

CURRICULUM VITA

April 30, 2011

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PERSONAL DATA AND PROFESSIONAL RECORD

Wasfy Boushra Mikhael, Fellow IEEE

Position: Tenured Professor of Electrical Engineering

Office Address:

School. of Electrical Engineering and Computer Science
University of Central Florida
P.O. Box 25000, 4000 Central Florida Blvd.
Orlando, Florida 32816-2450
(407) 823 3210 (Office) , (407) 415 4637 (Cell)
(407) 823 5835 (FAX) , Email:mikhael@mail.ucf.edu

PERSONAL

US Citizen; Born November 3, 1944; Height 5'7"; Weight 215 lbs.; Good Health;
Married, Three Children (ages 34, 31, and 25).

PROFESSIONAL ORGANIZATIONS: - Fellow IEEE For contributions to the development of hybrid and integrated filtering circuits and systems.

- Editor-in-Chief, World Scientific Engineering Academy and Society (WSEAS) Transactions on Information Science and Applications.
- Editor, WSEAS Transactions on Signal Processing.
- Chairman, Midwest Symposium on Circuits and Systems Steering Committee membership
- Associate Editor, Journal of Circuits, Systems and Computers, World Scientific Publishing Co., 1990 - present.
- IEEE Technical Activities Board (TAB) Conference Pub. Committee, 2004, 2005
- Vice President Regions 1 to 7, IEEE Executive Committee, Circuits and Systems Society, Jan 1, 2001 to Dec 31, 2002.
- Member of the Board of Governors-IEEE Circuits and Systems Society- Term ends December 31, 1992
- IEEE Signal Processing Society, IEEE Solid State Circuits
- IEEE Analog Signal Processing Tech. Committee member
- IEEE Neural Systems and Appl. Tech. Committee
- Assoc. Editor (Dig. Sig. Proc.), IEEE Trans-CAS, 1999-2001.

EDUCATION

Ph. D. E.E., Sir George Williams Univ. (now known as Concordia University), Montreal, Quebec, Canada, 1970-1973 GPA: 3.86/4.0

M. Sc.E.E Univ. of Calgary, Alberta, Canada, 1968-1970, GPA: 4.0/4.0 Thesis: System Identification Using Impulses

B. Sc.E.E (Honors), Assiut University, Egypt, 1960-65
General appreciation: Very good (honor) with distinction in project

PROFESSIONAL EXPERIENCE

POSITION HELD	DATES	DEPARTMENT	INSTITUTION	DUTIES
Professor	2000-Present	ECE	UCF	Teach, Research, Services in DSP
Chair	95-99	Electrical and Computer Engineering	University of Central Florida	EE & Cp. Eng. UG and Grad. Prog. B.S, M.S, & Ph.D in EE and CpE Dept. Admin.
Acting Chair	94-95	Electrical and Computer Engineering	University of Central Florida	Personnel, Budgeting, Accred., Curricula, Enrollment, Retention, Labs Div., Indust. Partnerships, External Relations, Funding, Recruiting.
Professor	88-Present	Electrical Engineering	University of Central Florida	Teach, conduct research, advise graduate students in Digital Signal Processing. Chair the DSP Committee. Develop Curricula and labs in these areas. Serve on University Research Council and Graduate Council, 1989-1992. Chairman of University Research Council, 1992-1993.

				Graduate Coordinator, August 1989 - August 1991, M. Sc and Ph.D. manuals and typical programs of study developed.
Consultant	1988	NovAtel Communications	Calgary, Alberta Canada	Adaptive Noise Cancellation full duplex cellular communication and DSP.
Professor	82-88	Electrical Engineering	W. Virginia University	Teach, conduct sponsored research & advise graduate students in circuits & systems, communication & signal proc. Chair the graduate and undergraduate communications and signal processing committees. Develop graduate and undergraduate courses and labs in these areas.
Consultant	Sept. 81- present	Technical Advisory Service to Attorneys		
Consultant Visiting Faculty	1980 June-July 83,84,85, 86,87,88	Communication Products Development	Harris Semi- conductor Melbourne, FL	Develop new integrated circuits for signal processing with applications in speech synthesis and communications.
Consultant	March-81 April-81	St. Laruent, Montreal, Quebec, Canada	Northern Telecom	Filters for communi- cations systems
Associate Professor	August-78 1982	Electrical Engineering	W. Virginia University	
Full Member	Nov. 79 1989	Graduate Faculty	W. Virginia University	

Member of Scientific Staff	Aug. 74 1978	Transmission Network Research	Bell-Northern Research	Develop new circuits & systems (FDM, Adaptive balancing). Apply new technologies (thick & thin film CCD and MOS) using computer aided analysis and design tools. Design micro-electronic (PCM & SSB) filters with automatic trimming
Member of Scientific Staff	1973-74	Micro-electronic Technology	Bell-Northern Research	
Adj. Assc. Professor	May 77- 1980	Electrical Engineering	Concordia Univ. Quebec, Canada	Conduct sponsored research & co-supervise (with Dean Swamy) Doctoral Students
Adj. Asst. Professor	1973-77	Electrical Engineering	Concordia Univ Quebec, Canada	-do-
Professor	1972-73	Mathematics Department	Dawson College Montreal, Canada	Teach Calculus courses
Part-time Instructor	1970-73	Computer Science	Concordia Univ. Quebec, Canada	Teach Computer Programming courses
Research Assistant	1970-73	Electrical Engineering	Concordia Univ. Quebec, Canada	Research work
Research Assistant	1968-70	Electrical Engineering	University of Calgary	Teach Electronics Labs.
Elec. & Comm. Engr.	1965-68	Automatic Exchanges	Telecomm. Organization Cairo, Egypt	Design & Maintenance of class 5 central offices & special services

PROFESSIONAL REFERRED PUBLICATIONS

1. Vartak, Aniket; Fidopiastics, Cali; Nicholson, Denise; Mikhael, Wasfy B. “A Novel Method for Extracting Metric of EEG Hemispheric Asymmetry Using Wavelets for Emotions.”, Submitted Oct, 2011 for publication in IEEE Transactions on Affective Computing.
2. Y. Liu; W.B. Mikhael; , “A Conjugate-gradient based Adaptive Beamforming Algorithm with Optimal Individual Step Sizes” , under review, submitted to in *IET Electronics Letters*, Apr, 16, 2012.
3. Y. Liu; W.B. Mikhael; T.T. Yang; , “A Non-Data-Aided Frequency-dependent I/Q Mismatch Compensation Approach for Practical Wireless Receivers” , under review, submitted to *IEEE Transaction on Circuits and Systems II*, April, 16, 2012.
4. Y. Liu; W.B. Mikhael; , “A Fast-Converging Adaptive FIR Technique for Channel Equalization” , accepted 2012 *IEEE 55th International Midwest Symposium on Circuits and Systems (MWSCAS)*, August, 2012.
5. Waleed Alrasheed, Wasfy B Mikhael, “A Quantized/Truncated Transform Domain Technique (QTD) For Fast Recognition” , *55th IEEE International MWSCAS BOISE, Idaho, USA, August 2012*, Accepted.
6. Islam Yousry, Moataz M. Abdelwahab, and Wasfy B. Mikhael, “Simultaneous Face Detection and Recognition System” The *55th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS’12)*, Idaho, USA, August, 2012 (Accepted).
7. Ramy Chehata, Wasfy B. Mikhael, and Moataz M. Abdelwahab “Performance Evaluation of the Transfor Domain Diagonal Principal Component Analysis for Facial recognition under different pre-processing conditions” The *55th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS’12)*, Idaho, USA, August, 2012 (Accepted).
8. Joshua T. Dickey, Wasfy B. Mikhael, “An Adaptive Technique for Isolating the Seismic Response of an Infrasound Sensor”, The *55th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS’12)*, Boise, Idaho, USA, August, 2012 (Accepted).
9. Charna R. parkey, Wasfy B Mikhael, David B. Chester, “Cumulant Characterizations of ADC Error Sources with Applications to Time Interleaved ADCs” The *55th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS’12)*, Idaho, USA, August, 2012 (Accepted).
10. Genevieve I. Sapijaszko, Wasfy B. Mikhael, “An Overview of Recent Window Based Feature Extraction Algorithms for Speaker Recognition” The *55th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS’12)*, Idaho, USA, August, 2012 (Accepted).
11. Y. Liu, R. Ranganathan, M.T. Hunter, and W.B. Mikhael, “Complex Adaptive LMS Algorithm Employing the Conjugate Gradient Principle for Channel Estimation and

Equalization,” in Circuits, Systems and Signal Processing, 22 November 2011, pp. 1-21, doi:10.1007/s00034-011- 9368-8.

12. M.T. Hunter, A.G. Kourtellis, C.D. Ziomek, and W.B. Mikhael, “ Fundamentals of Modern Spectral Analysis” IEEE Instrumentation & Measurement Magazine, Volume: 14, Issue: 4. Page(s): 12-16., July 2011.
13. Raghuram Raganathan, Wasfy Mikhael, Nasser Kutkut, Issa Batarseh, “ Adaptive sun tracking algorithm for incident energy maximization and efficiency improvement of PV panels”, Journal: Renewable Energy, Vol. 36, no. 10, pp. 2623-2626, 2011.
14. Alrasheed, W.; Mikhael, W.B.;, “A quantized/truncated Transform Domain technique (QTD) for fast facial recognition, “Circuits and Systems (MWSCAS), 2011 IEEE 54th International Midwest Symposium on, vol., no., pp.1-3, 7-10 Aug. 2011
15. Naiel, M.A.; Abdelwahab, M.M.; Elsaban, M.; Mikhael, W.B.; “Simultaneous Human detection and action recognition employing 2DPCA-HOG,” Circuits and Systems (MWSCAS), 2011 IEEE 54th International Midwest Symposium on, vol., no., pp. 1-4, 7-10 Aug. 2011
16. Raganathan, R.; Yang, T.; Mikhael, W.; , “Intercarrier interference mitigation and multi-user detection employing adaptive ICA for MIMO-OFDM systems in time variant channels,” Circuits and Systems (MWSCAS), 2011 IEEE 54th International Midwest Symposium on, vol., no., pp. 1-4, 7-10 Aug. 2011.
17. Naiel, M.A.; Bdelwahab, M.M.; El-Saban, M.; Nikhael, W.; , “ Highly efficient human action recognition using compact 2DPCA-based descriptors in the spatial and transform domains,” Circuits and Systems (MWSCAS), 2011 IEEE 54th International Midwest Symposium on, vol., no., pp. 1-4, 7-10 Aug. 2011.
18. Parkey, C.R.; Chester, D.B.; Hunter, M.T.; Mikhael, W.B.; “Simulink modeling of analog to digital converters for the post conversion correction development and evaluation,” Circuits and Systems (MWSCAS), 2011 IEEE 54th International Midwest Symposium on, vol., no., pp. 1-4, 7-10 Aug. 2011.
19. Ying Liu; Yang, T.T.; Mikhael, W.B.; “Effect of signals’ probabilistic distributions on performance of adaptive noise canceling algorithms,” 2011 IEEE 54th International Midwest Symposium on Circuits and Systems (MWSCAS), pp. 1-4, Seoul, Korea, Aug. 2011.
20. Parkey, C.R.; Chester, D.B.; Hunter, M.T.; Mikhael, W.B.; “Modeling of jitter and its effects on time interleaved ADC conversion,” AUTOTESTCON, International Automatic Testing Conference, pp. 367-372, Baltimore, MD, 12-15 Sep. 2011.
21. Mikhael, W.B.; McDowell, W.; “Efficiency of the KLT on Voiced & Unvoiced speech as a function of Segment Size,” IEEE Southeast Con 2012, Orlando, FL, USA, 15-18 Mar. 2012.

22. Matthew T. Hunter, Christopher D. Ziomek, Achilleas Kourtellis, Wasfy Mikhael, "Fundamental of Modern Spectral Analysis", IEEE Autotestcon 2010, Sept. 13-16, 2010, Orlando, Fl, pp. 1-5.
23. Y. Liu, R. Ranganathan, M.T. Hunter, W.B. Mikhael, and T.T. Yang, "Optimal Block Adaptive I/Q Mismatch Compensation Based on Circularity", *The 53th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS10)*, Seattle, WA, August 1-4, 2010, pp. 320-323.
24. M. Naiel , Moataz M. Abdelwahab, and Wasfy B. Mikhael, "Human Action recognition employing TD2DPCA and VQ" *The 53th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS10)*, Seattle, USA, August 1-4, 2010, pp. 624-627.
25. M. Naiel , Moataz M. Abdelwahab, and Wasfy B. Mikhael, "Human Action recognition employing PCA and VQ in the spatio-temporal domain", *The 8th International IEEE-NEWCAS Conference*, Montreal, Canada, June 20-23, 2010, pp. 381-384.
26. R. Ranganathan, W.B. Mikhael, Nasser Kutkut and Issa Batarseh, "Adaptive Sun Tracking algorithm for Incident Energy Maximization and Efficiency Improvement of PV Panels", *Special Issue Elsevier Journal on Renewable Energy* (Accepted, April 2010)
27. Raghuram Ranganathan, Wasfy Mikhael, Nasser Kutkut, and Issa Batarseh, "Adaptive Sun Tracking Algorithm for Incident Energy Maximization and Efficiency Improvement of PV Panels", *Second annual FESC Summit*, Sept 28-29, 2010.
28. W.B. Mikhael, R. Ranganathan, and T.Yang, "Complex Adaptive ICA employing the Conjugate Gradient principle for Signal Separation in Time-Varying Flat Fading Channels," *Journal of Circuit, Systems & Signal Processing*, vol.29, 2010, pp.469-480.
29. Wisam Al-Hoor, Jaber Abu-Qahouq, Lilly Huang, Wasfy Mikhael, and Issa Batarseh, "Analysis and Experimental Results for Improved Multivariable Adaptive Digital Controller," 32nd IEEE International Telecommunications Energy Conference Publication, Intelec, Jun, 6-10, Orlando, FL, 2010, pp. 1-8.
30. R. Ranganathan, T. Yang, and W.B. Mikhael, "Optimum Block Adaptive ICA for Separation of Real and Complex Signals with Known Source Distributions in Dynamic Flat Fading Environments", *Journal of Circuits Systems and Computers (JCSC)*, Vol.19, Issue 2, April, 2010, pp 367-379.
31. R. Ranganathan, W.B. Mikhael, Nasser Kutkut and Issa Batarseh, "Novel adaptive sun tracking algorithm for energy maximization and efficiency improvement of PV panels", *International Conference on Renewable Energy: Generation and Applications (ICREGA'10)*, United Arab Emirates, March 8-10, 2010.
32. Y. Liu, R. Ranganathan, M. Hunter, and W. B. Mikhael, "Fast converging Conjugate-Gradient adaptive algorithm for complex channel estimation", *IET Electronics Letters* ,Vol. 46,Issue 2,Jan,21,2010,pp.180-182.

