HONORS

- CIMMS Fellow, August 2007 to present. The Cooperative Institute for Mesoscale Meteorological Studies (CIMMS) is a university/federal research consortium.
- *Teaching Scholars Initiative Award* in recognition of excellence in the scholarship of teaching, University of Oklahoma, 2009.
- IEEE *Outstanding Young Engineer Award*, (citation: "for contributions to radar systems measurements") given by IEEE's Instrumentation

and Measurement Society and received in Sorrento, Italy. April, 2006.
- Outstanding Mentor Award, given by the IEEE Student branch at the University of Oklahoma. April 2006.
- NASA Travel Grant Award & Invited Lecture, Goddard Space Flight Center. Greenbelt, MD. November 2006.
- NASA Travel Grant Award & Invited Lecture, Goddard Space Flight Center. Greenbelt, MD. November 2005.
- Sigma Xi, scientific research honor society, full member, 2003.
- National Science Foundation Travel Grant, Career Development Workshop in Tempe, March 2003.
- Who's Who in Engineering Education, member, 2002.
- Collegium Fellowship, Portland, Oregon. June, 2001.
- Outstanding Professor Award, given by the Texas A&M student chapters of IEEE and Eta Kappa Nu, and IBM in Austin, for the academic year of 1999-2000.
- NSF/FIE 1998 New Faculty Fellow.
- Academic Excellence Award Scholarship-Texas A&M University, Fall 1992, Spring 1993, Fall 1993, Spring 1994, Fall 1994, Spring 1995, Fall 1996, Spring 1997, Fall 1997, & Spring 1998.
- Outstanding Teaching Assistant Award, given by the Texas A&M student chapters of IEEE and Eta Kappa Nu at Texas A&M, for the academic year of 1995-96.
- IEEE Graduate Student Paper Contest, by the Texas A&M student chapter, 2nd Place winner, 1996.
- Outstanding Teaching Assistant Award, given by the Texas A&M student chapters of IEEE and Eta Kappa Nu at Texas A&M, for the academic year of 1994-95.
- Alcatel Scholarship, Spring 1993.
- Member of the Engineering Scholars Program at Texas A&M, Undergraduate
- Charter member and officer of the Engineering Scholars Fellowship at Texas A&M, Undergraduate.
- Member of Honors Student Council, Undergraduate.
- College of Engineering Dean's Honor Roll, Spring 1992.
- Electrical Engineering Departmental Scholarships, Fall 1991, Spring 1992, and Fall 1992
- Distinguished Student Award, College of Engineering, Fall 1992.
- Duracell Scholarship, Undergraduate. (Received award in Washington, DC)

BOOK

- Y. Zhai and M. Yeary, *Improved Non-Linear Filtering for Target Tracking*, ISBN 978-3639070101, Germany: Verlag, 2008.

PEER-REVIEWED JOURNAL PAPERS

- S. McCarroll, M. Yeary, D. Hougen, V. Lakshman, and S. Smith, "Approaches for Compression of Super-Resolution WSR-88D Data," *IEEE Geoscience and Remote Sensing Letters*, to appear.
- B. Root, T.-Y. Yu, and M. Yeary, "The added value of surface data to radar-derived rainfall rate estimation using an artificial neural network," *Journal*

of Atmospheric and Oceanic Technology, as published by the American Meteorological Society. To appear, 2010.

- M. Yeary, T.-Y. Yu, R. Palmer, H. Monroy, I. Ruin, G. Zhang, P. Chilson, M. Biggerstaff, C. Weiss, K. Mitchell, and L.D. Fink, "Working together for better student learning: A multi-university, multi-federal partner program for asynchronous learning module development for radar based remote sensing systems," *IEEE Transactions on Education*, accepted and to appear, 2010. Digital Object Identifier: 10.1109/TE.2009.2032167
- B. Root, T.-Y. Yu, and M. Yeary, "Consistent Clustering of Radar Reflectivities using Strong Point Analysis: A Prelude to Storm Tracking," *IEEE Geoscience and Remote Sensing Letters*. To appear, 2010.
- R. Palmer, M. Yeary, M. Biggerstaff, P. Chilson, J. Crain, K. Droegemeier, Y. Hong, A. Ryzhkov, T. Schuur, S. Torres, T.-Y. Yu, G. Zhang, Y. Zhang, "Weather radar education at the University of Oklahoma: An integrated interdisciplinary approach," *Bulletin of the American Meteorological Society*, pp. 1277-1282, September 2009.
- Y. Zhai, M. Yeary, S. Cheng and N. Kehtarnavaz, "An object tracking algorithm based on multiple model particle filtering with state partitioning," *IEEE Transactions on Instrumentation and Measurement*, vol. 58, no. 5, pp. 1797-1809, May 2009.
- M. Yeary, S. Nemati, T.-Y. Yu, Y. Wang, Y. Zhai and A. Fagg, "Support vector machines to simultaneously minimize classification error and maximize geometric margin for RF sensor spectral signatures," *IEEE Transactions on Instrumentation and Measurement*, vol. 58, pp. 221-228, January 2009.
- Y. Zhai, M. Yeary, J. Havlicek, and G. Fan, "A new centralized sensor fusion-tracking methodology based on particle filtering for power-aware systems," *IEEE Transactions on Instrumentation and Measurement*, vol. 57, vol. 10, pp. 2377-2387, October 2008.
- Y. Wang, T.-Y. Yu, M. Yeary, A. Shapiro, S. Nemati, M. Foster, D. Andra, and M. Jain, "Tornado Detection Using a Neuro-fuzzy System to Integrate Shear and Spectral Signatures," *Journal of Atmospheric and Oceanic Technology*, as published by the American Meteorological Society. Vol. 25, pp. 1136-1148, July 2008.
- M. Yeary, "An efficient intermodulation product computing technique for broadband active transmit systems," *IEEE Transactions on Instrumentation & Measurement*, vol. 57, no. 2, pp. 438-443, February 2008.
- T.-Y. Yu, Y. Wang, A. Shapiro, M. Yeary, D. Zrnic, and R. Doviak, "Characterization of Tornado Spectral Signatures Using Higher Order Spectra," *Journal of Atmospheric and Oceanic Technology,* published by the American Meteorological Society. Vol. 24, issue 12, pp. 1997-2013, December, 2007.
- M. Yeary, S. Nemati, T.-Y. Yu, Y. Wang, "Tornadic time series detection using Eigen analysis and a machine intelligence based approach,'' *IEEE Geoscience and Remote Sensing Letters*, vol. 4, no. 3, pp. 335-339, July 2007.
- M. Yeary, T.-Y. Yu, R. Palmer, M. Biggerstaff, L. Fink, C. Ahern, and K. Tarp, "A Hands-on, Interdisciplinary Laboratory Program and Educational Model to Strengthen a Radar Curriculum for Broad Distribution," *ASEE Journal of Advances in Engineering Education*, vol. 1, issue 1, pp. 1-23, invited paper, fall 2007.