33. Jaber Abu-Qahouq, Wisam Al-Hoor, W.B. Mikhael, Lilly Huang, and Issa Batarseh "Analysis and Design of an Adaptive-Step-Size Digital Controller for Switching Frequency Autotuning", *IEEE Transactions on Circuits and Systems*, vol.56, no.12, pp. 2749-2759, Dec. 2009
34. W. Al-Hoor, J. A. Abu-Qahouq, L. Huang, W. B. Mikhael, and I. Batarseh, "Adaptive Digital Controller and Design Considerations for a Variable Switching Frequency Voltage Regulator," *IEEE Transactions on Power Electronics*, vol. 24, no. 11, pp. 2589-2602, Nov. 2009
35. M. Hunter, A. Kourtellis, and W. B. Mikhael, "Design of a Software Defined, FPGA-Based Reconfigurable RF Measuring Receiver," *AUTOTESTCON, 2009 IEEE*, pp. 374-379, Sep. 15-17, 2009.
36. Y.Liu, R.Ranganathan, M.Hunter, and W.B.Mikhael, "Conjugate Gradient Based Complex Block LMS Employing Time-Varying Optimally Derived Stepsizes", *IEEE Midwest Symposium on Circuits and Systems*, Cancun, Mexico, August 2-5, 2009, pp 590-593.
37. M. Hunter, and W. B. Mikhael, "Novel Farrow Structure with Reduced Complexity," *IEEE Midwest Symposium on Circuits and Systems*, Cancun, Mexico, August 2-5, 2009, pp581-585.
38. M. Hunter, W.B. Mikhael, and A. Kourtellis, "Generating Nonlinear Modulation with Minimum Memory Requirements," *Instrumentation and Measurement Technology Conference Proceedings, IMTC 2009 IEEE*, pp.624-628, 5-7 May 2009
39. Vartak A., Fidopiastis C., Nicholson D., Mikhael W., "Estimation of arousal using decomposed skin conductance features," *Biomedical Sciences Instrumentation Journal*, 45: pp. 77-82, 2009
40. Vartak A., Fidopiastis C., Nicholson D., Mikhael W., "Estimation of arousal using decomposed skin conductance features," *46th Rocky Mountain Bioengineering Symposium*, Milwaukee, WI, 17-18 April 2009, **Best Student Paper Award, 2nd place.**
41. M. Hunter, W.B. Mikhael, and A. Kourtellis, "Wideband Digital Downconverters for Synthetic Instrumentation," *IEEE Transactions on Instrumentation and Measurement*, vol.58, no.2, pp.263-269, Feb. 2009
42. R.Ranganathan and W.B Mikhael, "A Novel Digital Beamforming Technique based on Homogeneous Adaptation Employing Time-varying Convergence Factors", *Radio and Wireless Symposium, IEEE RWS*, San Diego, CA, Jan 18-22, 2009, pp. 558-561.
43. Hunter, Matthew T.; Mikhael, Wasfy B.; Tocco, Tim J., "Arbitrary Waveform Generators for synthetic instrumentation," *AUTOTESTCON, 2008 IEEE* , vol., no., pp.138-143, 8-11 Sept. 2008, **Best Graduate Student Paper Award, First Place.**
44. W.B Mikhael, and R.Ranganathan, "Complex FIR Block Adaptive digital filtering algorithm with Independent Adaptation of Real and Imaginary Filter Parameters", *The*

51st IEEE Midwest Symposium on Circuits and Systems, Knoxville, Tennessee, USA, August 10-13, 2008, pp. 854-857.

45. M. Abdelwahab, and W.B.Mikhael, "Parallel Structure System Employing PCA and VQ in the Transform Domain for Facial Recognition ", *The 51st IEEE Midwest Symposium on Circuits and Systems*, Knoxville, Tennessee, USA, August 10-13, 2008, pp. 237-240.
46. W.B. Mikhael and R.Ranganathan, "Complex Adaptive FIR Digital Filtering Algorithm with Time-Varying Independent Convergence Factors", *Signal Processing*, Volume 88, Issue 7, July 2008, pp. 1889-1893
47. Wisam Al-Hoor, Jaber Abu-Qahouq, W.B. Mikhael, Lilly Huang, and Issa Batarseh, "Multivariable Adaptive Efficiency Optimization Digital Controller", *IEEE Power Electronics Specialists Conference, PESC*, June 15-19 2008, pp. 4590-4596.
48. W.B Mikhael and R. Ranganathan, "Complex FIR Block Adaptive algorithm employing Optimal Time-Varying Convergence Factors", *IEEE NEWCAS-TAISA '08*, Montreal, Canada, June 22-25, 2008, pp. 61-64.
49. Hunter, M.T.; Mikhael, W.B.; Kourtellis, A.G., "Direct IF Synthesis of Vector Modulated Signals using Real-Time Signal Processing," *Instrumentation and Measurement Technology Conference Proceedings, 2008. IMTC 2008. IEEE* , vol., no., pp.1853-1858, 12-15 May 2008
50. Vartak A., Fidopiastis C., Nicholson D., Mikhael W., and Schmorow D., Cognitive State Estimation for Adaptive Learning Systems using Wearable Physiological Sensors, in *First International Conference on Biomedical Electronics and Devices*, (Biosignals 2008). Jan 28-31 2008: Funchal, Maderia, Portugal. p. 147-152.
51. Jaber Abu Qahouq, Wisam Al-Hoor, Wasfy Mikhael, Lilly Huang, and Issa Batarseh, "Adaptive Step-Size Digital Controller For Switching Frequency Auto-Tuning", *IEEE International Symposium on Circuits and Systems*, Seattle, USA, May 18-21, 2008.
52. P. Ragothaman, A. Mahalanobis, R. Muise, W. B. Mikhael, "A Performance Comparison of the Transform Domain Rayleigh Quotient Quadratic Correlation Filter (TDRQQCF) approach to the regularized RQQCF," *Automatic Target Recognition XVIII, SPIE Defense and Security Symposium*, Orlando, Florida, March 16-20, 2008.
53. R. Ranganathan and W.B. Mikhael, "A Comparative Study of Complex Gradient and Fixed-Point ICA algorithms for Interference Suppression in Static and Dynamic Channels", *Signal Processing*, Vol. 88, Issue 2, February 2008, pp.399-406.
54. W.B Mikhael, R. Ranganathan and T.Yang, "Novel Conjugate-Gradient Based Complex Adaptive ICA for Diversity QPSK Receivers in Time-Varying Channel Applications", *IEEE Radio and Wireless Symposium*, Orlando, Florida, USA, Jan 22-24, 2008.
55. Y. Liu, and Wasfy Mikhael, "High-Performance Blind Carrier Frequency Offset estimation for OFDM Systems," *Journal of Circuits, Systems, and Computers (JCSC)*, (Accepted).

56. T. Yang, and W. Mikhael, "A Novel Conjugate-Gradient-Based Block Adaptive ICA algorithm with Application to Dynamic Wireless Channels", submitted in August 2005 to Journal of Circuits, Systems and Computers.
57. R. Ranganathan, T. Yang, and W.B Mikhael, "Separation of Complex Signals with Known Source Distributions in Time-Varying Channels using Optimum Complex Block Adaptive ICA", The 50th IEEE MWSCAS, Montreal, Canada, August 2007.
58. Moataz M. Abdelwahab, and Wasfy B. Mikhael, "Efficient Feature Representation Employing PCA and VQ in the Transform Domain for Facial Recognition," *The 50th IEEE International Midwest Symposium on Circuits and Systems (MWSCAS'07)*, Montreal, Canada, August 2007, pp: 281 - 284
59. W. B. Mikhael, Moataz M. Abdelwahab, P. Ragothaman, "Novel Transform Domain Principal Component Analysis Techniques and Some Applications: Facial and Automatic Target Recognition," *Proceedings of the 11th WSEAS CSCC Multi-conference, Conference on Computers*, July 26-28, 2007, Agios Nikolaos, Crete Island, Greece, pp. 419-425.
60. R. Ranganathan, T. Yang and W. B Mikhael, "Adaptive ICA for Separation of Complex Signals with Known Source Distributions in Time-Varying Channels", *IET Electronics Letters*, Vol. 43, Issue 15, July 2007, pp. 838-839.
61. P. Ragothaman, W. B. Mikhael, R. R. Muise and A. Mahalanobis, "Automatic Target Recognition Using Signal Compression," *Applied Optics*, 46, July 2007, pp. 4702-4711.
62. R. Ranganathan and W.B Mikhael, "A Novel Interference Suppression Technique employing Complex Adaptive ICA for Time-Varying Channels in Diversity Wireless QAM Receivers", *IEEE International Symposium on Circuits and Systems (ISCAS'07)*, New Orleans, Louisiana, USA, 27-30th May 2007, pp. 101-104.
63. W. B. Mikhael, P. Ragothaman, R. Muise, A. Mahalanobis, "An Efficient Quadratic Correlation Filter for Automatic Target Recognition," *Proceedings of SPIE*, Volume 6566, 65660W, Automatic Target Recognition XVII, Firooz A. Sadjadi, Editor, SPIE Defense and Security Symposium, Orlando, Florida, April 17-22, 2007.
64. Y. Liu, and W. B. Mikhael, "A Blind Maximum Likelihood Carrier Frequency Offset Correction Approach for OFDM Systems over Multipath Fading Channels," *Circuits, Systems, and Signal Processing*, Volume 26, Number 1, February 2007, pp. 43-54.
65. G. Zhou and W.B. Mikhael, "Speaker Identification Based on Adaptive Discriminative Vector Quantization," *IEE Proceedings-Vision, Image & Signal Processing*, Volume 153, Issue 6, pp: 754 – 760, Dec. 2006.
66. Moataz M. Abdelwahab, and Wasfy B. Mikhael, "Computationally Efficient Transform-Domain Two-Dimensional Principal Component Analysis Algorithm for Facial Recognition," *The 2nd International Computer Engineering Conference (ICENCO2006)*, pp. SP-34-SP-38, Cairo, Egypt, December 2006.

67. P. Ragothaman, T. Yang, W. Mikhael, R. Muise, A. Mahalanobis, "Efficient Adaptive Subspace Tracking Algorithm for Automatic Target Recognition", *IEE Electronics Letters*, Vol. 42, No. 20, September 2006, pp. 1183-1184.
68. T. Yang, W. Mikhael, "Efficient Blind Signal Separation in Dynamic Environment Employing Novel ICA Technique", *WSEAS Trans. on Communications*, Issue 8, Vol. 5, pp. 1303-1308, August 2006.
69. Moataz M. Abdelwahab, and Wasfy B. Mikhael, "Recognition of Noisy Facial Images Employing Transform –Domain Two-Dimensional Principal Component Analysis," *The 49th IEEE International MWSCAS*, San Juan, Puerto Rico, August 6-9, 2006. **2nd Best Student paper award (302 papers)**, pp. 596-599.
70. R. Ranganathan, W. B. Mikhael, T. Yang, "An Optimum Block Adaptive ICA Algorithm with Individual Adaptation for Wireless QAM Receivers in Dynamic Environments", *The 49th IEEE MWSCAS*, San Juan, Puerto Rico, August 2006, pp. 146-149.
71. Y. Liu, and W. B. Mikhael, "High-Performance Blind Carrier Frequency Offset Estimator for OFDM Systems," in *Proceeding of The 49th IEEE International Midwest Symposium On Circuit and System*, San Juan, Puerto Rico, August 2006, Vol. 1, pp. 127-130.
72. Raghuram Ranganathan and W.B Mikhael, "Fast-converging complex adaptive algorithm for diversity wireless receivers in linearly fading channels", *IEE Electronics Letters*, Vol. 42, Issue 15, pp. 886-887, July 2006.
73. P. Ragothaman, T. Yang, W. Mikhael, R. Muise, A. Mahalanobis, "Automatic Target Recognition Using a Novel Adaptive Technique for Rayleigh Quotient Quadratic Correlation Filters", *WSEAS Transactions on Signal Processing*, Issue 7, Vol. 2, July 2006, pp. 949-955.
74. Moataz M. Abdelwahab, Manal M. Abdelwahab and Wasfy B. Mikhael, "Several structures and techniques for the accurate classification and recognition of signals " *WSEAS Transaction on Signal Processing*, Vol. 2, No. 7, pp. 970-976, July 2006.
75. T. Yang, W. B. Mikhael, "ICA with Time-Varying Convergence Factor and its Application in Communications", Invited Paper, *Proc. of The 10th WSEAS Int. Conf. on Communications*, pp. 390-394, Vouliagmeni Beach, Athens, Greece, July 2006.
76. P. Ragothaman, T. Yang, W. B. Mikhael, R. Muise, A. Mahalanobis, "A Novel Adaptive Eigendecomposition Technique with Application to Automatic Target Recognition", *Proceedings of the 10th WSEAS International Conference On Computers*, Vouliagmeni Beach, Athens, Greece, July 2006, pp. 430-434.
77. Moataz M. Abdelwahab, Manal M. Abdelwahab, and Wasfy B. Mikhael, "Intelligent Signal Processing Applied to Recognition and Classification of One and

Multidimensional Signals,” 10th *WSEAS International Conference on Circuits*, pp. 292-296, Vouliagmeni Beach, Athens, Greece, July 10-12, 2006.