- M. Yeary, W. Zhang, O. Alkhouli, and K. Wong-Hagen, "Design of an FPGA Based RF Link for Data and Power Transfer," *IEEE Transactions on Instrumentation and Measurement*, vol. 55, issue 6, pp. 2313-2319, December 2006.
- M. Yeary, W. Zhang, J.Q. Trelewicz, Y. Zhai, and B. McGuire, "Theory and Implementation of a Computationally Efficient Decimation Filter for Power Aware Embedded Systems," *IEEE Transactions on Instrumentation & Measurement*, vol. 55, no. 5, pp. 1839 - 1849, October 2006.
- M. Yeary, Y. Zhai, T.-Y. Yu, S. Nematifar, and A. Shapiro, "Spectral Calculations and Target Tracking for Remote Sensing," *IEEE Transactions on Instrumentation and Measurement,* vol. 55, no. 4, pp. 1430-1442, August 2006.
- W. Zhang, M. Yeary, J.Q. Trelewicz, and M. Tull, "Efficient Computation of Multiplierless Filters in Embedded Systems Employing an Optimal Approximation Method," *International Journal of Computational Methods*, vol. 3, no. 2, pp. 177-204, June 2006.
- M. Yeary, R. Fink, D. Beck, D. Guidry, and M. Burns, "A DSP Based Mixed-Signal Waveform Generator," *IEEE Transactions Instrumentation and Measurement,* vol. 53, no. 3, pp. 665-671, June 2004.
- R. Gopinath, S. Kim, J.-H. Hahn, P. Enjeti, M. Yeary, and J. Howze, "Development of a Low Cost Fuel Cell Inverter System with DSP Control," *IEEE Transactions on Power Electronics,* vol. 19, no. 5, pp. 1256-1262, September 2004.
- M. Yeary, J. Sweeney, B. Swan, and C. Culp, "A Low-Cost Embedded System for Internet Based Power Measurement," *International Journal of Information Technology and Decision Making,* vol. 2, issue 4, pp. 669-681. December 2003.
- B. Jin, N. Park, K.M. George, M. Choi and M.B. Yeary, "Modeling and Analysis of Soft-Test/Repair for CCD-Based Digital X-Ray Systems," *IEEE Trans of Instrumentation and Measurement*, vol. 52, no. 6, pp. 1713-1721. December 2003.
- N. Kim, N. Kehtarnavaz, M. Yeary, S. Thornton, "DSP Based Neural Network Classification of Modulation Schemes," *IEEE Transactions on Neural Networks – Special Issue on Hardware Implementations,* vol. 14, no. 5, pp. 1065-1071, September 2003.
- R. Fink, M. B. Yeary, M. Burns, D. Guidry, "A DSP Based Technique for High-Speed A/D Conversion to Generate Coherently Sampled Sequences," *IEEE Transactions Instrumentation and Measurement,* vol. 52, no. 3, pp. 950-958, June 2003.
- M. B. Yeary, R.J. Fink, H.V. Sundaresan, D.W. Guidry, "Design of a Cordic Processor for Mixed-Signal A/D Conversion," *IEEE Transactions on Instrumentation and Measurement*, vol. 51, No. 4, pp. 804-809, August 2002.
- M. B. Yeary, N.C. Griswold, "Adaptive IIR Filter Design for Single Sensor Applications," *IEEE Transactions on Instrumentation and Measurement*. vol. 51, No. 2, pp. 259-267, April 2002.
- N. C. Griswold, S. Mathur, M. B. Yeary, R. Spencer, "Wavelet Decomposition/Reconstruction of Images via Outer Products," *Journal of Electronic Imaging*, vol. 9, no. 1, pp. 61-71, January 2000.

PEER-REVIEWED CONFERENCE PAPERS

- M. Yeary, G. Crain, A. Zahrai, R. Kelley, J. Meier, Y. Zhang, I. Ivic, C. Curtis, R. Palmer, T.-Y. Yu, and R. Doviak, "Phased array weather / multipurpose radar," *IEEE Radar Conference*, Washington DC, May 2010.

- P. Tay, M. Yeary, R. Huck, S. Cheng, J. Sluss, and J. Phillips, "Tomographic approaches towards focused SAR image development," *IEEE Southwest Symposium on Image Analysis and Interpretation*, Invited Paper. Austin, TX. May 2010.

- T. Hosman, M. Yeary, J. Antonio, and B. Hobbs, "Multitone FSK for ultrasonic communication," *IEEE IMTC*, Austin, TX. May 2010.

- Y. Zhai and M. Yeary, "An object tracking algorithm based on multi-model and multi-measurement cues," *IEEE IMTC*, Austin, TX. May 2010.

- M. Yeary, J. Crain, A. Zahrai, R. Palmer, M. Xue, T.-Y. Yu, G. Zhang, Y. Zhang, R. Doviak, Q. Xu and P. Chilson, "An update on multi-channel digital receiver development for the phased array radar at the National Weather Radar Testbed," *IEEE-IMTC*, pp. 933-937, Singapore, May 2009.

- G. Crain, M. Yeary, C. Kidder, A. Zahrai, G. Zhang, R. Doviak, R. Palmer, T.-Y. Yu, M. Xue, Y. Zhang, Q. Xu, P. Chilson, "Multi-channel conversion of the National Weather Radar Testbed receiver," pp. 1 – 5, *IEEE Radar Conference*, May 2009.

- M. Yeary, J. Crain, A. Zahrai, T.-Y. Yu, R. Palmer, G. Zhang, Y. Zhang, R. Doviak, P. Chilson, M. Xue, and Q. Xu, "An update on multi-channel receiver development for the realization multi-mission capabilities at the National Weather Radar Testbed," *25th Conference on IIPS at the AMS Annual Meeting,* paper id: 147604, January 2009.

- B. Root, T.-Y. Yu, and M. Yeary, "The added value of surface data to radar-derived rainfall rate estimation using an artificial neural network," *AMS Annual Meeting,* paper id: 146711, January 2009.

- B. Root, M. Yeary, and T.-Y. Yu, "Consistent clustering of radar reflectivities using strong-point analysis -- a prelude to storm tracking," *AMS Annual Meeting,* paper id: 147108, January 2009.

- R. Palmer, M. Biggerstaff, P. Chilson, J. Crain, K. Droegemeier, E. Hong, M. Yeary, T-Y. Yu, G. Zhang, and Y. Zhang, "Weather radar education at the University of Oklahoma: An integrated interdisciplinary approach," *AMS Annual Meeting,* paper id: 146772, January 2009.

- K. Gunnam, S. Yang, Y. Lee, M. Yeary, and G. Choi, "Next generation iterative LDPC solutions for magnetic recording storage," *invited paper*. *The Asilomar Conference on Signals, Systems, and Computers*, pp. 1148-1152, November, 2008.

- Y. Zhang, R. Palmer, G. Zhang, T.-Y. Yu, K. Brewster, M. Yeary, M. Xue, and P. Chilson, "Multi-functional airborne external hazard monitoring radar with antenna diversities," *SPIE Conference*. OP409: Remote Sensing Applications for Aviation Weather Hazard Detection and Decision Support. August, 2008.

- M. Yeary, J. Meier, R. Kelley, and R. Palmer, "Compact digital receiver development for radar based remote sensing," *IEEE-IMTC*, Victoria Island, BC, May 2008.

- Y. Zhai, M. Yeary, "An intelligent video surveillance system based on multiple model particle filtering," *IEEE-IMTC*, Victoria Island, BC, May 2008.

- Y. Zhai, S. Adnan, M. Yeary, "Nonlinear state estimation using a particle filter with likelihood proposal distributions," *IEEE-IMTC*, Victoria Island, BC, May 2008.

- A. Huston, Y. Zhang, G. Zhang, and M. Yeary, "A laboratory study for dual-polarization scattering characteristics of metrological objects," *IEEE-IMTC*, Victoria Island, BC, May 2008.

- M. Yeary, R. Palmer, G. Zhang, M. Xue, T.-Y. Yu, A. Zahrai, J. Crain, Y. Zhang, R. Doviak, Q. Xu, and P. Chilson, "Development of a Multi-Channel Receiver for the Realization Multi-Mission Capabilities at the National Weather Radar Testbed," *24th Conference on IIPS at the AMS Annual Meeting,* Session 9A, paper # 130727, page(s): 1-7. January 2008.

- C. Kidder, R. Palmer, and M. Yeary, "Beyond phased arrays – design principles for an imaging radar," *AMS Radar Meteorology,* August 2007.

- Y. Wang, T.-Y. Yu, M. Yeary, A. Shapiro, S. Nemati, M. Foster, D. Andra, Jr., and M. Jain, "A novel approach of tornado detection using a machine intelligence system based on shear and spectral signatures," *AMS Radar Meteorology,* August 2007.

- R. Palmer, T.-Y. Yu, G. Zhang, P. Chilson, M. Biggerstaff, M. Yeary, S. Torres, J. Crain, and Y. Zhang, "Weather radar education at the University of Oklahoma: An integrated inter-disciplinary approach." *AMS Radar Meteorology,* August 2007.

- S. Bachmann, V. DeBrunner, D. Zrnic, and M. Yeary, "Adaptive technique for clutter and noise suppression in weather radar exposes weak echoes over an urban area," *IEEE Signal Processing Workshop*, pp. 438-442, August 2007.

- C. Nguyen, J. Havlicek, and M. Yeary, "Modulation domain template tracking," in *Proc. 4th Joint IEEE Int'l. Workshop Object Tracking, Class. in and Beyond the Visible Spectrum*, in conjunction with the *2007 IEEE Conf. Comput. Vision, Pattern Recog.*, Minneapolis, MN, Jun. 22, 2007.

- K. Gunnam, G. Choi, M. Yeary, and M. Atiquzzaman, "VLSI Architectures for Layered Decoding for Irregular LDPC Codes of WiMax," pp. 4542-4547, *IEEE International Conference on Communications*. Glasgow, June 2007.

- P. Bhagawat, W. Wang, M. Uppal, G. Choi, Z. Xiong, M. Yeary, and A. Harris, "An FPGA Implementation of Dirty Paper Precoder," pp. 2761-2766, *IEEE International Conference on Communications*. Glasgow, June 2007.

- S. Nemati, M. Yeary, T.-Y. Yu, Y. Wang, Y. Zhai and A. Fagg, "Spectral signature classification using a support vector classifier," *IEEE-IMTC*, pp. 1-4, Digital Object Identifier 10.1109/IMTC.2007.379046, Warsaw, May 2007.

- J.-C. Noyer, P. Lanvin, M. Yeary, and Y. Zhai, "Sequential Monte-Carlo techniques and vision-based methods for road signs detection," *IEEE-IMTC*, Warsaw, May 2007.

- W. J. Barnes, M. Yeary, K. Olivero, J. Phillips, and T. Ibrahim, "An overlapped scan method for enhanced 3D radome characterization," *IEEE-IMTC*, Warsaw, May 2007.

- Y. Zhai, M. Yeary, "A new particle filter tracking algorithm for DOA sensor systems," *IEEE-IMTC*, Warsaw, May 2007.

- K. Gunnam, G. Choi, and M. Yeary, "A low-power preamble detection methodology for packet based RF modems on all-digital sensor front-ends," pp. 1-4, *IEEE-IMTC*, Warsaw, May 2007.

- M. Yeary, R. Kelley, J. Meier, A. Snyder, A. Arul, T. Hicks, P. McCann, C. Roller and D. Guidry, "Next-generation digital high-bandwidth spectroscopy sensor systems," *IEEE Instrumentation and Measurement Conference*, Warsaw, May 2007.

- S. Bachmann, V. DeBrunner, M. Yeary, and D. Zrnic, "Spectral analysis of polarimetric weather radar data with multiple processes in a resolution volume," *IEEE-ICASSP*, vol. 2, pp. 309-312, April 2007.

- Y. Zhai, M. Yeary, D. Zhao, "Target tracking using a particle filter based on the projection method," *IEEE-ICASSP*, vol. 3, pp. 1189-1192, April 2007.

- K.Gunnam, G. Choi, W. Wang, and M.B. Yeary, "Multi-rate layered decoder architecture for block LDPC codes of the IEEE 802.11n wireless standard," pp. 1645-1648, *IEEE Symposium on Circuits and Systems*, May 2007.

- R. Kelley, J. Meier, A. Snyder, M. Yeary, J. Spring, A. Arul, T. Hicks, P. McCann, and C. Roller, "Low-cost DSP system design for a handheld biomarker detection device," *IEEE Workshop on Signal Processing Applications for Public Security and Forensics*, April 2007.

- A. Arul, A. Snyder, R. Kelley, J. Meier, T. Hicks, M. Yeary, P. McCann, and C.

Roller, "Experimental procedures for fluorescent lifetime measurements with customized embedded DSP systems and adaptive algorithms," *IEEE Region 5 Conference*, April 2007.

- Y. Zhai and M. Yeary, "Enhanced video surveillance using a multiple model particle filter," *IEEE Workshop on Signal Processing Applications for Public Security and Forensics*, April 2007.

- C. Kidder, M. Yeary, and R. Palmer, "Design considerations for the aperture design of an atmospheric imaging radar,'' *IEEE Region 5 Conference*, April 2007.

- K. Gunnam, W. Wang, G. Choi, and M. Yeary, "VLSI architectures for turbo decoding message passing using min-sum for rate-compatible array LDPC codes," *International Symposium on Wireless Pervasive Computing*, sponsored by IEEE, pp. 561-566, February 2007.

- K. Gunnam, W. Wang, G. Choi, and M. Yeary, "A parallel VLSI architecture for layered decoding for array LDPC codes," *International Conference on VLSI Design and Embedded Systems*, IEEE, pp. 738 – 743, January 2007.

- M. Yeary, B. McGuire, Y. Zhai, D. Forsyth, W. Benner, and G. Torok, "Target tracking at the National Weather Radar Testbed: A progress report on detecting and tracking aircraft," *23rd Conference on IIPS at the AMS Annual Meeting, paper 8A.1. pp. 1-6. January 2007.*

- Y. Wang, T.-Y. Yu, M. Yeary, A. Shapiro, S. Nemati, M. Foster, and D. Andra, "Tornado identification using a neuro-fuzzy approach to integrate shear and spectral signatures," *AMS Severe Local Storms Conference*. Paper P9.1 , CD-ROM. November 2006.

- Y. Zhai, M. Yeary, J.-C. Noyer, J. Havlicek, S. Nemati, and P. Lanvin, "Visual target tracking using improved and computationally efficient particle filtering," *IEEE International Conference on Image Processing*, Atlanta, GA. pp. 1757-1760. October 2006.

- K. Gunnam, W. Wang, E. Kim, G. Choi, and M. Yeary, "Decoding of quasi-cyclic LDPC codes using an on-the-fly computation," *Asilomar Conference on Signals, Systems, and Computers,* pp. 1192-1199, October 29 – November 1 2006.

- M. Ozaydin, S. Nemati, M. Yeary and V. DeBrunner, "Orthogonal Projections and Discrete Fractional Fourier Transforms", *IEEE DSP Workshop*, pp. 429-433, Sept 2006.

- D. Zhou, V. DeBrunner, Y. Zhai, and M. Yeary, "Efficient adaptive nonlinear echo cancellation using sub-band implementation of the adaptive volterra filter," *IEEE International Conference on Acoustics, Speech, and Signal Processing*, vol. 5, pp. 277-280, May 2006.

- J. P. Havlicek, C. Nguyen, and M. B. Yeary, "Adaptive Gabor filters for infrared

target modeling in the modulation domain," *SPIE Defense & Security Symposium*, conference session 6239, paper no. 13, pp. 62390D-1 – 62390D-11. Kissimmee, FL. April 2006.

- Y. Zhai, M. Yeary, and J.-C. Noyer, "Target tracking in a sensor network based on particle filtering and energy-aware design," *IEEE-IMTC*, pp. 1988-1992. Sorrento, Italy. April 2006.

- P. Lanvin, J.-C. Noyer, M. Benjelloun, M. Yeary, Y. Zhai, "Hybrid particle filtering for real time object tracking," *Thirty-Eighth Asilomar Conference on Signals, Systems, and Computers*, pp. 761-764. November 2005.

- Y. Wang, T.-Y. Yu, M. Yeary, A. Shapiro, D. Zrnic, M. Foster, and D. Andra, "Tornado detection using a neuro-fuzzy method," *AMS 32nd Conference on Radar Meteorology*, Session 10R.5 & CD-ROM, October 2005.

- Y. Zhai, M. Yeary, J. Havlicek, J. Noyer, and P. Lanvin, "Visual tracking using sequential importance sampling with a state partition technique," *IEEE International Conference on Image Processing*, vol. 2, pp. 790-793, September 2005.

- Y. Zhai, M. Yeary, V. DeBrunner, and J. Havlicek, "Image restoration using a hybrid combination of particle filtering and wavelet denoising," *IEEE International Conference on Image Processing*, vol. 3, pp. 876-879, September 2005.

- Y. Zhai and M. Yeary, "A novel nonlinear state estimation technique based on sequential importance sampling and parallel filter banks," *IEEE Conference on Control Applications*, pp. 2071-2075, August 2005.

- O. Alkhouli, V. DeBrunner, M. Yeary, and Y. Zhai, "FIR adaptive filters based on the Hirschman optimal transform," *IEEE Workshop on Statistical Signal Processing*, Session 441, July 2005.

- M. Yeary, T.-Y. Yu, S. Nematifar, A. Shapiro, "Spectral Signature Calculations for Remote Sensing," *IEEE-Instrumentation and Measurement Technology Conference*, pp. 2071-2075. Ottawa, Canada. May 2005.