78. Y. Liu, and W. B. Mikhael, “A Maximum Likelihood Carrier Frequency Offset Correction Approach for OFDM Systems over Multipath Fading Channels,” in *Proceeding of The 10th World Multi-Conference on Systemics, Cybernetics and Informatics*, Orlando, FL, USA, July 2006, pp. 1461-1464.
79. R. Ranganathan and W.B Mikhael, “Mismatch Cancellation for Low-IF Wireless QAM Receivers using an Optimum Block Adaptive ICA Algorithm with Individual Adaptation”, 12th International Conference on Information Systems Analysis and Synthesis, (ISAS), Vol.5, pp. 121-124, Orlando, Florida, USA, July 16-19, 2006.
80. Moataz M. Abdelwahab, and Wasfy B. Mikhael, “A Novel Facial Recognition Technique Employing Karhunen-Loeve Transform,” The 12th International Conference on Information Systems Analysis and Synthesis: ISAS 2006, pp.217-220, Orlando, Florida, USA, July 16-19, 2006.
81. Moataz M. Abdelwahab, and Wasfy B. Mikhael, “A New Fast Facial Recognition Algorithm Applicable to Large Databases,” The 4th International IEEE North-East Workshop on Circuits and Systems (NEWCAS 2006), pp 193-196, Gatineau, Canada, June 18-21, 2006.
82. P. Ragothaman, W. B. Mikhael, R. Muise, A. Mahalanobis, T. Yang, "Adaptive Determination of Eigenvalues and Eigenvectors from Perturbed Autocorrelation Matrices for Automatic Target Recognition", SPIE Defense and Security Symposium - Automatic Target Recognition XVI (OR53), Orlando, Florida, Proceedings of SPIE, Vol. 6234, 62340F, May 2006.
83. G. Hall, and W.B. Mikhael, "Optical Profilometers Using Adaptive Signal Processing", NASA Tech Briefs, page #15a, May 2006.
84. T. Yang, W. B. Mikhael, "Interference Suppression in Diversity Wireless Receivers via ICA with Individual Adaptation", Invited Paper, Proc. of The 6th WSEAS Int. Conf. on Multimedia Systems and Signal Processing (MUSP '06), pp. 146-150, Hangzhou, China, April 2006.
85. T. Yang, W. Mikhael, "Online Gradient ICA with Individualized Learning Rates for Dynamic Environments with Communications Application", WSEAS Trans. on Circuits and Systems, Issue 4, Vol. 5, pp. 442-448, April 2006.
86. W. Mikhael, T. Yang, "A Gradient-based Optimum Block Adaptation ICA Technique for Interference Suppression in Highly Dynamic Communication Channels", EURASIP Journal on Applied Signal Processing, Special Issue on Reliable Communications over Rapidly Time-Varying Channels, Vol. 2006, Article ID 84057, pp. 1-10, DOI 10.1155/ASP/2006/84057, 2006.

87. T. Yang, W. Mikhael, "Practical Technique for Joint Image Rejection and Carrier Frequency Offset Compensation for Diversity Wireless Receivers", IEE Electronics Letters, Vol. 42, No. 5, March 2006, pp. 310-312.
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336. W. B. Mikhael and B. B. Bhattacharyya, "A Novel Approach to the Design of RC Active Filters", IEEE Conference and Exposition, Toronto, Canada, pp. 94-95, October 1975.
337. W. B. Mikhael, M. N. S. Swamy and B. B. Bhattacharyya, "A Multipurpose Low-Sensitivity Active RC Filters", MWSCAS, pp. 581-584, August 1975.
338. W. B. Mikhael and B. B. Bhattacharyya, "A Practical Design of Insensitive RC-Active Filters", IEEE Trans. CAS, vol. CAS-22, pp. 407-415, May 1975.
339. W. B. Mikhael, A. Sand and L. K. Keys "A New High Performance Hybrid Filter for PCM Communication Systems", Electronic Components Conference, Washington, pp. 1-8, May 1975.
340. W. B. Mikhael and L. K. Keys, "Economical Line Filtering for Business Communications Systems," IEEE Journal of Solid State Circuits, Vol. SC-9, No. 4, pp. 196-199, Aug. 1974.
341. W. B. Mikhael and L. K. Keys, "Standardizable Low-pass Voice-Band Hybrid Circuit Filters for Pulse Code Modulation Communication Systems", IEEE Journal SSC, Special Issue on Semiconductor Materials and Processing Technology, Vol. SC-10, No. 4, pp. 229-237, August 1975.
342. W. B. Mikhael and L. K. Keys, "Economical Low Sensitivity and Functionally Tunable Active Low-Pass Filters", IEE European Conference on Circuit Theory & Design, London, pp. 217-222, July 1974
343. W. B. Mikhael and B. B. Bhattacharyya, "A Practical Design for Insensitive RC-Active Filters", IEEE ISCAS, San Francisco, CA, pp. 205-209, April 1974.
344. B. Bhattacharyya, W. B. Mikhael and A. Antoniou, "Design of TC-Active Networks Using Generalized-Immittance Converters", Journal of Franklin Institute, Vol. 2979, No. 1, pp. 45-58, Jan 1974.
345. W. B. Mikhael and B. B. Bhattacharyya, "A Practical Design for Insensitive RC-Active Filters", IEEE Conference, Toronto, Canada, pp. 152-153, October 1973.
346. B. Bhattacharyya, W. B. Mikhael and A. Antoniou, "Design of RC Active Networks by Using Generalized Immitance Converters", IEEE International Symposium on Circuits Theory, Toronto, Canada, pp. 290-293, April 1973.
347. W. B. Mikhael and B. B. Bhattacharyya, "A Simple Active Realization of Non-Minimum Phase Transfer Function", Alta Frequenza, Vol. XLI, No. 8, pp. 626-631, Aug. 1972.
348. W. B. Mikhael and B. B. Bhattacharyya, "Stability Properties of Some RC-Active Realizations", Electronic Letters, Vol. 8, No. 11, pp. 288-289, June 1972.

349. W. B. Mikhael and B. B. Bhattacharyya, "New Minimal Capacitor Low Sensitivity RC-Active Synthesis Procedure", *Electronics Letters*, Vol. 7, No. 23, pp. 694-696, Nov. 1971.

Textbooks, Monographs

W. B. Mikhael, Chapter on: "The Current Generalized Immittance Converter (CGIC) Biquads", *Passive, Active, and Digital Filters Volume*, ISBN: 978-1-4200-5885-7, Catalog No. 58851, The CRC Circuits and Filters Handbook, Third Edition, April, 2009.

W. B. Mikhael, Chapter on: "The Current Generalized Immittance Converter (CGIC) Biquads", *The Circuits and Filters Handbook*, CRC Press, ISBN 0-8493-0912-3, Jan., 2003, pp.2495-2514.

Chapter 9: Biquad II - The Current Generalized Immittance (CGIC) Structure, *RC-Active Filter Design Handbook*, pp. 229-246, John Wiley, 1985.

Chapter 15.4: The CGIC Biquad (Introduction, Structure Realization, Stability, Design and Tuning Procedure, Design Examples, High Order Design, Universal Biquad, Summary), *The Circuits and Filters Handbook*, CRC Press, Publication date February 1, 1995

Patents and Major Applied Contributions

1. Wasfy Mikhael and Raghuram Ranganathan, "Adaptive Methods Employing Optimal Convergence Factors for Processing Complex Signals and Systems," United States Patent issue No: US 8, 144, 759 B2, March 27, 2012
2. Wasfy Mikhael, Raghuram Ranganathan, Nasser Kutkut, and Issa Batarseh "Novel Adaptive Sun Tracking system for Incident Energy Maximization and Efficiency Improvement of PV panels," Docket No: UCF – 31038(7292), Application No: 12/150, 995, Feb 14, 2012
3. Matt Hunter and Wasfy. B. Mikhael, "AWG Having Arbitrary Factor Interpolator and Fixed Frequency DAC Sampling Clock," Patent issue No: US 7,952,396 B1, Issued: May 31, 2011
4. Wasfy B. Mikhael and Moataz Abdelwahab, "Recognition and Classification Based on Principal Component Analysis in the Transform Domain", Issue date: 05/25/10, US Patent Number: 7724960.
5. Wasfy B. Mikhael, and Venkatesh Krishnan, "Energy Based Split Vector Quantization Employing Multiple Transform Domain Representation of one and multidimensional Signals", United States Patent No: US 7,310,598 B1, December 18, 2007.
6. Wasfy B. Mikhael, Pradeep Ragothaman, Robert R. Muise, Abhijit Mahalanobis, "Transform Domain System for Automatic Target Recognition," Invention Disclosure, UCF, October 2006.

7. W. B. Mikhael, M. Abdelwahab and V. Krishnan, "A Self-designing intelligent signal processing system capable of evolutionary learning for classification / recognition of one and multidimensional signals," US Patent # 07016885, March, 2006.
8. G. Hall, R. Youngquist, and W. Mikhael, "Optical Coherence Function Discrimination using Adaptive Signal Processing", Disclosure of Invention and New Technology, NASA, Sept. 19, 2003.
9. Wasfy Mikhael, and Murad Qahwash, "Implementation of MIL-STD-188_110A HF Single Tone Modem Employing Adaptive Equalization Techniques", Patent Disclosure, UCF, Nov. 21, 2002
10. Wasfy B. Mikhael, and Felix Soto Toro, "An Electronic Calibrating System to Increase Measurements accuracy During Aerospace Payload Transfer Operations", Patent Disclosure (UCF with NASA, Dec 2000).
11. Transform-Based Encryption and Steganographic Method, W. B. Mikhael, Dennis W. Davis and Jaime R. Roman, Joint Inventors Disclosure Document for US Patent and Trademark Office Submitted Dec. 17, 1998.
12. Two operational-amplifier design of RC-Active filter biquads using generalized immittance converters - 1970-1973, published from his Ph. D Thesis, Concordia University. It was first reported by us in the IEEE International Symposium on Circuit Theory, Toronto, April 1973. Also, a chapter , for practicing engineers and scientists , has been published on the subject "Biquad II - The current generalized immittance (CGIC) structure", written by W. B. Mikhael in the book RC Active Filter Design Handbook, edited by F. W. Stephenson, John Wiley, 1985. In a comparative study, this two operational-amplifier biquad is referred to as the best design in one of the most recognized textbooks in filters (page 551, Filter Theory and Design, A. S. Sedra and P. Brackett, Matrix series, 1978). Similar excellent conclusions, about this biquad and our three amplifier biquad, were reported by other authors in another exhaustive study (IEEE Trans. CAS, pp. 215-218, April 1977).
13. A practical design of insensitive RC-active filters (Concordia university). This three operational amplifier biquad, extracted from his Ph. D. work was published in the IEEE Trans. CAS, May 1975. Also, it was selected as a benchmark paper by Dr. L. P. Huelsman for his book, "Benchmark Papers in Active RC-filters; Lumped and Distributed", published by Dowden, Hutchinson and Ross, 1977. This biquad was discussed by Dr. M. S. Ghausi in his survey article on Analog Filters in the IEEE Trans. on Circuits and Systems Centennial Issue, January 1984. Also, the same biquad was thoroughly examined, among others, and cited for its excellent performance in the book, "Modern Filter Design", by M. S. Ghausi and K. R. Laker, Prentice Hall, 1981.
14. Standardizable Low-pass Voice-band Hybrid Circuit filters for Pulse Code Modulation Communication Systems - published by the IEEE Trans., SSC, 1974. This pioneering work at Bell Northern Research in functional trimming and manufacturing of active filters using different technologies was cited by the IEEE Spectrum Special Issue on Technology Review, January 1976. Also, during the course of this work at Bell Northern Research, a high precision, wide band, versatile and relatively inexpensive

computer-controlled system for automatic measurement and trimming of microelectronic circuits that employs self-calibration was developed in cooperation with the Hewlett Packard (HP) scientists and engineers. The successfully custom-developed system, HP3042-option H24, the first of its kind enabled the industry in general and Northern Telecom in particular to test PCM filters, as well as many other products since then. The resulting system specs are: + 0.1dB from 50 HZ to 13 MHz over a dynamic range of 40 dB. All previously existing systems were not suitable due to cost, accuracy or incompatibility in interfacing with computer controlled laser trimmers. Both Northern Telecom and Bell Northern Research use several of these system in their R&D and laser trimming facilities.

15. Functionally Tunable Active Low-Pass Filter, U.S. Patent 3,891,938, June 24, 1975 (modification of Sallen and Key Biquad to become functionally tunable).
16. Passive Sequence Discriminators (SD) (Symmetrical Polyphase Networks) and Their Use in Frequency Division Multiplex (FDM) Communication Systems, (Bell Northern Research) U. S. Patent No. 4,123,712, Oct 31, 1978. First economically successful system, implemented using standard thick film technology and switched modulators, that meets the CCITT specifications for both inband and out of band signaling. Bell Northern granted him an award for his work.
17. Apparatus for Coupling a Two-Way Transmission Path to a One-Way Transmitting Path and a One-Way Receiving Path, with W.F. McGee(Bell Northern Research). Canadian Patent No. 1, 124,355, May 25, 1982 and U.S. Patent No.4, 326,109, April 20, 1982.
18. Switched Capacitor Oscillators and Their Application to FM Compression, FSK and MF Generation, first published in the IEEE Int. Symposium on CAS, April 1981 (West Virginia University) - Implemented in several MOS Integrated circuits including Harris Semiconductor, Florida (Heart pacemaker and 2400 Baud Modem). This contribution is published in the book: Analog MOS Integrated Circuits for Signal Processing by R. Gregorian and Gabor Temes, John Wiley, pp. 445-461, 1986.
19. High order IIR and real-time adaptive acoustic noise-canceller for speech optimum homogeneous algorithm (normalized step size) (West Virginia University). Prototype delivered to the Naval Research Lab., Washington, DC in Nov. 1984. An independent evaluation in real-time with real life signals were conducted which verified the excellent performance of the system (better than 10 dB improvement in signal to noise ratio). The Navy branch head sent us a letter commending our efforts.
20. Extended-Bandwidth Composite Amplifiers for Small Signal as well as High-Speed and High Accuracy Applications, West Virginia University. This is a basic contribution that drastically improves the performance of all practical linear active networks, using real amplifiers (i. e. non ideal), such as finite gain amplifiers, instrumentation amplifiers, integrators and all types of filters. We first reported this technique in two papers presented and published in the Midwest Symposium on Circuits and Systems, Albuquerque, New Mexico, June 1981, Researchers who applied the proposed composite amplifiers verified the outstanding improvements claimed by us in both linear and nonlinear applications [e.g. W. F. Stephenson, IEEE Trans. CAS, April 1984; R.

Schaumann, IEEE Trans. CAS, November 1973; and M. Ismail, Midwest Symposium, June 1984.

Awards

1. Teaching Incentive Award (TIP), COECS, UCF, (TIP), April, 2011
2. Vartak A., Fidopiastis C., Nicholson D., Mikhael W., "Estimation of arousal using decomposed skin conductance features," *46th International Bioengineering Conference Proceedings*, 17-18 April 2009, Milwaukee, WI. Best paper award, 2nd place.
3. Matthew T. Hunter, Wasfy B. Mikhael, and Tim J. Tocco, "Arbitrary Waveform Generators for synthetic instrumentation," *AUTOTESTCON, 2008 IEEE*, vol., no., pp.138-143, 8-11 Sept. 2008. Best Paper Award
4. IEEE Circuits and Systems Society Award to: Wasfy B. Mikhael for outstanding services and contributions towards the advancement of the electrical engineering profession and the study of circuits and systems. Presented at the IEEE MWSCAS Int. Symposium, 50th Anniversary, August 2007, Montreal, Canada.
5. Moataz M. Abdelwahab, and Wasfy B. Mikhael, "Recognition of Noisy Facial Images Employing Transform –Domain Two-Dimensional Principal Component Analysis," The 49th IEEE International MWSCAS, San Juan, Puerto Rico, August 6-9, 2006. (2nd Best Student paper award (302 papers)).
6. School of EECS & COECS Excellence in Graduate Teaching Award, Spring 2006.
7. Teaching Incentive Award (TIP), COE, UCF, Received April 2006.
8. N. Nathani, and Wasfy B. Mikhael, "Performance Evaluation of Fixed Point Least Mean Square Adaptive Algorithm used for Cancellation of I/Q Mismatch in Direct Conversion Wireless Receivers," 9th World Multiconference on Systemics, Cybernetics and Informatics (WMSCI 2005), July 10-13, 2005, Best Paper in Communication, Networking, and Interconnection Techniques.
9. Wasfy B. Mikhael, and T. Yang, "A Simplified Single BPSK Receiver Structure Employing A Novel Digital Rejection Technique," The 30th IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Philadelphia, PA, USA, Vol.5, pp. 433-436, March 19-23, 2005 (Rated Top Paper).
10. Research Incentive Award, COE, UCF (RIA), Received April 2005.
11. Top Ten Best Papers Award, 46th IEEE International Midwest Symposium on Circuits and Systems, Dec 27-30, 2004, Nile Hilton, Cairo, Egypt among the 500 papers that competed for the award in a pool of 1000 papers that were submitted.
12. IEEE Circuits and Systems Society, Certificate of Sincere Appreciation, Jan. 2003, for serving as Vice President, North America, IEEE CAS Exec. Comm., 2001 & 2002

13. 2002 IEEE International Symposium on Circuits and Systems, Recognition of significant contribution to the 2002 IEEE Inter. Symposium on Circuits and Systems.
14. IEEE Circuits and Systems Society, Certificate of Sincere Appreciation for services rendered as Chair, 1999 IEEE Inter. Symposium on Circuits and System.
15. Teaching Incentive Award (TIP), College of Engineering, UCF, Feb 2001, effective Aug. 2000.
16. Thesis Advisor of Mr. William Mc Dowell who received UCF best honor in the Major Thesis Award (Fall 2000, Award Spring 2001).
17. University of Central Florida Professional Excellence Award (PEP), March 1999.
18. Best paper award, 37th Midwest Symposium on Circuits and Systems. Honored during a conference in Rio De Janeiro, August 1995.
19. Teaching Incentive Award (TIP), Electrical and Computer Engineering, University of Central Florida, 1994.
20. Fellow, The Institute of Electrical & Electronics Engineers (IEEE is an international organization with membership of nearly half a million electrical engineers), the highest honor bestowed by IEEE on a very small number of its members, in recognition of contributions to the development of hybrid and integrated filtering circuits and systems, 1987.
21. IEEE Florida Council 1992 Outstanding Engineering Educator Award in recognition and appreciation for accomplishments that have enhanced the profession. Received February 1993.
22. First recipient of the University of Central Florida 1992-1993 Award for Excellence in Graduate Teaching.
23. First recipient in the College of Engineering of the University of Central Florida 1992-93 Award for Distinguished Undergraduate Teacher for Outstanding Achievements.
24. IEEE 1992 Outstanding Engineering Educator Award, IEEE Orlando Section (over 1300 members).
25. ECE Dept., University of Central Florida (UCF), 1992 Senior Research Award.
26. EE Dept., UCF, 1991-1992, Outstanding Teacher Award.
27. Award by Bell Northern Research in recognition of outstanding patent contribution to the company and technological advancement, Symmetric polyphase network, U.S. patent 4, 123, 712, October 1978. The Company has several thousand scientists internationally known in all fields of communication systems

28. College of Engineering, West Virginia University - 1982, 1983, 1984, 1986, 1987, and 1988 Outstanding Researcher Awards.
29. College of Engineering, West Virginia University, 1984 Halliburton best researcher award (\$1,200)
30. Eighty funded proposals (see section on Funding for details).

Graduate Theses Supervised

<u>Student's Name</u>	<u>Degree</u>	<u>Thesis Title</u>	<u>Completion Date</u>
Raghuram Ranganathan	Pos.Doc	DSP in Comm & Energy	Post Doc. To Fall 2011
Ying Liu	Ph.D	Adaptive DSP in Comm.	In Progress-Passed Candidacy Expected Completion Sum'12
Waleed Alrasheed	Ph.D	Image Recognition	In Progress-Passed Candidacy
Ramy Chehata	Ph.D	DSP for image recog	In Progress-Passed Qualifying
William Walters	Ph.D	DSP	In Progress
William McDowell	Ph.D	Adaptive DSP	In Progress-Passed Qualifying 4/19/2012
Charna Parkey	Ph.D	Interleaved A/D converters	In Progress-Passed Qualifying 4/19/2012
Genevieve Sapijaszko	Ph.D	Speaker Recognition	In Progress –Research Started Sp. 2012
Joshua Thaxter Dickey	Ph.D	Adaptive DSP in Geoscience App	In Progress. Research started Sp.2012
Douglas Cooper	MSc	ICA-DSP Appl	In Progress-Started Sp.2012
Aniket A. Vartak	Ph.D	Biosignal Processing Challenges in Emotion Recognition for Adaptive Learning	Fall 2010
Wisam Munier	Ph.D(Co-Advisor with Dr. Batarseh)	Adaptive Efficiency Optimization for Digital Controlled Power Converters	Summer 2009
Raghuram Ranganathan	Ph.D	Adaptive Signal Processing for Wireless Communications	Fall 2008
Matthew Hunter	Ph.D	Polynomial Based Filters for Synthetic Instrumentation	Summer 2008
Moataz Abdelwahab	Ph.D	Signal Fusion/Facial Recognition	Fall 2007
Pradeep Ragothaman	Ph.D	Efficient Algorithms for Correlation Pattern Recognition	Fall 2007
Gustavo Alverio	M.Sc	Personalized Text to Speech	Spring 2007
Yuan Liu	Ph.D	Blind Source Separation	Fall 2005
Guangyu Zhou	Ph.D	Speaker Identification	Fall 2005
Tianyu Yang	Ph.D	5.8 GHz Wireless Receiver	Fall 2004

Manal Abdelwahab	PhD	Pattern Recognition	Spring 2004
M. Basta	MSc	Speech Signal Processing	Spring 2003
Ivica Kostanic	Ph.D.	Interference Rejection using (ICA) for Wireless Comm.	Spring 2003
Pradeep Ragothaman	MSc	DSP/Image Compression	Summer 2003
Ashwin Gonibeed	MSc	DSP for wireless Heterodyne Receiver	Fall 2002
Murad Qahwash	PhD	Equalization and Fading	Fall 2002
Nikunj Nathani	MSc	Adaptive DSP for Wireless	Fall 2002
Pravinkumar Premakanthan	MSc	Speaker Recognition	Fall 2002
Deepesh J. Bhaya	MSc	Image Compression	Fall 2002
Venkatesh Krishnan	MSc	Speech Coding	Aug, 2001
Dejan Lekaroski	MSc	Prop Modeling	Summer 2000
B. Goode	M.Sc	RF Propagation	Spring 2000
Felix A. Soto Toro	Ph.D.	NASA Advanced Payload Transfer Measurement	Dec, 2000
Anwar Sadat	MSc	FFT Clockless implementation	Nov,2001
Ramy Chehata	M.Sc	Efficient Adaptive DSP Algorithm for Wireless receivers.	Spring 2001
Isis Mikhael	M.Sc	DSP for I/Q Mismatch Corrections	Fall 2000
T. Costello	Ph.D.	Optical System Modeling with App.	Aug, 2001
Q. Zhang	Post Doc.	Two-Dimensional Frequency-Domain Proc. of Radar Signals	1996-1999
M. Golner	M.S.	Image Compression Using Subject Dependent Resolution	1998
J. Diaz	M.S.	Digital signal processing enhancement for hearing aids	1997
J. A. Torra	M.S.	Design and Implementation of a ROM-	1996

Emulator

S. Guirguis	M.S.	A Linear Prediction Based Technique for Automatic Detection of Bubbles in Ultrasonic Doppler Signals	1996
A. Aberg	Ph.D.	Efficient signal representation using nonorthogonal basis functions with applications to speech and images	1996
Y. Nijim	Ph.D.	Lossless Compression of one and multidimensional signals	1995
M. F. Barsoum	M.S.	Developing Digital Signal Processing Techniques for the Automated Detection and Characterization of Doppler Bubbles in Man	1994
T. R. Burns	Honors in the Major Thesis	Acquisition and Analysis of Human Brainwaves	1994
H. Yu	Ph.D.	Multidimensional Transform Domain System Modeling and Signal Representation with Applications	1995
A. Ramaswamy	Ph.D.	Multidimensional Signal Compression Using Wavelets and Mixed Transforms	1994
S. M. Gosh	Ph.D.	Optimal Multidimensional Adaptive Signal Processing Algorithms with Applications	1994
C. K. Han	Ph.D.	Geophysical Tomographic Imaging Techniques and Their Applications	1989
A. S. Spanias	Ph.D.	Representation of Non-Stationary Signals with Applications to Speech	1988
P. Hill Ph.D.	Ph.D	Multiple Reference Adaptive Noise Cancellation	1987
F. H. Wu	Ph.D.	Time-Varying Gradient Algorithms for	1987

Block Implementation
of Adaptive Digital
Filters

M. B. Gawargy	Ph.D.	Novel Design Approaches for High-Selectivity High-Frequency Filtering	1986
S. Tu	Ph.D.	Switched Capacitor Sampled-Data Networks with Communication Applications	1983
S. Nessim	Ph.D.	Composite Operational Amplifiers and Their Applications In Active Networks	1983
F. Yassa	Ph.D.	Stable High-Order Adaptive Recursive-Filters Algorithms and Applications	1983
E. Daoud	Ph.D.	Active Networks for Genera- tion and Detection of Single Sideband	1979
A. Ramaswamy	M.S.	Mixed Transforms for Speech Signal Representation and Data Compression	1992
S. M. Ghosh	M.S.	Classification of the Most Commonly Used Adaptive Algorithms and their Extension to Multidimensional Variable Step Size Sequential Adaptive Algorithms	1990
J. V. Carstensen	M.S.E.E	Digital In-Phase and Quadrature Detection Techniques	1990
P. Hill	M.S.	Real-Time Real-Life Adaptive Noise Cancellation using the Homogeneous Adaptive Algorithm	1985
A. S. Spanias	M.S.	A Two-Stage Approach to ARMA Prediction	1985
F. Wu	M.S.	Optimum Adaptive Algorithms	1984

and Applications for Noise
Cancellation

Hamadani	M.S	New High Frequency Filters	1984
S. Chincheck	M.S.	Digitally Programmable Analog Filters	1983
T. J. Afullo	M.S.	Simulation of Adaptive Equalizers and Noise Cancellers	1983

COURSES TAUGHT AT WVU

Student Evaluation Fall 1978-1979

3.8/5	EE 125 Signals & Systems; EE 125 Lab
4.8/5	EE 366 Information Theory
4.6/5	EE 125 Signals & Systems
4.5/5	EE 364 Communication Theory
	EE 280 Digital Signal Processing
4.7/5	EE 380 Digital Signal Processing

Summer 1979

4.58/5	EE 20 Intro. to Electrical Engineering EE 152 Electronics I
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Fall 1979-1980

4.82/5	EE 125 Signals & Systems
4.57/5	EE 325 Modern Network Analysis
4.83/5	EE 380 Active Filters
	Spring 1979-1980
4.54/5	EE 125 Signals & Systems
4.6/5	EE 280 Digital Signal Processing
4.83/5	EE 380 Digital Signal Processing
4.8/5	EE 280 Phase-Locked Loop Techniques

Fall 1980-1981

4.5/5	EE 126 Communication Systems I
4.72/5	EE 23 Electrical Circuits
4.9/5	EE 325 Modern Network Analysis

Spring 1981-1982

4.73/5	EE 23 Electrical Circuits
4.92/5	EE 280/380 Digital Signal Processing
	EE 496 Graduate Seminar

Fall 1981-1982

5/5	EE 325 Modern Network Analysis
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EE 496 Graduate Seminar

Spring 1981-1982

4.89/5 EE 23 Electrical Circuits
4.60/5 EE 280/380 Digital Signal Processing

Fall 1982-1983

4.85/5 EE 24 Electrical Circuits
4.88/5 EE 268 Digital Signal Processing

Fall 1983-1984

4.6/5 EE 325 Modern Network Analysis
5/5 EE 380A Digital Signal Processing Applications

Spring 1983-1984

4.6/5 EE 24 Electrical Circuits
4.92/5 EE 268 Digital Signal Processing

Fall 1984-1985

4.65/5 EE 126 Communication Systems I

Spring 1984-1985

4.78/5 EE 21 Intro. to Electrical Engineering
4.85/5 EE 268 Digital Signal Processing

Fall 1985-1986

4.5/5 EE 126 Communication Systems I
5/5 EE 380 Multidimensional DSP

Spring 1985-1986

4.75/5 EE 268 Digital Signal Processing

Fall 1986-1987

4.75/5 EE 264 Communication Systems II

Spring 1986-87

4.6/5 EE 126 Communication Systems I
4.7/5 EE 268 Digital Signal Processing

Fall 1987-88

4.8/5 EE 264 Communication Systems I

Spring 1987-1988

4.3/5 EE 126 Communication Systems I
4.74/5 EE 268 Digital Signal Processing

Fall 1988-89

4.8/5 EE 264 Communication Systems II
5/5 EE 380 Applications of DSP

Spring 1988-89

4.5/5	EE 126 Communication Systems I
4.72/5	EE 268 DSP-Senior Elective
4.8/5	EE 380 Advanced DSP

- Note:**
- 100 level and lower courses are undergraduate courses
 - 200 level courses are senior elective courses
 - 300 level and above courses are graduate courses
 - Detailed student written comments, which are conducted confidentially are available for all the above courses

COURSES AND LABORATORIES DEVELOPED OR SIGNIFICANTLY REVISED

New Courses Developed

EE 268 Digital Signal Processing Fundamentals
EE 380 Active Filters
EE 380A Digital Signal Processing Applications
EE 380 Multidimensional Digital Signal Processing

Courses Significantly Revised

EE 280 Phase-Locked Loop Techniques
EE 325 Modern Network Analysis

Class Notes Prepared

EE 280 Phase-Locked Loop Techniques
EE 325 Modern Network Analysis
EE 380 Active Filters
EE 380 Parametric Signal Modeling (Part of Multidimensional DSP Course)

Laboratories

We have developed a graduate, as well as research, digital Signal Processing Laboratory in the Electrical Engineering Department at West Virginia University. This has been accomplished as a result of two National Science Foundation Equipment grants, WVU Equipment grants, and Industrial grants (IBM, Texas Instruments & Harris Communications).