- K. Gunnam, K. Chadha, M. Yeary, "New optimizations for carrier synchronization in single carrier systems," *IEEE International Conference on Acoustics, Speech, and Signal Processing*, pp. 661-664, March 2005.

- S. Bachmann, V. Debrunner, D. Zrnic', M. Yeary, "Techniques for detection and tracking airplanes using weather radar WSR-88D," *The Thirty-Eighth Asilomar Conference on Signals, Systems, and Computers*, pp. 1668-1672, November, 2004.

- V. Makkapati and M. Yeary, "Vector quantization of still images using reflected subcodevectors," *The Thirty-Eighth Asilomar Conference on Signals, Systems, and Computers*, pp. 1749-1752, November, 2004.

- K. Gunnam, G. Choi, M. Yeary, "An LDPC decoding schedule for memory access reduction," *IEEE International Conference on Acoustics, Speech, and Signal Processing*, vol. 5, pp. 173-176, May 2004.

- T. Yu, A. Shapiro, D. Zrnic', M. Foster, D. Andra, R. Doviak and M. Yeary, "Tornado spectral signature observed by WSR-88D," 22nd Severe Local Storms, *American Metrological Society*, Session 8b.1, pp. 1-5. Hyannis MA, 4-8 Oct 2004.

- M. Yeary, W. Zhang, J. Trelewicz, "A Computationally Efficient Decimation Filter Design for Embedded Systems," pp. 913-916, *IEEE IMTC*. May 2004.

- Y. Zhai, M. Yeary, "Implementing Particle Filters with Specialized H.M. Algorithms," *Region 5 IEEE Conference*, pp. 149-152, April, 2004.

- T. Yu, D. Zrnic', A. Shapiro, M. Yeary, "Feasibility of Earlier Tornado Detection Using Doppler Spectra," *31st Conference on Radar Meteorology,* pp. 333-336, Seattle, Washington. August, 2003.

- M. Yeary, J. Price, R. Fink, D. Guidry, "Waveform Synthesis via Splines," *IEEE-IMTC,* pp. 1529-1532. May, 2003.

- M. Yeary, W. Zhang, K. Wong, "An FPGA Based RF Link for Power and Full Duplex Data Transfer," *IEEE-IMTC*. pp. 495-498. May, 2003.

- B. Jin, N. Park, K. M. George, M. Choi, M. Yeary, Y. Kim, F. Lombardi, "Soft-Testing/Repair of CCD-Based Digital X-Ray Instrumentation," *IEEE-IMTC*. pp. 315-320. May, 2003.

- J. Q. Trelewicz, M. Yeary, N. C. Griswold, "Computationally Efficient Wavelet Decomposition/Reconstruction For Embedded Systems," *10th IEEE Digital Signal Processing Workshop*, pp. 240-244, Oct., 2002.

- M. B. Yeary, R. J. Fink, "Eigenvectors and Low-Rank Modeling," *World Multiconference on Systemics, Cybernetics, and Informatics* (sponsored by the IEEE Computer Society). Vol. 15, pp. 388-390. July, 2002. Invited paper.

- S. Mathur, M. B. Yeary, "Correlation of Tones in a Wideband Fading Channel,'' *World Multiconference on Systemics, Cybernetics, and Informatics* (sponsored by the IEEE Computer Society). Vol. 15, pp. 373-376. July, 2002. Invited paper.

- M. Yeary, Sangsun Kim, P. Enjeti, G. King, "Design of an Embedded DSP System for a Fuel Cell Inverter," *IEEE International Conference on Acoustics, Speech, and Signal Processing.* pp. 929-932. May, 2002.

- R. Gopinath, S. Kim, J. Hahn, M. Webster, J. Burghardt, S. Campbell, D. Becker, P. Enjeti, M. Yeary, J. Howze, "Development of a Low-Cost Fuel Cell Inverter System with DSP Control," *IEEE Power Electronic Specialists*

Conference. Vol. 1, pp. 23-27. June, 2002.

- M. Yeary, R. Fink, D. Beck, M. Burns, D. Guidry, "A Spline Function, DSP Based Arbitrary Waveform Generator," *IEEE Instrumentation and Measurement Technology Conference.* Vol. 2, pp. 1211-1215. May, 2002.

- S. Mathur, R. Munkong, C. Mason, M. Yeary, J. Q. Trelewicz, "Numerical Recognition of Unconstrained Handwriting," *IEEE International Conference on Acoustics, Speech, and Signal Processing*. Vol. 4, pp. 3744-3747. May, 2002.

- B. N. Araabi, N. Kehtarnavaz, M. Yeary, G. Hillman, B. Würsig, "Locating an Affine/Projective Invariant Identifier Patch on an Image," *IEEE Southwest Symposium on Image Analysis and Interpretation*. pp. 121-125. April, 2002.

- M. B. Yeary, N.C. Griswold, Y. Yeh, "A Regularized Approach For Weighted Least Squares, Linear Passband Phase IIR Filter Design with Applications to Optics," *IEEE International Symposium on Intelligent Signal Processing and Communication Systems*, pp. 22-26, Nov., 2001.

- J. Kwon, M. B. Yeary, and N.C. Griswold, "CORDIC Algorithm As Applied To Wavelet Decomposition/Reconstruction Using the CORDIC Algorithm," *IEEE International Symposium on Intelligent Signal Processing and Communication Systems*, pp. 1-6, Nov., 2001.

- M. Yeary, N. Kehtarnavaz, S. Attoor, M. Haji, D. Horton, "A DSP Based Implementation of a WCDMA Reverse Link Design," *IEEE Emerging Technologies Symposium*, pp. 138-141, Sept., 2001.

- M. Yeary, D. Guidry, M. Burns, "Design and Implementation of a Mixed-Signal Embedded DSP System," *IEEE International Conf. on Acoustics, Speech, and Signal Processing*, vol. 2, pp. 929-932, May, 2001.

- M. B. Yeary, "Design of a Cordic Processor for Mixed-Signal A/D Conversion," *IEEE Instrumentation and Measurement Technology Conference*, vol. 2, pp. 733-737, May, 2001.

- M. B. Yeary, R. Fink, M. Burns, D. Guidry, "A DSP Based Technique for High-Speed A/D Conversion to Generate Coherently Sampled Sequences," *IEEE Instrumentation and Measurement Technology Conference*, vol. 3, pp.1853-1857, May, 2001.

- M. B. Yeary, B. Swan, J. Sweeney, C. Culp, L. Archer, "An Internet Based Power Measurement Technique," *IEEE Instrumentation and Measurement Technology Conference*, vol. 1, pp. 628-633, May, 2001.

- M. Yeary, P. Loizou, "Adaptive Filtering for Speech Enhancement,'' *9th IEEE Digital Signal Processing Workshop*, Oct., 2000.

OTHER CONFERENCE PRESENTATIONS & PUBLICATIONS

- R. Palmer, Y. Zhang, M. Yeary, B. Cheong, M. Biggerstaff, T.-Y. Yu, X. Wang, G. Zhang, R. Doviak, B. Isom, D. Bodine, H. Suarez, R. Kelley, J. Meier, "Progress on the Atmospheric Imaging Radar 3D at the University of Oklahoma," *European Conference on Radar in Meteorology and Hydrology*, Romania, September 2010.

- M. Yeary, G. Crain, A. Zahrai, R. Kelley, J. Meier, Y. Zhang, I. Ivic, C. Curtis, R. Palmer, T.-Y. Yu, G. Zhang, R. J. Doviak, P. Chilson, M. Xue, and Q. Xu, "A status report on the RF and digital components of the multi-channel receiver development at the National Weather Radar Testbed," abstract # 160298, 26th Conference on IIPS at the AMS Annual Meeting, Atlanta, GA, January 2010.

- Chilson, A. Gleason, B. Zielke, N. Feng, M. Yeary, P. Klein, and W. Shalamunec, "SMARTSonde: A Small UAS Platform to Support Radar Research," 26th Conference on IIPS at the AMS Annual Meeting, Atlanta, GA, January 2010.

- R. Palmer, Y. Zhang, M. Yeary, B. Cheong, M. Biggerstaff, T.-Y. Yu, X. Wang, G. Zhang, R. Doviak, B. Isom, D. Bodine, H. Suarez, and R. Kelley, "Development of the AIR3D at the University of Oklahoma," *International Symposium on Radar and Modeling Studies of the Atmosphere*, Kyoto, Japan, November, 2009.