COURSES TAUGHT AT UCF

Semester	Course	Enrollment	Lecture	Laboratory
Fall 89	EEL 3140L/001	40 students		Day lab 3hrs./wk
Fall 89	EEL 140L/0012	26 students		Day lab 3hrs./wk
Fall 89	EEL3140C/0001	66 students	3 hrs.	
Fall 89	EEL 3552C/0002	38 students	3 hrs.	
Sp. 90	EEL 3552L	38 students		Day lab 3hrs./wk
Fall 90	EEL4750	40 students	3 hrs.	
Sp. 91	EEL 5513	22 students	3 hrs.	

Su. 91	EEL 6558	10 students	3 hrs.	
Fall 91	EEL 4750	38 students	3 hrs.	
Fall 91	EEL 6502	14 students	3 hrs.	
Sp. 92	EEL 3552	40 students	3 hrs.	1 hr.
Sp. 92	EEL 5513	35 students	3 hrs.	
Fall 92	EEL6502	20 students	3 hrs.	
Fall 92	EEL 3140	45 students	3 hrs.	1 hr.
Sp. 93	EEL 4750	50 students	3 hrs.	
Sp. 93	EEL 6505	18 students	3 hrs.	
Fall 93	EEL 3140	20 students	3 hrs.	1 hr.
Fall 93	EEL 6502	25 students	3 hrs.	
Sp. 94	EEL 4750	47 students	3 hrs.	
Sp. 94	EEL 5513	29 students	3 hrs.	
Su. 94	EEL 5513	22 students	3 hrs.	
Fall 95	EEL 3140	7 students	3 hrs.	1 hr.
Sp. 95	EEL 4750	45 students	3 hrs.	
Fall 95	EEL 3140	11 students	3 hrs.	1 hr.
Sp. 96	EEL 4750	58 students	3 hrs.	
Fall 96	EEL 3140	20 students	3 hrs.	
Fall 96	EEL 3140	10 students		3 hrs.
Sp. 97	EEL 4750	60 students	3 hrs.	
Fall 97	EEL 4140	12 students	3 hrs.	
Sp. 98	EEL 4750	63 students	3 hrs.	
Fall 98	EEL 4140	28 students	3 hrs	3 hrs.
Sp. 99	EEL 4750	55 students	3 hrs.	
Fall 99	EEL 4140	22 students	3 hrs	3 hrs
Fall 99	EEL 6502	5 students	3 hrs	
Sp. 00	EEL 4750	50 students	3 hrs	
Sp. 00	EEL 5513	26 students	3 hrs	
Sp. 01	EEL 4750	43 students	3 hrs	
Sp. 01	EEL 5513	21 students	3 hrs	
Fall 01	EEL 4140	22 students	3 hrs	
Fall 01	EEL 4750	46 students	3 hrs	
Sp. 02	EEL 5513	24 students	3 hrs	
Sp. 02	EEL 6502	18 students	3 hrs	
Fall 02	EEL 4140	31 students	4 hrs	
Fall 02	EEL 4750	50 students	3 hrs	
Sp. 03	EEL 5513	32 students	3 hrs	
Sp. 03	EEL 6502	27 students	3 hrs	
Fall 03	EEL 4140	11 students	3 hrs	
Fall 03	EEL 4750	50 students	3 hrs	
Sp. 04	EEL 5513	36 students	3 hrs	
Sp. 04	EEL 6502	15 students	3 hrs	
Fall 04	EEL 4140	20 students	3 hrs	3 hrs
Fall 04	EEL 4750	49 students	3 hrs	
Sp. 05	EEL 5513	30 students	3 hrs	
Sp. 05	EEL 6502	8 students	3 hrs	
Fall 05	EEL 4140	20 students	3 hrs	3 hrs
Fall 05	EEL 4750	48 students	3 hrs	

Sp. 06	EEL 5513	16 students	3 hrs	
Sp. 06	EEL 6502	9 students	3 hrs	
Fall 06	EEL 4140	24 students	3 hrs	3 hrs
Fall 06	EEL 4750	45 students	3 hrs	
Sp. 07	EEL 5513	24 students	3 hrs	
Fall 07	EEL 4140	20 students	4 hrs	
Fall 07	EEL 5370	5 students	3 hrs	
Fall 07	EEL 4750	56 students	3 hrs	
Sp. 08	EEL 5513	30 students	3 hrs	
Sp. 08	EEL 6502	14 students	3 hrs	
Fall 08	EEL 4140	25 students	3 hrs	
Fall 08	EEL 4750	30 students	3 hrs	
Sp. 09	EEL 5513	28 students	3 hrs	
Fall 09	EEL 4140	25students	4 hrs	
Fall 09	EEL 4750	37students	3 hrs	
Sp. 10	EEL 4750	65 students	3 hrs	
Fall 2010	EEL 4140	42 students	3hrs	3hrs lab
Fall 2010	EEL 4750	45 students	3hrs	
Sp 2011	EEL 5513	20 students	3hrs	
Sp 2011	EEL 4750	72 students	3hrs	
Fall 2011	EEL4140	43 Students	3hrs	3hrs lab
Fall 2011	EEL4750	68 Students	3hrs	
Spring 2012	EEL5513	29 Students	3hrs	
Spring 2012	EEL6502	15 Students	3hrs	

*Independent study, Thesis and Dissertation are not listed.

New Course Preparations:

EEL 3140C - Analog Filter Design - Taught the revised course for the first time at UCF - Introduced two modern active filters chapters: Generalized immittance converter biquads and broadbanding techniques. These are some of our contributions in the active and analog signal processing field. Several labs and computer experiments corresponding to these modern topics were also introduced.

EEL 4750 - Fundamentals of DSP - Taught for the first time at UCF as a senior elective course in our newly developed sequence in digital signal processing. Revisions were made to teach the course at the senior level rather than the graduate level, which prepares our graduating EE's in this important area. Introduced DSP MATLAB Software. Course is required as of Fall 1994.

EEL 5513 - DSP Applications - Taught for the first time at UCF using the newly developed syllabus. Sixty percent of the material is unique and developed by the instructor in the following areas: 1) A unifying approach for signal and system analysis using FFT 2) DSP system analysis and design including quantization etc. 3) Application of DSP in adaptive signal processing using our own contributions. Introduced DSP MATLAB Software

EEL 6558 - Advanced Topics in DSP - Developed and taught for the first time at UCF implementing new DSP curriculum. State of the art topics were introduced and material prepared.

EEL 6502 - Adaptive Digital Signal Processing - Developed and taught for the first time at UCF implementing our new DSP curriculum. The syllabus and material covered reflect the maturity of the field. Theory was covered and five real life-engineering projects were given to emphasize the main ideas of emerging technological applications in intelligent signal processing. Students developed their own software to implement the algorithms. A great deal of material from our own contributions was incorporated in the course.

EEL 6505 - Multidimensional Digital Signal Processing - New developed course in the DSP curriculum. Taught for the first time at UCF. MATLAB DSP software package was introduced in this course. Several of our contributions were incorporated in the course.

EEL 4140 – Revised Lab Manual, Fall 2005 (Major revision), On the Web.

Course/Curriculum Development:

Led Senior undergrad/graduate DSP new curriculum development - DSP fund. (4750), followed by DSP Applic. (5513) which feeds Adaptive DSP (6502), M/D DSP(6505) and/ or advanced topics in DSP (6558) such as DSP Learning Systems, Spectral Analysis and Speech Processing. Prepared course description, syllabi and texts for 4750, 5513, 6502 courses. Requested and obtained University approvals. Sequence started Fall, 1990. Led the development of MS and MSEE typical plans of study for both thesis and non-thesis option in the DSP area. Started the implementation in the Fall of 1990, of the DSP sequence (EEL 4750 followed by EEL 5513 and EEL 6558 (Advanced Topics in DSP).

Laboratory Development:

- Prepared specs of a NeXT Network System Hardware to be used for DSP education at the senior and grad levels. The system is capable of audio and image signal acquisition.
- AT&T DSP32 digital signal processing wp system has been specified and acquired
- The NeXT Network Server System is operational now. It has been networked to the main frame and is accessible from two additional terminals.
- Prepared specs of a SUN SPARC II station. Led hardware spec preparation for data acquisition of audio and image signals (SUN, PGAT).

Computer Development:

- Two software experiments introduced in EEL 3140C
- The two computer based systems above are used to implement and run software for analysis, design and general processing of digital signals and systems. The systems have very powerful software packages. In addition they enable us to run our own.
- Extensive use of computers in the new courses EEL 5513, EEL 6502 and EEL 6505. Computer lab assignments were developed to emphasize all the important analysis and design concepts. Students wrote their own software and verified their work using existing digital signal processing software such as PC-DSP and MATLAB DSP.

PUBLIC SERVICE

1. IEEE MWSCAS steering Committee membership chair.
2. Special Session Organizer on Adaptive DSP for wireless and comm., 54th, IEEE MWSCAS, Seoul, Korea, Aug 2011.
3. Jan 26-29, 2011, International Conference on Bio-inspired Systems and Signal Proc. International Program Committee, Rome Italy.
4. Reviewer (Journals US, Canada, UK,... and funding agencies) Elsevier, IET, IEEE ISCAS, Journal of Electronic Imaging, etc.
5. 8th International Conference on Informatics in Control, Automation, and Robotics ICINCO 2011, 28-31 July, 2011, NH, Hotel Leeuwenhorst, The Netherlands, International Program Comm.
6. Session Chair: "Application of Digital Signal Processing I, IEEE MWSCAS, Seoul, Korea, Aug 2011.
7. Session Chair: "Application of Digital Signal Processing II, IEEE MWSCAS, Seoul, Korea, Aug 2011.
8. Judge, Student Best Paper Award, IEEE MWSCAS, Seoul, Korea, Aug 2011.
9. "Recent Advances in Speaker Recognition" Special Session Co-organizer, The 55th IEEE International MWSCAS, Boise, Idaho, Aug 2012.
10. "Recent Advances on Digitally Enhanced Data Converters," Special Session Co-organizer, The 55th IEEE Intern. MWSCAS, Boise, Idaho, Aug 2012.
11. Technical Track Chair of "Digital Signal Processing, Communication, and Wireless Systems (31 papers)," The 55th IEEE Intern. MWSCAS, Boise Idaho, Aug 2012.
12. "DSP & Comm Application," Session Chair, The 55th IEEE MWSCAS, Boise, Idaho, Aug 2012.
13. EECS executive comm. 2011-2012
14. EECS search comm. (chair) 2011-2012
15. COECS Awards comm. 2011-2012
16. UCF Grad Fellowship comm. 2011-2012
17. ECE P&T rep to College 2011-2012
18. ECE rep to College TIP criteria comm. 2011-2012
19. College Planning & Budgeting comm. 2011-2012

20. IEEE MWSCAS steering Committee membership chair, 2010, 2011, 2012.
21. Image Processing and Multimedia Systems Track Co-chair, IEEE 53rd, MWSCAS, Seattle, WA, Aug 1-4, 2010 (Reviewed 27 papers)
22. Image Processing & Multimedia Systems I Session Chair, IEEE MWSCAS, Aug 1-4, Seattle, WA, 2010.
23. Presentation “Human Action Recognition”, Aug 3, IEEE 53rd, MWSCAS, Aug, 3, 2010.
24. Chaired IEEE MWSCAS Steering Comm meeting, Aug, 2, 2010, Seattle, WA, Soeal, Korea, Aug, 2011
25. Plenary Session Co-Organizer & Co-Moderator, IEEE 53rd, MWSCAS, Aug, 3, 2010.
26. 53rd, IEEE 53rd MWSCAS, Aug 2010, Advisory Comm
27. EECS executive comm. 2010/2011.
28. EECS search comm. 2010/2011.
29. UCF Grad Fellowship comm. 2010/2011.
30. COECS Awards Committee 2009/2011.
31. 52th IEEE International Midwest Symposium on Circuits and Systems, Advisory Committee, Cancun, Mexico, 2009.
32. EECS Graduate Committee 2009/2010
33. UCF Trustee and Presidential Fellowships Committee 2009/2010
34. External Ph.D Examiner, Electrical and Computer Engineering, Concordia University, Montreal, Canada, Sep. 15, 2008, “AR and ARMA System Identification.....”.
35. EECS Graduate Committee 2008/2009
36. COECS, TIP Criteria Committee 2008/2009, COECS Scholarship and Awards Committee 2007-2008 and 2008-2009. Also UCF Fellowship Committee, 2007-2008, and 2008-2009.
37. Reviewer for: IEE Journals, IEEE Journals, Book Publishers, funding agencies, international conferences, etc.
38. School of EECS committees: Integrated lab, Graduate, Search, P&T committees; College of Engg. & CS: Awards, TIP; UCF.
39. IEEE Midwest Symposium on Circuits and Systems (50th Anniversary), Steering Committee, Montreal, Canada, 2007.