- J. Meier, R. Kelley, and M. Yeary, "Digital WX radar receiver design based on highly efficient bandpass sampling FPGA architecture," *AMS Conference on Radar Met.*," Oct. 2009.

- C. Davis, M. Yeary, J. Sluss, and P. McCann, "Work in Progress: Utilizing research projects and innovative demonstrations in student recruitment" *ASEE Frontiers in Education Conference*, San Antonio, TX., paper 1359, October 2009.

- P. B. Chilson, A. Gleason, B. Zielke, N. Feng, M. Yeary, P. Klein, and W. Shalamunec, "SMARTSonde: A Small UAS Platform to Support Radar Research," *AMS Conference on Radar Met.*," Oct. 2009.

- R. Palmer, A. Ryzhkov, G. Zhang, B. Cheong, T.-Y. Yu, M. Yeary, P. Chilson, M. Biggerstaff, N. Hickmon, R. Doviak, D. Zrnic, M. Knight, N. Lawrence, F. Sloan, C. Goode, R. Stafford, R. Keene, P. Neilley, A. Turnbull, J. Snow, T. Williams, and D. Marsh, "OU-PRIME: A High-Resolution Platform for Interdisciplinary Polarimetric Radar Research and Education at the University of Oklahoma," *AMS Conference on Radar Met.*, Oct. 2009.

- B. Root, T.-Y. Yu, and M. Yeary, "Analysis and potential improvements to the WSR-88D storm cell tracking algorithm," *AMS Conference on Radar Met.*," p10.14, Oct. 2009.

- S. McCarroll, M. Yeary, and D. Hougen, "Compression strategies for super resolution WSR-88D radar data," *AMS Conference on Radar Meteorology*, poster 5.18, Williamsburg, VA. October 2009.

- B. Isom, R. Palmer, M. Yeary, J. Meier, R. Kelley, B. L. Cheong, D. Bodine, R. Doviak, Y. Zhang, T.-Y. Yu, M. Biggerstaff, and R. May, "A new frontier for mobile weather radar – the Atmospheric Imaging Radar: Design specifications and experimental functionality." *34th Conf. Radar Meteor., Amer. Meteor. Soc.*, Williamsburg, VA. October, 2009.

- M. Yeary, G. Crain, A. Zahrai, R. Kelley, I. Ivic, J. Meier, C. Curtis, Y. Zhang, R. Palmer, T.-Y. Yu, G. Zhang, R. J. Doviak, P. Chilson, M. Xue, and Q. Xu, "An update on the RF and digital components of the multi-channel receiver development at the National Weather Radar Testbed," poster #P10.12, *34th Conf. Radar Meteor., Amer. Meteor. Soc.*, Williamsburg, VA. October, 2009.

- M. Yeary, R. Palmer, T.-Y. Yu, J. Sluss, P. Chilson, G. Zhang, and M. Biggerstaff, "An update Progress Report on a Hands-On Interdisciplinary Program for Severe Weather and Next-Generation Multi-Function Radar," *Proceedings of ASEE Annual Conference and Exposition*, pp. 1-19. Paper no. 2426. NSF Grantees Session. Austin, TX. June 2009.

- Y. Umemoto, Y. Zhang, K. Brewster, T.-Y. Yu, and M. Yeary, "The estimation of wind shear hazard index using air borne radar as a laboratory module for a CCLI project," *AMS Annual Meeting*, Educational Initiatives Poster Session. Paper id: 150414. Phoenix, AZ. January, 2009.

- M. Yeary, T.-Y. Yu, R. Palmer, M. Biggerstaff, G. Zhang, P. Chilson, and H. Monroy, "Moving to the Next Level: Refining and Disseminating a Pedagogical Taxonomy and Hands-on Curriculum Materials for an Interdisciplinary Program on Multi-Function Radar," *NSF CCLI Principle Investigator Conference*, Poster Presentation, session 3, poster 312. Washington, DC. August, 2008.

- S. McCarroll and M. Yeary, "Data compression strategies for high-resolution and dual-polarization WSR-88D radar data," *NSF Bridge-to-Doctorate Conference*. Technical poster session. June, 2008. Washington, DC.

- M. Yeary, R. Palmer, T.-Y. Yu, K. Kloesel, K. Johnson, M. Biggerstaff, P. Chilson, and G. Zhang, "A Progress Report on a Hands-On Interdisciplinary Program for Severe Weather and Next-Generation Multi-Function Radar," *Proceedings of ASEE Annual Conference and Exposition*, pp. 1-18. NSF Grantees Session. Session 1809. Pittsburg, PA. June 2008.

- P. Chilson, R. Palmer, M. Yeary, M. Biggerstaff, T.-Y. Yu, G. Zhang, and Y. Zhang, "Recent Developments in Weather Radar Educational Opportunities at the University of Oklahoma," *International Union Radio Science Conference*, held in cooperation with the IEEE. Paper FS2-3. Boulder, CO, January 2008.

- S. McCarroll and M. Yeary, "Data compression strategies for high-resolution and dual-polarization WSR-88D radar data," *AISES National Conference*. Technical poster session. November, 2007. Phoenix, AZ.

- R. Palmer, G. Zhang, M. Biggerstaff, P. Chilson, J. Crain, S. Torres, M. Yeary, T.-Y. Yu, and Y. Zhang, "Atmospheric Radar Research Center – *ARRC* University of Oklahoma, USA." *IEEE Geoscience and Remote Sensing Newsletter*, issue 142, pp. 10-16, March 2007.

- M. Yeary, T.-Y. Yu, R. Palmer, M. Biggerstaff, D. Fink, and C. Ahern, "A hands-on, interdisciplinary laboratory program and educational model to strengthen a radar curriculum for broad distribution," *Proceedings of the ASEE Annual Conference*, pp. 1-18. Session 1526: NSF Grantees Poster Session. Chicago, IL. June, 2006.

- T. Ibrahim, M. Yeary, C. Altan, J. Barnes, R. Abraham, and D. Abraham, "A Software Based Approach for Radome Characterization," for the *Center for Aircraft and Systems/Support Infrastructure.* Poster Session – Applied Research Projects. Tinker Air Force Base, OKC, OK. May 3, 2006.

- M. Yeary, J. Dubois, T.-Y. Yu, R. Palmer, M. Biggerstaff, D. Fink, and C. Ahern, "A progress report on the hands-on interdisciplinary laboratory program: an approach to strengthen the weather radar curriculum at the University of Oklahoma," *AMS Conference – 15th Symposium on Education*, paper J.10, Atlanta, GA. February 2006.

- M. Yeary, T.-Y. Yu, R. Palmer, M. Biggerstaff, and D. Fink, "Adaptive and array processing strategies for the NSF-CCLI interdisciplinary project at OU," *Oklahoma Supercomputing Symposium*. Co-sponsored by the NSF. October, 2005. Norman, OK.

- T. Ibrahim, M. Yeary, and C. Altan, "A Software Based Approach for Radome Characterization," for the Air Force Office of Scientific Research, Poster Session at the Technical Interchange Meeting (TIM). Tinker Air Force Base, OKC, OK. October 18-19, 2005.

- M. Yeary, T. Yu, R. Palmer, M. Biggerstaff, and D. Fink, "A hands-on interdisciplinary laboratory program: an approach to strengthen the weather radar curriculum," *NSF Engineering and Computing Education Grantees Conference*, Directorate for Computer Information Science and Engineering, Directorate for Education and Human Resources, and Directorate for Engineering. Arlington, VA. February 2005.

- M. Yeary, T. Yu, R. Palmer, M. Biggerstaff, and D. Fink, "A hands-on interdisciplinary laboratory program: an approach to strengthen the weather radar curriculum at the University of Oklahoma," *AMS Conference – 14th Symposium on Education*, paper 2.4, San Diego, CA. January 2005.

- M. Yeary, R. Fink, D. Beck, M. Burns, D. Guidry, "A Spline Function, DSP

Based Arbitrary Waveform Generator," *Conference on Applied Mathematics (CAM-2002)*, Oklahoma City, October, 2002.

- N. Callaos, A. Duale, L. Benedicenti, and M. Yeary (editors), *Proceedings of the 6th World Multiconference on Systemics, Cybernetics, and Informatics*, vol. XV, ISBN: 980-07-8150-1. 581 pages. July, 2002.