40. Invited to Co-chair WSEAS Congress, 2007.
41. IEEE International Symp. on Circuits and Systems (ISCAS) 2007 Organizing Committee.
42. QoLT ERC Team Member(Partner), CMU, Pittsburgh, PA, 2006 - Present.
43. Image Processing and Multimedia Systems Technical Track Chair, IEEE MWSCAS, Puerto Rico, Aug. 6-9, 2006.
44. Judge for the Student Papers Contest, IEEE MWSCAS, Cincinnati, Ohio, Aug. 7-10, 2005.
45. Keynote Speaker, 2006 IEEE Topical Conference on Cyber Security, Daytona, FL, USA.
46. Program Committee, IEEE-NEWCAS 2006 International Conference, Gatineau, QC, Canada, June 18-21, 2006.
47. Member of the Program Committee of WMSCI 2006 (invited as a result of authoring a best paper in WMSCI 2005).
48. WSEAS Working Group on Computers 2005.
49. Communication Session Chair, the Seventh IASTED International Conference on Signal & Image Processing, SIP 2005, Honolulu, Hawaii, USA, Aug. 15-17, 2005.
50. IEEE Admission & Advancement (A&A) Committee Panel (Senior Member Review Panel), Nov. 12, 2005, Hilton Walt Disney World Resort.
51. Communication, Networking, and Interconnection Techniques II Session Chair, The 9th World Multi-Conference on Systemics, Cybernetics, and Informatics (MMSCI 2005), Orlando, USA, July 10-13, 2005.
52. External Ph.D. examiner, Image Proc./Motion Estimation, ECE, COE, Concordia Univ., Montreal, Canada, Sep. 16, 2005.
53. Technical Program Committee, 3rd Annual Northeastern Workshop on Circuits and Systems (NEWCAS 2005), Quebec City, Canada, June 19-22, 2005.
54. International Program Committee, IASTED International Conference on Circuits, Signals, and Systems, Marina Del Ray, USA, Oct. 24-26, 2005.
55. IEEE CAS Corresponding Member, IEEE Technical Activities Board (TAB) Conference Publication Committee, Jan to Dec. 2005.
56. External Reviewer Naval Research Laboratory (NRL), Information Technology S&T Division, Washington D.C., July 19-22, 2004.

57. Session Chair, 8th World Multi-conference on Systemics, Cybernetics, and Informatics (SCI 2004), Orlando, Florida, USA, July 18-21, 2004.
58. Chair, ECE Promotion & Tenure Committee, 2004/2005. Also member ECE Search Committee, 2004/2005, Chair DSP Committee, ECE.
59. DSP Track Co-Chair, 47th IEEE International Midwest Symposium on Circuits and Systems, July 25-28, 2004, Hiroshima, Japan
60. Technical Program Committee, 2nd Annual Northeastern Workshop on Circuits and Systems (NEWCAS 2004), Montreal, Canada, June 20-23, 2004
61. International Scientific Committee, 2nd World Scientific and Engineering Academy and Society International Conference on Multidimensional Systems, Athens, Greece, July 14-14, 2004
62. COECS Honors Committee, 2003-2004, Elected to EE Dept Advisory Committee 2003-2004, EE Dept. Grad. Comm. 2003-2004, EE Dept. Circuits & Systems Comm. 2003-2004
63. International Program Committee (IPC) for the IASTED International Conference on Circuits, Signals, and Systems (CSS 2004), Clearwater, FL, USA, Nov. 28- Dec 1, 2004.
64. Technical Program Chair, 46th IEEE Midwest Symposium on Circuits and Systems, Dec. 28-30, 2003, Cairo, Egypt.
65. Technical Program Committee, IEEE First Northeast Workshop on Circuits and Systems (NEWCAS 2003), Montreal, Canada, June 17-20, 2003
66. Technical Program Committee, Fifth Jordanian International Electrical & Electronics Engineering Conference (JIEEEEC 2003), October 14-16, 2003, Amman, Jordan
67. Member, International Program Committee (IPC) for the IASTED International Conference on Circuits, Signals, and Systems (CSS-2003), Cancun, Mexico, May 19-21, 2003.
68. IEEE International Symposium on Circuits and Systems, Phoenix, Arizona, USA, May 26-29, 2002, Speech Processing Session Chair
69. 45th, IEEE International Midwest Symposium on Circuits and Systems, Aug. 4-7, 2002, Tulsa, Oklahoma, USA, Best Paper Panel Judge, and Banquet Speech.
70. Expert Reporter/Technical Evaluator/IST Technical Team Member, NATO Research & Technology Agency, Symposium on Smart Antennas, Joint Information System Tech. Panel and Services and Electronics Tech. Panel, Chester, UK, April 7-11, 2003 (Invited by Dr. R. Shumaker, IST Director, UCF).
71. IEEE CAS Executive Committee, Vice President, North America (Regions 1-7), Jan 1 2001 to Dec 31, 2001.

72. Keynote Speaker, "Projection of Sampled Signals in Different Transform Domains with Useful Applications", International Conference on Sampling Theory and Applications, Orlando, FL, May 13-17, 2001.
73. Technical Program Committee, The First IEEE International Symposium on Signal Processing and Information Technology, Dec, 28-30, 2001, Cairo Egypt.
74. Plenary Speaker, "Filtering and Signal Processing: From Weight Reduction to Evolutionary Learning," August 10, 2000 8:30 AM to 9:30 AM, 43rd IEEE Midwest Symposium on Circuits and Systems, Lansing, MI USA. 43rd IEEE Midwest Symposium on Circuits and Systems, Lansing, MI USA, Aug 8-11, 2000.
75. Session Chair, " Video and Image Processing and Compression", 43rd IEEE Midwest Symposium on Circuits and Systems, Lansing, MI USA. 43rd IEEE Midwest Symposium on Circuits and Systems, Lansing, MI USA, Aug 8-11, 2000.
76. Session Chair, " Speech Processing", May 3, 2001. International Symposium on Intelligent Multimedia, Video and Speech Processing, Kowloon Shangri- La, Hong Kong, May 2-4, 2001.
77. Expert Reviewer and Site Visitor, Information Technology Division, Naval Research Labs, Washington D.C., August 3-4, 2000.
78. MSIT, SEECS, UCF, Committee Member.
79. Bioengineering Committee, SUS
80. Graduate Comm., SEECS, UCF.
81. Assoc. Editor (Dig. Sig. Proc.), IEEE Trans-CAS, 1999-2001
82. Steering comm., Workshop on Sampling & Applic, Orl-2001.
83. Member, Steering Committee, IEEE International Symposia on Circuits and Systems, 1996-1999.
84. Member, Steering Committee, IEEE International Symposium on Acoustics, Speech, and Signal Processing, Orlando, FL, 2002.
85. Co-Chair, Short Courses, Steering Committee, IEEE International Symposium on CAS, 1998.
86. Session Organizer and Chair, 40th Midwest Symposium on Circuits and Systems, Sacramento, CA, Aug. 3-6, 1997.
87. Expert reviewer and site visitor, Naval Research Labs, Washington, D.C., July 24-25, 1997,

88. Member, Steering Committee of the Asilomar Conference on Circuits, Systems, and Computers, 1985-2000.
89. NSF Multimedia USC Center site visit.
90. 1995 External examiner Ph.D. dissertation defense, EE Dept., University of Victoria, Victoria, BC, Canada.
91. Co-organizer of “Lossless and Near Lossless Waveform and Image Compression I Technical Session, IEEE International Symposium on Circuits and Systems, April 29-May 3, 1995, Seattle, Washington, USA.
92. Session Chair and Co-organizer of “Lossless and Near Lossless Waveform and Image Compression II Technical Session, IEEE International Symposium on Circuits and Systems, April-May 3, 1995, Seattle, Washington, USA.
93. Chair, “Adaptive Signal Processing Session”, 37th MWSCAS, Lafayette, LA, August 3-5, 1994.
94. External Examiner, Ph.D. Dissertation defense (Linear and Non-Linear Adaptive Digital Filters and their Applications), EE Department, University of Windsor, Windsor, Ontario, Canada, May 13, 1994.
95. Advisory Group to President to enhance Teaching and Research at UCF.
96. General Chairman, 1995 29th Asilomar Conference on Signals, Systems and Computers, Pacific Grove, CA, October 31 to November 3, 1995.
97. Adaptive Signal Processing Session Chairman, IEEE International Symposium on Circuits and Systems, Chicago, IL, May 3-6, 1993.
98. Image Processing Technical Session Chairman, 36th Midwest Symposium on Circuits and Systems, Detroit, Michigan, Aug 16-18, 1993.
99. External examiner Ph. D dissertation defense, EE dept., Concordia Univ., Montreal, Canada, Aug. 1993.
100. External examiner Ph. D dissertation defense, EE Dept., Univ. of Victoria, Victoria, BC, Canada, Aug. 1993.
101. Member, Board of Governors, IEEE Circuits and Systems Society, term ended Dec., 31, 1992.
102. Member of the IEEE CAS Society Analog Signal Processing Committee and Neural Systems and Applications Technical Committee.
103. General Chairman, IEEE 1999 International Symposium on Circuits and Systems, Orlando, April, 1999.

104. Special Sessions Chairman, Steering Committee, IEEE International Symposium on Circuits and Systems (ISCAS), Atlanta, GA, 1996.
105. Technical Program Committee, Digital Signal Processing Technical Area, Chairman, IEEE ISCAS, Chicago, IL, May 3-6, 1993.
106. Digital Signal Processing 2 Session Chairman, Midwest Symposium on Circuits and Systems, Washington, DC, August 1992.
107. Digital Signal Processing 5 Session Chairman, Midwest Symposium on Circuits and Systems, August 1992.
108. Adaptive Filter Applications Chairman, IEEE ISCAS, San Diego, CA, May, 10-13, 1992.
109. Technical Program Committee, IEEE ISCAS, San Diego, CA, May 10-13, 1992.
110. DSP Session Chairman, IEEE ISCAS, Singapore, June 11-14, 1991.
111. Adaptive DSP Session Chair, Midwest Symposium on Circuits and Systems, 1991, Monterey, CA, May 1991.
112. Technical Program Committee, IEEE International symposium on Circuits and Systems, Singapore. Reviewed the papers and organized the sessions in Adaptive Digital Signal Processing, June 11-14, 1991.
113. Member of the External Core Review Panel, Task Area PR015-09-41 (Information Processing) for the Naval Research Laboratory Basic Research Program, Dept. of the Navy, Naval Research Laboratory, Washington D.C, Feb. 25, 26, 1991.
114. Matrix Based Signal Processing Technical Session Chairman, 24th Asilomar Conference on Signals, Systems & Computers, Nov. 5-7, 1990.
115. Adaptive Digital Signal Processing Technical Session Organizer and Chairman 33rd MWSCAS, Calgary, Alberta, Canada, Aug. 13, 1990.
116. Technical Program Committee, IEEE International symposium on Circuits and Systems, New Orleans, Louisiana, May 1-3, 1990.
117. Digital Filters Session Chairman, IEEE, ISCAS, New Orleans, USA, May, 1990.
118. Topics in Adaptive Signal Processing Technical Session Organizer, 32nd MWSCAS, Urbana, Illinois, Aug. 14-16, 1989.

119. Associate Editor, Journal of Circuits, Systems and Computers, World Scientific Publishing Co 1990-present.
120. Reviewer for International Journals and Conferences (Papers) IEEE CAS, ASSP, MWSCAS, etc.
121. External evaluator for P & T to several universities.
122. Proposal Reviewer, NSF, some universities and the state of Florida FHTIC.
123. Member FHTIC Biomedical Devices Subcommittee.
124. Member, University of Central Florida, Research Council (89-93), Chairman 1992-1993.
125. Member, UCF Graduate Council (89-93).
126. Member, UCF Student Grievance Panel (89-93).
127. Member, College of Engineering, UCF Graduate Committee (89-91).
128. Member, UCF, EE Dept. Executive Committee (89-94).
129. Chairman, EE Dept., UCF, Digital Signal Processing Committee (89-94).
130. Member, EE Dept., UCF, Communications Committee (89-93).
131. Member, EE Dept., UCF, Controls Committee (89-present).
132. Member, EE Dept., UCF, Electronics Committee (89-present).
133. Chair, EE Dept., UCF, Search Committee (90-91, 91-92).
134. Member, EE Dept. UCF, Promotion & Tenure Committee(89-92), Chairman Personnel Comm. (92-93).
135. Chairman, Graduate Committee, EE Dept., UCF, Graduate Coordinator (89-90, 90-91).
136. Technical Program Committee Member, 1989 IEEE ISCAS, Portland, Oregon, May 9-11, 1989.
137. Adaptive Algorithms Regular Session Chairman, 1989 IEEE ISCAS, Portland, Oregon, May 9-11, 1989.
138. Digital Filters Regular Session Chairman, 22nd Asilomar Conference on Signals, Systems and Computers, Monterey, CA, Oct. 31-Nov. 2, 1988.
139. Array and Parallel Processors Regular Session Chairman, 31st MWSCAS, St. Louis, Missouri, Aug. 9-12, 1988.

140. Technical Session Organizer, "Adaptive Solutions of Real Life Problems", IEEE ISCAS, Finland, 1988.
141. Technical Session Chairman, "Digital Filters", Int.. Symposium on Electronic Devices, Circuits, and Systems, Kharagpur, India, Dec. 16-18, 1987.
142. Technical Session Chairman, "Representation of Time Varying Signals", 21st Asilomar Conference on Signals, Systems and Computers, Pacific Grove, California, Nov. 1987.
143. Technical Session Chairman, "Digital Filters I" 30th Midwest Symposium on Circuits and Systems, Syracuse, Aug. 17-18, 1987. Also Panelist in Panel Discussion on Important Problems in Adaptive Signal Processing.
144. Technical Session Chairman, "Adaptive Signal Processing" TENCON 87, Seoul, Korea, IEEE Region 10 Conference 1987, "Computers and Communications Technology Toward 2000", August 26-28, 1987.
145. Guest Editor, Special Issue of the IEEE Trans. CAS on Adaptive Systems and Applications, July 1987.
146. Technical Session Chairman and Organizer, Adaptive Signal Processing and Learning Systems, IEEE Int. Symposium on Circuits and Systems, Philadelphia, May 4-7, 1987.
147. Technical Session Organizer, Recent Advances in Adaptive Signal Processing Algorithms, IEEE ISCAS, Philadelphia, PA May 4-7, 1987.
148. Member, Technical Program Committee, IEEE ISCAS, Philadelphia, PA May 4-7, 1987.
149. Chairman, State-of-the-Art Review on "Stability Theory for Interconnected Large-Scale Dynamical Systems Session", 29th MWSCAS, Lincoln, NE, August 11-12, 1986.
150. Chairman, "Digital Filters Session", 29th MWSCAS, Lincoln, NE, August 11-12, 1986.
151. Program Chairman, Workshop on "Intelligent Signal Processing", West Virginia University, Morgantown, WV, June 12-13, 1986.
152. Technical Session Chairman, "Control Systems Session", IEEE ISCAS, San Jose, CA, May 5-7, 1986.
153. First Associate Editor, IEEE Transactions on Circuits and Systems (Trans. CAS) Letters. The purpose of this new section is the speedy publication of new results and information of current interest; emphasis is on practical design and applications, 1983 □ 1985.
154. Associate Editor, IEEE Trans. CAS Letters, 1985-1987.