- M. Yeary, "Teaching Electrical Engineering Principles with Computer-Based Instrumentation as part of an NSF Foundation Coalition Course," *National Instruments Week*. Austin, TX. Aug., 2001.

- M. Yeary, C. Kidder, D. Horton, R. Fink, "An Internet Based Wireless Analysis Tool Employing Bluetooth," *Proceedings of the ASEE Annual Conference*, Session 2793, pp. 1-11. Albuquerque, NM. June, 2001.

- M. B. Yeary, "Teacher-Centered to Learner-Centered Educational Model", *Proceedings, Frontiers in Education 1998 Conference*, Tempe, Arizona. Nov. 4-7, 1998. **Received the NSF/FIE New Faculty Fellow award**

- M. B. Yeary, "A Vector Space Approach to Adaptive IIR Anti-Aliasing Filter Design," *Student Research Week*, Texas A&M University, March 26, 1998.

- M. B. Yeary, N. C. Griswold, "Recursive Time-Frequency Analysis of Non-Stationary Signals," *Texas Systems Day Conference*, Dallas, TX, Nov., 1996.

- M. B. Yeary, N. C. Griswold, "Design of an F.I.R. Filter for Directional Edge Detection," *Texas Systems Day Conference*, College Station, TX, Nov. 1994.

SELECTED INVITED LECTURES

- "Multi-Function Digital Receiver Designs and Implementations," *Raytheon RF Symposium*. Poster Session. Garden Grove, CA. Oct, 2009.

- "Digital Subarray Design and Demonstration," *Raytheon RF Symposium*. Poster Session. Boston, MA. May, 2008.

- "*Next Generation Observing Systems via Digital Imaging Radar Development*," NASA Goddard Space Flight Center. Greenbelt, Maryland. December 2006.

- "*Next-Generation Embedded DSP System Design and Adaptive Algorithm Development for Chemical and Biological Sensing*," Distinguished Lecture Program at the IEEE Instrumentation and Measurement Conference. Sorrento, Italy. April 2006.

- "*Next-Generation Prediction Filters Based on Emerging Stochastic State*

Estimation Techniques," NASA Goddard Space Flight Center. Greenbelt, Maryland. November 2005.

- "*Overview of the Center for Weather Radar Research at OU*," National Weather Radar Testbed Tri-Agency Consortium Meeting. FAA, New Jersey, September 2004. The tri-agencies are defined as the National Oceanic and Atmospheric Administration (NOAA), Federal Aviation Administration (FAA), and the Navy.

- "*Tornado Detection Using Doppler Spectrum for CASA Radars*," Collaborative Adaptive Sensing of the Atmosphere (CASA) Research Retreat, NSF Sponsored. Estes Park, Colorado. October 2004.

FUNDED PROPOSALS

- PI, "*ECCS: Computationally Efficient Linear Transforms for Remote Sensing Systems*," National Science Foundation. September 2009 to Aug 2012.

- PI, "*MRI: Development of a Multi-Channel Receiver for the Realization Multi-Mission Capabilities at the National Weather Radar Testbed*," National Science Foundation. September 2007 to Feb 2010.

- Co-PI, "*Phased Array Technology for Weather Radar Applications*," National Oceanic and Atmospheric Administration, 5/1/2009 to 4/30/2010.

- Co-PI, "*Atmospheric Observations using Phased Array Technology*," National Oceanic and Atmospheric Administration, 6/1/2009 to 5/31/2010.

- Co-PI, "Radio-Free Acoustic Communication for Container Sensor Communication," *Intermodal Containerized Freight Security Research Initiative at OU, Federal Highway Administration*. 7/16/2009 to 7/15/2010.

- PI, "*Fundamental Research and Demonstration for Real-Time, Radar Based IED Imaging*," DoD-AF, December 2009 – December 2010.

- PI, "*Fundamental Design and Demonstration for Low-Cost Synthetic / Inverse Synthetic Aperture Imaging,"* Raytheon, April 2009- December 2009.

- PI, "Digital Receiver Subarray Development and Demonstration," Raytheon. September 2007-December 2008.

- Co-PI, "*Phased Array Weather Radar Research at the University of Oklahoma*," National Oceanic and Atmospheric Administration, Spring 2008 to Spring 2009.

- Co-PI, "*Design, Fabrication, and Test of a Next-Generation CASA Radar*," State of Oklahoma's Regents for Higher Education, fall 2008 to summer 2010.

- PI, "*Next Generation Observing Systems via Digital Imaging Radar Development*," NASA, 2007.

- Co-PI, "*Airborne Phased Array Radar for Microphysics-Based External Hazard Detection and Monitoring*," NASA, Summer 2007 – Fall 2008.

- PI, "*Dielectric Measurement Tool for Radome Checkout*," DoD / Air Force SBIR, AF06-327, 2006-2007.

- Co-PI, "*Optimal Use of Phased Array Radar for Multi-Mission Weather Surveillance and Aircraft Tracking*," National Oceanic and Atmospheric Administration, Spring 2007 to Spring 2008.

- PI, "*Moving to the Next Level: Refining and Disseminating a Pedagogical Taxonomy and Hands-on Curriculum Materials for an Interdisciplinary Program on Multi-Function Radar*," National Science Foundation 0618727, Fall 2006 – Summer 2010.

- Co-PI, "*Meteorological Studies with the Phased Array Weather Radar and Data Assimilation Using the Ensemble Kalman Filter,*" Office of Naval Research. May 2006 – April 2009.

- PI, "*A Hands-on Interdisciplinary Laboratory Program -- An Approach to Strengthen the Weather Radar Curriculum*," (NSF-0410564), Fall 2004 – Summer 2007.

- Co-PI, "*PAR to MPAR: Advanced Studies with the National Weather Radar Testbed at the University of Oklahoma*," National Oceanic and Atmospheric Administration, Spring 2006 to Spring 2007.

- Academic PI, "*High-Bandwidth Blue/UV Emitters and Laser Systems*," (NSF-STTR- 0539033, Division of Industrial Innovation and Partnerships), 50/50 academic/industrial split, Spring 2006 – Fall 2006.

- Co-PI, "*Software Based Image Processing for Radome Characterization*," the Center for Aircraft and Systems/Support Infrastructure (CASI) at the US Air Force, Air Logistics Centers in Oklahoma, June 2005- May 2006. X-band radar.

- Co-PI, "*Improving Tornado Detection with WSR-88D Data Using Spectral Analysis*," The National Weather Service and NOAA, Spring 2004 – Spring 2007.

- PI, "*Electronic Data Collection*," Siemens-Westinghouse, June 1-August 15, 2002. Texas Engineering Experiment Station, project no. 68000. Single investigator award.

- Co-PI, "*Coherent Undersampling Digitizer*," Texas Instruments, September 1, 2000-August 31, 2001.

OTHER AWARDED PROPOSALS

- Senior Personnel. M. Yeary, one of several interdisciplinary senior personnel, with H. Neeman, B. Roe, D. Wu, H. Severini as PI's. "*CI-TEAM Demonstration Project: Cyberinfrastructure Education for Bioinformatics and Beyond*," Effective December 1 , 2006 and expires November 30, 2010. National Science Foundation, OCI-0636427.
- PI, EMCOL Project: "An FPGA Based RF Link for Power and Full Duplex Data Transfer." Schlumberger – Houston, TX. September 2002-May 2003.