155. Chairman, Steering Committee Membership, Midwest Symposium on Circuits and Systems.
156. Member, IEEE CAS Society Analog Signal Processing Committee.
157. Chairman, Comm. & Signal Processing Undergraduate Committee, Department of Electrical Engineering, West Virginia University.
158. Chairman, Comm. & Signal Processing Graduate Committee, Department of Electrical Engineering, West Virginia University.
159. Member, West Virginia University Faculty Development Grant Committee, 1983-1985. Also member of several other College of Engineering and EE Dept., WVU, Committees (Circuits and Systems, Electronics, Undergraduate Curriculum, Graduate Program).
160. Reviewer for book publishers and others such as, IEEE Trans. CAS, IEEE J. SSC. IEEE on Education, IEEE Proc., NSF, European Conference on Circuit Theory and Design.
161. Chairman and Organizer, "Adaptive Signal Processing Session", 19th Asilomar Conference on Circuits, Systems and Computers (ACCSC), Monterey, CA, November 1985.
162. Chairman, "Active Filters Session", 28th MWSCAS, Louisville, KY, August 1985.
163. Chairman and Organizer, "Adaptive Signal Processing and Artificial Intelligence Session", IEEE ISCAS, Kyoto, Japan, June 1985.
164. General Conference Chairman; Speaker, Plenary Session; Member, Steering Committee; Member, WVU Organizing Committee; 27th MWSCAS, West Virginia University, Morgantown, WV, June 1984.
165. Chairman and Organizer, "Adaptive and Time Varying Filters Session", IEEE ISCAS, Montreal, Canada, May 1984.
166. Chairman, "Network Synthesis and Filter Design", 26th MWSCAS, Pueblo, Mexico, August 1983.
167. Chairman and Organizer, "Active Networks Session", 25th MWSCAS, Houghton, MI, August 1982.
168. Co-Chairman and Organizer, "Time Varying and Adaptive Signal Processing Session", IEEE ISCAS, Rome, Italy, May 1982.
169. Chairman, "Active Filters Session", 24th MWSCAS Systems, Albuquerque, New Mexico, June 1981.
170. Member, Technical Program Committee; Chairman and Organizer, "Adaptive Balancing Session", IEEE ISCAS, Chicago, Illinois, April 1981.

171. Chairman, "Active Filters Session", 23rd MWSCAS, Toledo, Ohio, August 1980.

172. Session Chairman and a Group Leader of the Planar Devices Committee, IEEE Workshop on Circuit Adjustment Techniques, Network Applications and Standards Committee
□ Rancho Santa Fe, CA, April 1977.

SAMPLES OF PROFESSIONAL PRESENTATIONS AND INVITED TALKS

1. "Human Action Recognition", Aug 3, IEEE 53rd, MWSCAS, Aug, 3, 2010.
2. Keynote Lecture, 52nd Midwest Symposium on Circuits and Systems, August, 2-5, 2009, (MWSCAS '09) , IEEE, M. T. Hunter, W. B. Mikhael, and T. J. Tocco, "Reconfigurable Signal Processing in Software Defined Radio and Instrumentation"
3. Keynote Speaker, Joint IEEE 50th MWSCAS & NEWCAS Conference, "Non-traditional Signal Processing Techniques Employing Linear Transforms," Montreal, Canada, August 5-8, 2007.
4. Plenary Speaker, 11th WSEAS CSCC Multi-conference, Conference on Computers, July 26-28, 2007, Agios Nikolaos, Crete Island, Greece, "Novel Transform Domain Principal Component Analysis Techniques and Some Applications."
5. "ICA with Time Varying Convergence Factor with Application in Communications," The 10th WSEAS International Conference on Communications, Vouliagmeni Beach, Athens, Greece, July 2006.
6. "A Novel Adaptive Eigendecomposition Technique with Application to Automatic Target Recognition", The 10th WSEAS International Conference On Computers, Vouliagmeni Beach, Athens, Greece, July 2006.
7. Plenary Speaker, "Intelligent Signal Processing Applied to Recognition and Classification of One and Multidimensional Signals," The 10th WSEAS International Conference On Computers, Vouliagmeni Beach, Athens, Greece, July 2006.
8. "Block ICA for Image Suppression and Carrier Frequency Offset Correction in Diversity BPSK Receivers", The 5th WSEAS Int. Conf. on Signal Processing, Robotics and Automation (ISPRA '06), Madrid, Spain, February, 15-17, 2006.
9. Technical presentations, seminars, and invited talks to conferences, universities, and funding agencies on regular basis from 1973 to present.
10. Two Presentations, 45th IEEE International Midwest Symposium on Circuits and Systems, Tulsa, Oklahoma, USA, Aug. 4-7, 2002
11. Two Presentations, IEEE International Symposium on Circuits and Systems, Phoenix, Arizona, May 26-29, 2002

12. Plenary Speaker, "Filtering and Signal Processing: From Weight Reduction to Evolutionary Learning," August 10, 2000 8:30 AM to 9:30 AM, 43rd IEEE Midwest Symposium on Circuits and Systems, Lansing, MI USA. 43rd IEEE Midwest Symposium on Circuits and Systems, Lansing, MI USA, Aug 8-11, 2000
13. Presentations to Industry, Dept., and Professional IEEE organizations
14. A.P. Berg and W. B. Mikhael, "Formal Development and Convergence Analysis of the parallel Adaptive Mixed Transform Algorithm," 1997 IEEE International Symposium on Circuits and Systems, Hong Kong, June 9-12, 1997, pp. 2280-2283.
15. Yousef W. Nijim, Samuel D. Stearns, and Wasfy B. Mikhael, "Pole-Zero modeling for the lossless compression of seismic signals," Int. Symp. on Circuits and Systems, IEEE, Hong Kong, June 9-12, 1997, pp. 2537-2540.
16. Yousef W. Nijim, Samuel D. Stearns, and Wasfy B. Mikhael, "Lossless compression of images employing a linear IIR model," Int. Symp. on Circuits and Systems, IEEE, Atlanta, GA, May 12-15, 1996, pp. 305-308.
17. A.Ramaswamy and W. B. Mikhael, "A multiple transform based scheme for still color image compression," Invited, IEEE International Symposium on Circuits and Systems (ISCAS), May 10-12, 1996, pp. 433-436.
18. A. Berg and W. B. Mikhael, "Signal Representation Using Adaptive Parallel Mixed Transform," 38th Midwest Symposium on Circuits and Systems, Rio de Janeiro, Brazil, August 13-16, 1995, pp. 239-242. (Invited)
19. "Application of Multitransforms to 3D Spatial Signal Representation," 28th Asilomar Conference on Signals, Systems, and Computers, Pacific Grove, CA, October 30-November 2, 1994.
20. "Two-Dimensional and Three-Dimensional Adaptive Signal Processing in the Frequency Domain," 37th Midwest Symposium on Circuits and Systems, Lafayette, LA, August 3-5, 1994.
21. Invited speaker, Mathematics Colloquium Series, UCF, Adaptive Signal Processing: Concepts and Applications, Phillips Hall, Mathematics Dept., Tuesday, February 22, 1994.
22. Lecturer, DSP, short course, Southcon, Orlando, FL, Convention Center, March 28, 1994, 9:00 a.m. - 5:00 p.m.
23. A. Ramaswamy and W. B. Mikhael, "Multitransform / Multiresolutional Signal Representation", 36th Midwest Symposium on Circuits and Systems, Detroit, MI, Aug. 16-18, 1993.
24. W. B. Mikhael and H. Yu, " Two-dimensional, Frequency-Domain, Adaptive System Modeling Using 3-D Spatiotemporal Inputs", 1993 IEEE International Symposium on Circuits and Systems, ISCAS 93, Chicago, IL May 3-6, 1993.

25. A. Berg and W. B. Mikhael, "Approaches to High Quality Speech Coding Using Adaptive Vector Quantization", 35th Midwest Symposium on Circuits and Systems, Washington, D.C. August , 1992.
26. W. B. Mikhael and A. Ramaswamy, "Gradient Techniques for Voiced/Unvoiced Speech Signal Representation Using Mixed Transforms, "IEEE International Symposium on Circuits and Systems, San Diego, CA, May 10-13, 1992.
27. W. B. Mikhael and F. Wu, "Several Optimum Gradient Adaptive Algorithms, IEEE International Symposium on Circuits and Systems, Singapore, June 11-14, 1991.
28. W. B. Mikhael and S. Ghosh, "Generation of Multidimensional Variable Step Size Sequential Adaptive Gradient Algorithms with Identification and Noise Cancellation Applications, IEEE International Symposium on Circuits and Systems, Singapore, June 11-14, 1991.
29. W. B. Mikhael and S. Ghosh, "Derivation and Comparison of Some of the Most Commonly Used Adaptive Algorithms, Thirty- third Midwest Symposium on Circuits and Systems, IEEE Sponsored, Calgary, Alberta, Canada, August 12-14, 1990.
30. "Adaption: From Wiener to Widrow," Speaker: W. B. Mikhael to IEEE Signal Processing Society, Orlando, FL, September 19, 1990.
31. "Block Adaptive Algorithms for Digital Signal Processing with Useful Applications," International Conference on Circuits and Systems, Nanjing, China, July 6-8, 1989.
32. "A Unified Approach for Generating Optimum Gradient Adaptive Algorithms with Time-Varying Convergence Factors", Int. Symp. on Electronics, Devices, Circuits and Systems, India, Dec. 1987.
33. "A Fast Block FIR Adaptive Algorithm with Individual Adaption of Parameters", IEEE TENCON87, Seoul, Korea, August 1987.
34. Intelligent Signal Processing, Panel Discussion on Important Problems in Adaptive Signal Processing, 30th Midwest Symposium on Circuits and Systems, Syracuse, Aug. 1987.
35. Sources of Distortion in Digital Signal Processing Systems, Harris Semiconductor, Melbourne, FL, July 1987.
36. Adaptive DSP Algorithms and Applications, Harris Semiconductor, Melbourne, FL, July 1987.
37. Has Adaptive Signal Processing Anything to do with Artificial Intelligence, West Virginia University, November 14, 1986.
- 38-39. An Overview of our Digital Signal Processing Research in the Electrical Engineering Department at WVU, Harris Semiconductor, Melbourne, FL, July 11 1986.
- 40-42. Three presentations, IEEE International Symposium on Circuits and Systems, San Jose, CA, May 1986.

- 43-44. Two presentations, IEEE International Symposium on Circuits and Systems, Kyoto, Japan, 1985.
45. Asilomar Conference, Pacific Grove , CA, November 1985.
46. Midwest Symposium on Circuits and Systems, Louisville, KY, August 1985.
47. IEEE Acoustics, Speech and Signal Conference, Tampa, FL, March 1985.
48. University of Ottawa, Dept. of Electrical Engineering, Ottawa, Canada, February 1985.
49. University of Victoria, Department of Electrical Engineering, British Columbia, Canada, January 1984.
50. Bell Northern Research, Ottawa, Canada, May 1984.
51. Northern Telecom, Ottawa, Canada, May 1984.
52. Asilomar Conference, Pacific Grove, CA, November 1984.
53. Harris Communications Products Dev., Melbourne, FL, July,1984.
54. IEEE International Symposium on CAS, Montreal, Canada, 1984.
55. Asilomar Conference, Pacific Grove, CA, November 1983.
56. Midwest Symposium on Circuits and Systems, Pueblo, Mexico, August 1983.
- 57-59. IEEE International Symposiums on CAS, Newport Beach, CA, May 1983.
- 60-62. Three presentations, Harris Communications Products Dev., Melbourne, FL, 1983.
- 63-65. Virginia Polytechnic Institute, Faculty and Graduate Student Research Seminar, Blacksburg, VA, October 1982.
- 66-68. Three presentations, IEEE International Symposium on CAS, Rome, Italy, May 1982.
- 69-72. Concordia University, Electrical Engineering Department, "New Continuous-Time Frequency-Domain Adaptive Systems", Montreal Canada, November 1981.
- 73-76. Four presentations, Midwest Symposium on Circuits and Systems, Albuquerque, NM, June 1981.
- 77-81. Five presentations, IEEE International Symposium on CAS, Chicago, IL, April 1981.
- 82-83. Two presentations, Midwest Symposium on Circuits and Systems, August 1980.

84. Two presentations, "Programmable MOS Filters", Harris Semiconductor, Communication Products Dev., Melbourne, FL, July 1980.
- 85-86. Harris Semiconductors, Communication Products Dev., " Signal Processing and its Applications in Signal Processing", Melbourne, FL, March 1980.
- 87-88. Two presentations, Midwest Symposium on Circuits and Systems, Philadelphia, PA, June 1979.
89. IEEE International Symposium on CAS, New York, NY, May 1978.
90. University of Ottawa, Ottawa, Canada, November 1977.
91. IEEE Workshop on Circuit Adjustment Techniques (Network Applications and Standards Committee), Rancho Santa Fe, CA, April 1977.
92. IEEE Conference and Exposition, Toronto, Canada, October 1975.
93. Midwest Symposium, Montreal, Canada, August 1975.
94. IEEE European Conference, London, England, July 1974.
95. IEEE International Symposium, San Francisco, CA, April 1974.
96. IEEE Workshop on Active Filters, (Network Applications and Standards Committee), New York, NY, November 1973.
97. IEEE Int. Elect. and Electronics Conference and Exposition, Toronto, Canada, October 1973.
98. Several Talks to Graduate Seminars at WVU and Industry.

TECHNICAL REPORTS

8/20/10 Wasfy B Mikhael, Final Impact report Year II: Advanced Digital Signal Processing for Synthetic Instrumentation.

A large number of progress and annual reports have been written over the past thirty-eight years (1973-2011) to funders (Lockheed Martin, Conexant, Intensil, Harris, NSF, Navy, FHTIC, NRC, Florida High Tech, Sandia, Florida/NASA Matching Grant project etc.), to customers in consulting work (Northern Telecom, TASA, Harris Communication, HP, etc.) and employers (Bell Northern Research, WVU, and UCF)

FUNDING

Funded:

1. Speech Detection Employing Voiced and Unvoiced Eigenvector, submitted to ONR, with DME Corp.
2. Florida Energy Systems Consortium, Jul 1, 2008-Dec 31, 2011, Funded, \$1,950,000 {16407007}, Wasfy B. Mikhael, CoPI, 97,500, State of Florida.
3. Florida Energy Systems Consortium, Jul 1, 2008-Dec 31, 2011, Funded, \$600,000 {16409933} W. B. Mikhael, CoPI, 30,000, State of Florida.
4. Precision Stabilization of a Ball Joint Gimbaled Mirror, Jan 1, 2009-Jun 30, 2015, Funded, \$150,000 {20194443}, W.B. Mikhael, PI.
5. Balance Account for Dr. Wasfy Mikhael, Mar 3, 1994-Dec 31, 2015, Funded, \$202,907.39 {16224308}, W.B. Mikhael, PI.
6. FHTC DME Corp.: Advanced Digital Signal Processing for Synthetic Instrumentation, Aug 1, 2008-Jun 30, 2011, Funded, \$2,047 {20190716} and \$47,953 {20190139}, W. B. Mikhael, PI.
7. Navy STTR Phase II: Precision Stabilization of a Ball Joint Gimbaled Mirror, Jan 1, 2009-Jun 30, 2010, Funded, \$150,000, {16408126}, W.B. Mikhael, PI.
8. Advanced Digital Signal Processing for Synthetic Instrumentation, Aug 1, 2008-Jul 31, 2010, Funded, \$100,000, {16408111}, W.B. Mikhael, PI.
9. Dynamic Digital Power Techniques to Improve Efficiency and Performance, Intel, \$150,000, W.B. Mikhael, Co-PI, Dr. Batarseh, P.I., Dec 5, 2006-Dec 5, 2009, (C&G external 16408065).
10. Precision Stabilization of a Ball Joint Gimbaled Mirror STTR Phase I Option, DSCI, \$9127.00, W.B. Mikhael, P.I., Jan 1, 2009-Jun 30, 2009, (C&G external 16408125).
11. Precision Stabilization of a Ball Joint Gimbaled Mirror STTR Phase I Option, UCF I-4, \$3,042, W.B. Mikhael, P.I., , Jan 1, 2009-Jun 30, 2009, (E&G internal 20190159).
12. Novel Computationally Efficient and Robust Automatic Target Recognition/Detection Algorithms, Lockheed Martin Missiles and Fire, Orlando, FL, 40k, W.B. Mikhael, P.I., May, 16, 2007 to Dec, 20, 2007, (C&G external 16408073).
13. Novel Computationally Efficient and Robust Automatic Target Recognition/Detection Algorithms, Lockheed Martin Missiles and Fire, Orlando, FL, 20k, W.B. Mikhael, P.I., Jul, 1, 2007 to June, 30, 2008, I4 Phase XII, (E&G internal 20190073).
14. Adaptive Filtering Techniques for Aeronautical and Space Communications, Florida Space Grant Consortium, W.B. Mikhael, P.I., UCF, and T. Yang, P.I., Embry Riddle Aeronautical University, \$25,000 (12.5k each), Aug. 2006 - Aug. 2007, (C&G internal 16409009).

15. Adaptive Automatic Target Recognition/Detection Algorithms, Lockheed Martin Missiles and Fire, Orlando, FL, 40k, W.B. Mikhael, P.I., March 2006 to Jun, 30, 2007, Phase XI, (C&G external 16228094).
16. Adaptive Automatic Target Recognition/Detection Algorithms, W.B. Mikhael, P.I., UCF I4 Match, \$36,850, Jul 1, 2005 to Dec 20, 2007, (E&G Internal 20190716, 20194412) .
17. Advanced Signal Processing Approaches for Wireless Data Communication Systems, Conexant Systems, Palm Bay, FL, 50k, W.B. Mikhael, P.I., March 2006 to March 2007, Phase XI.
18. Advanced Signal Processing Approaches for Wireless Data Communication Systems, UCF I4 Match, \$33,500, W.B. Mikhael, P.I., March 2006 to June 2007, Approved Nov. 2005, Phase XI.
19. Adaptive Automatic Target Recognition/Detection Algorithms, Lockheed Martin Missiles and Fire, Orlando, FL, 70k, W.B. Mikhael, P.I., Feb 2005 to Dec 2005.
20. Adaptive Automatic Target Recognition/Detection Algorithms, W.B. Mikhael, P.I., UCF I4 Match, \$46,900, July 2005 to June 2006, (E&G internal 20180002).
21. Advanced Signal Processing Approaches for Wireless Data Communication Systems, Conexant Systems, Palm Bay, FL, 50k, W.B. Mikhael, P.I., March 2005 to August 2006.
22. Advanced Signal Processing Approaches for Wireless Data Communication Systems, UCF I4 Match, \$33,500, W.B. Mikhael, P.I., Feb 2005 to June 2006.
23. Interference Cancellation and Efficient Bandwidth Utilization for Wireless Communications Technology, Globespan Virata, Palm Bay, FL, 50k, W.B. Mikhael, P.I., March 2004 – March 2005.
24. Interference Cancellation and Efficient Bandwidth Utilization for Wireless Communications Technology, Globespan Virata, Palm Bay, FL, I4 Match, 33.4k, W.B. Mikhael, P.I., March 2004 – June 2005.
25. Adaptive Automatic Target Recognition/Detection Algorithms, Lockheed Martin Missiles and Fire, Orlando, FL, 30k, W.B. Mikhael, P.I., Jan 2004 to June 2005.
26. Adaptive Automatic Target Recognition/Detection Algorithms, Lockheed Martin Missiles and Fire, Orlando, FL, I4 Match, 20k, W.B. Mikhael, P.I., March 2004 to June 2005.
27. From Antennas to Bits, Jan. 1, 2003 to Dec. 31, 2003, 90k, P.I., (with Dr, Liou and Dr. Wahid Co. P. I.'s), Intersil Corporation.
28. From Antennas to Bits, Jan.1, 2003 to Dec. 31, 2003, 72k, P.I., (with Dr, Liou and Dr. Wahid Co. P. I.'s), I4 phase VII.

29. From Antennas to Bits, Jan1, 2002 to June 30, 2003, 180k, P.I. with Dr, Liou and Dr. Wahid, Intersil.
30. From Antennas to Bits, Jan1, 2001 to June 30, 2002, 160k, P.I. with Dr, Liou and Dr. Wahid, Intersil.
31. Multirate Input Output Buffering for Signal Processing- Communications and Digital Signal Processing Technological Issues using Null Conventional Logic, Jan 1, 2001 to June 30, 2002, 23k, PI (Theseus Logic partner).
32. Pattern Recognition using Neural Nets and Non Orthogonal Basis Functions, 3 Years and, PI, Lucent, 42k .
33. From Antennas to Bits, Jan 2000-Dec 31,2000, 150K (I4 Intersil Partnership), PI with J. Liou, P. Wahid, and T. Wu.
34. Application-Specific Chip Design Using Asynchronous Digital Methodologies, I4 Project, CO-PI with Peter Yuan, Arthur Weeks, R. DeMara, 900 K, 300 K/yr for three years 1999-2002,
35. Harris and UCF/ECE Partnership in Microelectronic Technologies and Products, W.B. Mikhael PI with Peter Yuan, J.J. Liou, P. Wahid, and M. Belkerdid, 250K/yr, Funded, July 1, 1998 to June 30.1999.
36. Lockheed Martin High School Bridge Program, 32 K (Part of a larger project), W. B. Mikhael, Funded, 1998-2000.
37. Florida Power Endowed Scholarships, 50K, Fall 97, Funded.
38. "Distributed Interactive Simulation," P.I.: W. B. Mikhael, Lockheed Martin, 1996-1997, \$10,000, Funded.
39. "Two Dimensional Processing of Radar Signal, Phase I, SBIR, Air Force, W. B. Mikhael with Dr. Jaime Roman, Scientific Studies Corp., Ft. Lauderdale, FL, our part \$15,000, May 1996-May 1997, Funded.
40. "Two Dimensional Processing of radar Signals, Phase II, SBIR, Air Force, W. B. Mikhael (UCF), Dr. Jaime Roman, Scientific Studies Corp., Ft. Lauderdale, Fl, \$575,000. Funded, our part \$100,000, May 1997 to May 1999, Funded.
41. 16-22-884, Lossless Compression of Seismic Data, P-I: W. B. Mikhael, Sandia National Labs, October 1, 1994 to September 30, 1995, \$50,000.
42. 16-22-749, Adaptive signal Processing, P-I: W. B. Mikhael, Enterprise FL, February 01, 1994 to December 31, 1995, \$24,000.
43. Adaptive Signal Processing, Florida Technology Research Investment Fund Award, January 1, 1994 to December 31, 1994, \$24.4K.

44. Lossless Compression of Seismic Data, Sandia National Labs, August 1, 1993 to April 30, 1994, \$27.989K.
45. Adaptive Signal Processing with Applications, W. B. Mikhael PI, FHTIC, Jan 1, 1993 to December 31, 1993, \$43,000.
46. Adaptive Signal Processing with Applications, W. B. Mikhael PI, FHTIC, Jan 1992 to December 31, 1992, \$33,000.
47. Adaptive Signal Processing with Applications, W. B. Mikhael, PI, FHTIC, 16-22-726, Jan. 1, 1991 to Dec. 1991, \$41,000.
48. Adaptive Signal Processing, W. B. Mikhael, PI, FHTIC, 16-22-714, Jan 1, 1990 to Aug. 1991. \$50,000.
49. Efficient Coding Transmission and decoding over a local and/or long haul networks, IST, Jan. 1, 1990 to March, 1991. 25% release academic year, 60% summer + 2 Ph.D. research assistants.
50. Tactical Electronics Test Systems, W. B. Mikhael P. I. E. E., Navy, N61339-90-C-0125 #6412304, Aug. 1990 to May 1991, \$245, 773 (EE Dept. Share).
51. TESTS, W. B. Mikhael , P. I. E. E., Navy, May 1990 to Aug. 1991, \$89, 92. 37.
52. SUN SPARC II workstation, Oct. 1990, \$15,073.
53. Data Acquisition systems and Image Grabbers, Fortran Compiler for NeXT computer, Camera, monitor, VCR, etc., Nov. 1990, OCO, \$13,000.
54. NeXT Network Server System for DSP of audio and images, \$15,365, W. B. Mikhael, Takis Kasparis, and J. Alaska, OCO, Feb 23, 1990.
55. WE-DSP Development System and Software, W. B. Mikhael P. I., AT&T, 10K.
56. \$98,999, the Naval Research Laboratory, Washington, DC, "Adaptive Noise Cancellation and Speech Processing", March 1988 to August 30, 1989.
57. \$25,000, the Energy Research Center, Underground Resource Characterization by Seismic Tomographic Methods, July 1987-June 1988.
58. \$37, 800, the Energy Research Center, Underground Resource Characterization by Seismic Tomographic Methods, July 1986- June 1988.
59. \$100,000, the Naval Research Lab, Adaptive Noise Cancellation and Speech Processing, Feb. 1987- Feb 1988.
60. \$100,000, the Naval Research Lab, Oct. 1985- Sept. 1986.

61. \$4,200, Harris Semiconductors, A variety of electronic components for signal processing (Anti-aliasing and reconstruction integrated filters, high precision Analog to Digital and Digital to Analog converter, multiplexers...), July 1985.
62. \$23,510, the Energy Research center, Three-Dimensional Tomography for Underground Resources Characterization, July 1985-June 1986.
63. \$5,100, Texas Instruments, Three XDS/320 Evaluation Modules and three XDS/320 Analog Interface boards for supporting Texas Instrument TMS32010 digital signal processing microprocessors, Jan 311, 1985.
64. \$104,200, the Naval Research lab for developing high performance and cost effective adaptive filters for noise cancellation and speech applications, Oct. 1, 1984-Sept. 30, 1985.
65. IBM CS9000 Computer workstation with 10 MB disk, May 29, 1984.
66. \$90,000, the Naval Research Lab, Oct. 1983-Sept. 1984.
67. \$101,709, the Naval Research Lab, July 1982-Sept. 1983.
68. WVU Faculty Develop., 3.5K, June 1984.
69. WVU Competition for major equipment grants (we were highly commended by VP Dr. Volle and ranked among the top two, University-wide), 30K, April 1984.
70. NSF Equipment for Dig. Sig. Proc., 52K, March 1984.
71. NSF Equipment for Dig. Sig. Proc. 35K, July 1983.
72. WVU Faculty Development to support extended visits to research center, 3.5K, July 1983.
73. NSF (three years – 1980-1983) - \$150, 999. “Multiport Coupling with Recursive Adaptive Noise-Cancelling in the Frequency Domain”.
74. Senate Research Grant - \$3,000. “Noise Cancelling in Mine Communications”, Summer 1980.
75. Equipment (Mitry/Mikhael) – Research Comm. Equipment: WVU/ERC \$16, 000 (Awarded) 1980.
76. \$7, 924**, the Natural Sciences and Engineering Research Council of Canada – for research on low sensitivity networks for filtering and single sideband generation in Communication Systems, 1979-1980.
77. \$6,827**, the Natural Sciences and Engineering Research Council of Canada – for research on low sensitivity networks for single sideband generation in Communication Systems, 1978-1979.

78. Funded research by Harris Semiconductors for my students, Advanced Communication Product, Florida, \$3,000, Summer 1979.
79. \$4,600**, the Natural Sciences and Engineering Research Council of Canada – for research on active filters for Communication Systems, 1977 – 1978.
80. \$4,500**, the Natural Sciences and Engineering Research Council of Canada – for research on active polyphase networks, 1975-1976.

SEVERAL PAPERS AND PROPOSALS UNDER PREPARATION