OTHER FUNDED PROJECTS

While teaching the senior design course (ELEN 405) in the Department of Electrical Engineering at Texas A&M University, I attracted companies to sponsor the student projects that were under my guidance. Sponsorship implies that the company provided cash, loaner equipment, and a mentor engineer(s). I was responsible for leading the following projects with the following companies (alphabetical order):

- PI, "*Electronic Positioner for Pneumatic Actuators*," Bray Controls, Houston. Spring 2000.
- PI, "*CDR-MP3 Player*," Cirrus Logic, Austin. Fall 2000.
- PI, "*Network Security Analysis – OpenSSL Implementation,*" Cisco, Austin. Fall 2001.
- PI, "*Temperature Compensated Current Source*," Dallas Semiconductor, Dallas. Spring 2000.
- PI, "*PSQM Voice Quality Assessment, Phase I & II*," Ericsson, Dallas. Spring and Summer 2000
- PI, "*Bluetooth Wireless Data Transmission,*" Ericsson, Dallas. Fall 2000
- PI, "*Wideband CDMA Project,*" Ericsson, Dallas. Spring 2001.
- PI, Proprietary – NDA, FutureSoft, Houston. Fall 2000.
- PI, "*Temperature Control Subsystem for VLSI Characterization,*" IBM, Austin. Spring 2000.
- PI, "*Automated Bus Per Bit Deskew and Optimal Clock Placement*," IBM, Austin. Fall 2000.
- PI, "*Incorporation of DSP Technology into Test Equipment*," IBM, Austin. Spring 2001.
- PI, "*Energy Efficient Squib Initiators for Solid Rocket Batteries,*" Lockheed-Martin, Ft. Worth. Fall 2001.
- PI, "*A Fuze Link Module (FLM)*," Lockheed-Martin, Ft. Worth. Spring 2002.
- PI, "*Ethernet 10-Base-T to DS1 Converter Design*," Marconi, Irving. Fall 2000.
- PI, "*Ethernet 10-Base-T to DS1 Converter Design,*" Marconi, Irving. Spring 2001.
- PI, "*Field Programmable Gate Array – Spectrum Analyzer*," Raytheon, Dallas. Spring 2002.
- PI, Proprietary - NDA, Schlumberger, Houston. Spring 2001, Spring 2002, Summer 2002.
- PI, "*Electronic Data Collection*," Siemens-Westinghouse, Houston. Fall 2001 & Spring 2002.

OTHER AWARDS

- Design team award, "Development of a Low-cost Fuel Cell Inverter with DSP Based Control," received the $50K Future Energy Challenge grand prize from the U.S. Department of Energy, October 1, 2001. www.energychallenge.org

PATENTS

- U.S. Patent Application (full utility) submitted and under review, "System and Method for Mixed-Signal A/D Conversion Using a CORDIC Processor." See Serial No. 60/381,847.

MAIN COURSES TAUGHT (at OU)

- Digital Radar Systems, ECE 4973 / ECE 5283, senior and graduate level, Fall 2008, 2009. This course begins with an overview of modern and next-generation radar systems, with an emphasis on the digital receiver and post processing that follows the RF front-end. Several off-the-shelf receiver case studies will be conducted, followed by hands-on design techniques. These will focus on analog-to-digital converter (ADC) selection followed by software defined radio (SDR) concepts for FPGA implementation, which includes Ethernet connectivity. Waveform design and scan strategies will covered to render optimal hardware designs. As time permits, synthetic aperture radar (SAR) and inverse synthetic aperture radar (ISAR) imaging concepts will be covered, especially for dual-pole data.
- Adaptive Digital Signal and Array Processing, ECE 5283, graduate level, Fall 2003, Fall 2004, Fall 2005, Fall 2006, and Fall 2007. Responsible for providing a solid foundation of adaptive algorithms and the adaptive filter design process. In particular, the gradient descent and the recursive least squares algorithms were studied as a means to minimize various functions as a means of signal extraction. In the fall of 2003, this course was also televised at Colorado State and the University of Puerto Rico, as part of an NSF effort. 413 slides with lecture notes are currently available.
- Radar Engineering, ECE 5663, graduate level, Spring 2008. Responsible for teaching the fundamentals of pulsed Doppler radar systems. Special emphasis is given towards hardware developments in the industrial marketplace.
- Digital Signals and Filters, ECE 2713, sophomore level, Fall 2002, Fall 2003, Fall 2004, fall 2005, and fall 2006. Responsible for teaching students about sampling, aliasing, discrete time systems, z-transforms, frequency analysis, filter design, and implementation issues.
- Electronics, ECE 4813, senior level, Spring 2003, Spring 2004, Spring 2005, Spring 2006, Spring 2009, Spring 2010. This course offers the traditional course materials for a senior level electronics course, including a balanced medley of contemporary analog/digital mixed-signal topics with an emphasis on product design.
- Honors Research, ECE 3980. In addition to advising graduate students in their traditional, graduate research hours (known as ECE 5980 and ECE 6980 at OU), I also mentor students in hours called Honors Research, or ECE 3980. I have been collaborating with the Honors College on campus since

the spring of 2003 to allow selected students to complete their research requirements of OU's Honors Curriculum.

MAIN COURSES TAUGHT (at Texas A&M)

- Real-time DSP, ELEN 448. Covered the implementation and optimization of computationally intensive signal processing algorithms on a high performance DSP processor (TMS320c6x).
- DSP Based Devices, ELEN 689, graduate level (co-taught with H. Toliyat). Yeary was responsible for covering the implementation and optimization of signal processing algorithms on the TMS320LF2407 processor, in addition to presenting aspects of customized embedded system design.
- Senior Design Laboratory, ELEN 405, senior level. Responsible for teaching students about the electrical engineering problem solving and design process. Most of the projects were industrially sponsored. Also provided expertise and managed several interdisciplinary projects with the Department of Mechanical Engineering (sponsored by the 3M Corporation).
- Digital Signal Processing, ELEN 444, senior level. Responsible for teaching students about sampling, aliasing, discrete time systems, z-transforms, frequency analysis, filter design, implementation issues, and quantization effects.
- Industrial Automation, ENTC 430, senior level. Industrial applications of electronic devices, instrumentation, sensors, and closed-loop control.
- Principles of Electrical Engineering, ENGR 215, (an NSF Coalition sponsored course). Responsible for teaching out-of-department interdisciplinary students about fundamental circuit analysis, working in teams, and in-class laboratory experiments oriented around LabView.
- Foundations of Engineering, ENGR 111, (an NSF Coalition sponsored course). Responsible for teaching students about basic principles of engineering, the problem solving process, and working in teams.
- Electronics, ELEN 325, junior level. Responsible for teaching students about the basics of semiconductor devices including diodes, transistor amplifiers, and op-amps.
- Electronic Circuits, ELEN 326, junior level. Responsible for teaching students about multistage amplifier configurations and analog filter design.

PROFESSIONAL SERVICE and HONORS

- Technical co-Chair, IEEE IMTC. Austin, TX, 2010
- AMS Radar IIPS Session Chair
- IEEE Aerospace and Electronic Systems Society (AESS) Education Committee, January 2009 to present.
- Reviewer and panelist, National Science Foundation, *Course, Curriculum, & Laboratory Improvement* program, June 2009. Arlington, VA.
- Technical Program Committee (TPC) member, 2009 IEEE IMTC. Singapore.
- Reviewer and panelist, National Science Foundation, *Course, Curriculum, & Laboratory Improvement* program, March 2009. Arlington, VA.
- Reviewer and panelist, National Science Foundation, *Course, Curriculum, & Laboratory Improvement* program, March 2008. Arlington, VA.
- Session Chair and Technical Program Committee (TPC) member, 2008 IEEE

IMTC. Victoria Island, British Columbia.
- NOAA Joint Radar Planning Team (JRPT), summer 2006 to present.
- Reviewer and panelist, National Science Foundation, *Power, Controls, and Adaptive Networks (PCAN) Program* in ECS. Arlington, VA. June 2007.
- Technical program committee member, 2007 IEEE IMTC. Warsaw, Poland.
- Technical Committee Member, *Sensors and Signal-Processing Applications and Implications in Public-Security and Forensics* (SAFE). Washington, DC. April 2007.
- Reviewer and panelist, National Science Foundation, *Course, Curriculum, & Laboratory Improvement* program, March 2007.
- Reviewer, 2007 IEEE Multi-Conference on Systems and Control.
- Chair, Technical Committee 26 on Radar Cross-Section, IEEE Instrumentation and Measurement Society, 2003,2004,2005,2006,2007,2008.
- Reviewer, IEEE Signal Processing Letters, fall 2006.
- Technical program committee member, 2006 IEEE International Conference on Image Processing.
- Technical program committee member, 2006 IEEE IMTC, also includes Session Chair, *ThD3 – Waveform Measurement, Analysis, & Generation*, 2006 IEEE IMTC.
- Technical Program Committee Member (reviewer), WirelessCom 2005, *International Conference on Wireless Networks, Communications, and Mobile Computing*, co-sponsored by the IEEE Communication Society. June 2005.
- Reviewer and panelist, National Science Foundation, CCLI, Arlington, Virginia. February 2005
- Reviewer and panelist, National Science Foundation, SBIR Active Nanotech Applications, April 2005. Arlington, VA.
- Reviewer and panelist, National Science Foundation, SBIR Optics, April 2005
- Reviewer, IEEE Transactions on Instrumentation and Measurement
- Reviewer, 2005 IEEE Conference on Control Applications (CCA05)
- Session Chair, Asilomar Conference on Signals, Systems and Computers. November, 2004. Pacific Grove, California.
- Reviewer and panelist, National Science Foundation, SBIR Misc. Diagnostics. Arlington, Virginia. October 2004.
- Reviewer and panelist, National Science Foundation, SBIR (Wireless and Signal Processing). Arlington, VA. Spring 2004.
- Reviewer and panelist, National Science Foundation, Division of Engineering Education and Centers (EEC) of the Engineering Directorate. Arlington, VA. Spring 2004.
- Technical program committee member, 2004 IEEE International Conference on Image Processing.
- Technical Program Committee Member, 2004 IEEE Southwest Symposium on Image Analysis and Interpretation.
- Reviewer and panelist, National Science Foundation, SBIR (Electronics). Arlington, VA. Fall 2003.
- Reviewer and panelist, National Science Foundation, SBIR (Sensors). Arlington, VA. Fall 2003.
- Reviewer and panelist, National Science Foundation, CCLI. Arlington, VA. Summer 2003.
- Reviewer and panelist, National Science Foundation, SBIR (Diagnostic Systems & Sensors). Arlington, VA. Spring 2003.

- Technical program committee member, 2003 IEEE International Conference on Image Processing.
- Session chair, IEEE IMTC, 2003.
- Reviewer, IEEE Transactions on Neural Networks, 2003 Special Issue on Hardware Implementations.
- Reviewer, IEEE Signal Processing Letters, January 2003.
- Reviewer, Journal of Real-Time Imaging, Elsevier Science, March 2003.
- Reviewer, IEEE Transactions on Instrumentation and Measurement, 2003 Special Issue on Reliable Digital Instrumentation.
- Session chair and organizer, Sixth Multi-Conference on Systematics, Cybernetics, and Informatics, Orlando, Florida. July, 2002.
- Steering committee member, 2001 Future Energy Challenge (sponsored by the IEEE-PELS and the DOE).
- Technical committee member and session Chair – 2001 International Symposium on Intelligent Signal Processing and Communication Systems, Nashville TN, November, 2001 (sponsored by the IEEE Computer Society).

UNIVERSITY SERVICE & STUDENT ACTIVITIES

- Advisor, AISES (American Indian Science and Engineering Society), University of Oklahoma Student Chapter, spring 2005 to present.
- Search Committee Member, College of Atmospheric & Geographic Sciences Dean and NWC Director, fall 2009 to present.
- Founding Member (with others), Committee for Accelerated Recruitment, Retention and ECE Robust Advertising (CARRERA), spring 2008 to present.
- Chair, Malcolm P. O'Haver Memorial Scholarship committee, spring 2006 to present
- Faculty Advisor, Williams Student Leadership Retreat. April 10-11, 2010. Tulsa, Oklahoma.
- Mentor, University of Oklahoma Student Research and Performance Day, March 2010.
- Mentor, IEEE Student Paper Contest. OKC Section, Spring 2010.
- Faculty Marshall, COE Convocation. May, 2009.
- Mentor, IEEE Student Paper Contest. OKC Section. Student received the 1st place award. Spring 2009.
- Judge, University of Oklahoma Research and Performance Day, April, 2009.
- Mentor, for an undergraduate team at the University of Oklahoma Student Research and Performance Day, April 2009.
- Faculty Advisor, Williams Student Leadership Retreat. April 19-20, 2008. Tulsa, Oklahoma.
- Mentor, for an undergraduate team at the University of Oklahoma Student Research and Performance Day, March 2008.
- Mentor, design group within capstone ECE 4773, Spring 2008.
- MEP Scholarship Committee, Spring 2008.
- Mentor, IEEE Student Paper Contest. OKC Section, student won the 1st prize. Spring 2008.
- ECE Undergraduate Awards Committee, Spring 2008.
- Advisor, IEEE Student Chapter at OU, fall 2006 to spring 2007.
- Judge at the Spring 2007 Graduate Research Day Poster Session. Event co-

sponsored by the Graduate College and Graduate Student Senate.
- ECE Undergraduate Awards Committee, Spring 2007.
- ECE Faculty Marshal, Convocation, May 2007.
- Mentor, University of Oklahoma Undergraduate Research Day, sponsored by the Honors College, March 2007.
- Mentor, IEEE Circuit Design Contest, Region 5 Conference. Students received 1st place, spring 2007.
- CEES faculty search committee member, fall 2006-spring 2007.
- Committee Member, search for the Director of the MEP, spring 2006.
- ECE Faculty Marshal, Convocation, May 2006.
- Advisor, Eta Kappa Nu, Electrical Engineering Honor Society, University of Oklahoma Student Chapter, fall 2004 and spring 2005.
- ECE faculty search committee member, fall 2005-spring 2006.
- ECE Director search committee member, fall 2004-spring 2005.
- Mentor, IEEE Student Paper Contest, spring 2006. Students received awards at the OKC and Area levels, then advanced to the regional competition in San Antonio.
- Session Chair, University of Oklahoma Undergraduate Research Day, April 2006.
- Mentor, University of Oklahoma Undergraduate Research Day, April 2006.
- Faculty Senate Speakers Service, fall 2004 - spring 2005.
- Mentor, University of Oklahoma Undergraduate Research Day, April 2005.
- Mentor, University of Oklahoma Graduate Student Research Poster Session, March 2005.
- Mentor, IEEE Student Paper Contest. Students received 1st place at the IEEE R5 conference in Colorado. Spring 2005.
- ECE Undergraduate Awards Committee, Spring 2005.
- ECE Faculty Marshal, Convocation, May 2004.
- Mentor, University of Oklahoma Undergraduate Research Day, April 2004.
- Mentor, University of Oklahoma Graduate Student Research Poster Session, March 2004.
- Mentor, IEEE – OKC section, Undergraduate Student Paper Contest, Feb 2004.
- Undergraduate Education Committee, School of Electrical and Computer Engineering, academic years: 2002-03, 2003-04.
- College of Engineering Academic Misconduct and Appeals Panel, academic year 2002-03.
- Mentor, design group within capstone ECE 4773, Fall 2002.
- Mentor, design group within capstone ECE 4773, Spring 2003.
- Mentor, University of Oklahoma Undergraduate Research Day, April 2003.
- Mentor, IEEE – OKC section, Undergraduate Student Paper Contest, March 2003 (my winning student won an expense-paid trip to New Orleans for the Regional Conference).
- Co-Advisor, IEEE student chapter at Texas A&M, academic year 2001-02.
- Teaching Assistant Mentor Program, Center for Teaching Excellence, Texas A&M University, August 2000.
- Served as a volunteer, with Duracell, at the National Science Teachers Association Conferences: Anahiem-94, St. Louis-96, New Orleans-97, Las Vegas-98, Boston-99.
- Designed and taught a laboratory experiment for the Summer Engineering Enrichment (SEE) program at Texas A&M University. 1996
- Panelist at the Academic Excellence Workshop in College Station, Aug. 1994

OTHER EXPERIENCE

- Consultant, Ask-an-expert-initiative, through the NSTA & financed by Duracell. Fall 1998, Spring 1999, Fall 1999.
- *Website Administrator,* Texas A&M University, Summer 1997.
  - Wrote numerous lines of HTML code and managed a UNIX based website for a department on campus.
- *Lecturer,* Department of Engineering Technology, Texas A&M; Sept., 1996 to Aug., 1997.
  - Industrial Automation, ENTC 430.
- *Graduate Research Assistant,* Department of Electrical Engineering, Texas A&M; Summer 1996.
  - Texas Instruments sponsored research in digital signal processing.
  - Hardware implementation of DSP algorithms, TMS320c30.
- *Power Electronics Lab Technician,* Dept. of Electrical Engineering, Texas A&M; Fall 1991.

OTHER

- A hard worker – I financed 100% of my M.S. and Ph.D. education.