

SELIN AVIYENTE

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EDUCATION

Ph.D.	Electrical Engineering	University of Michigan	2002
M.S.	Electrical Engineering	University of Michigan	1999
B.S.	Electrical Engineering	Bogazici University	1997

PROFESSIONAL EMPLOYMENT

2016 – present	Professor, Michigan State University
2009 - 2016	Associate Professor, Michigan State University
2002 - 2009	Assistant Professor, Michigan State University
1999 - 2002	Graduate Student Research Assistant, University of Michigan
1997 - 1999	Graduate Student Instructor, University of Michigan

AWARDS AND HONORS

1. NSF CAREER Award, 2008.
 2. Withrow Teaching Award, Department of Electrical and Computer Engineering, Michigan State University, 2005.
 3. Distinguished Achievement Award, College of Engineering, University of Michigan, 2001.
 4. Barbour Scholar, Rackham School of Graduate Studies, University of Michigan, 09/2000-05/2001.
 5. Miller Fellowship, Department of Electrical Engineering and Computer Science, University of Michigan, 1/1999-12/1999.
 6. Sloan Summer Research Fellowship for Women in Engineering and Sciences, 05/1998-09/1998.
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PUBLICATIONS

Book Chapters

- [1] W. J. Williams and S. Aviyente, "Spectrogram Decompositions of Time-Frequency Distributions," pp. 260-266, in *Time-Frequency Signal Analysis and Processing*, edited by B.Boashash, Elsevier, 2003, revised for 2015 edition.
- [2] E. Sejdic, S. Aviyente and B. Boashash, "Time-Varying Analysis of Brain Networks," to appear in *Time-Frequency Signal Analysis and Processing*, edited by B. Boashash, Elsevier, 2015.

Journal Papers

- [1] A. Ozdemir, E. M. Bernat and S. Aviyente, "Recursive Tensor Subspace Tracking for Dynamic Brain Network Analysis," accepted for publication in *IEEE Transactions on Signal and Information Processing over Networks*, January 2017.

- [2] R. K. Singleton, E. G. Strangas and S. Aviyente, "The Use of Bearing Currents and Vibrations in Lifetime Estimation of Bearings," accepted for publication in *IEEE Transactions on Industrial Informatics*, December 2016.
- [3] A. G. Mahyari and S. Aviyente, "Simultaneous Sparse Approximation and Common Component Extraction using Fast Distributed Compressive Sensing," *Digital Signal Processing*, vol. 60, pp. 230-241, January 2017.
- [4] A. G. Mahyari, D. Zoltowski, E. M. Bernat and S. Aviyente, "A tensor decomposition based approach for detecting dynamic network states from EEG," *IEEE Transactions on Biomedical Engineering*, vol. 64, no. 1, pp. 225-237, January 2017.
- [5] S. Aviyente, A. Tootell, E. M. Bernat, "Time-frequency phase synchrony approaches with ERPs," *International Journal of Psychophysiology*, vol. 111, pp. 88-97, January 2017.
- [6] M. Al-Khassaweneh, M. Villafane-Delgado, A. Y. Mutlu, and S. Aviyente, "A Measure of Multivariate Phase Synchrony using Hyperdimensional Geometry," *IEEE Transactions on Signal Processing*, pp. 2774-2787, vol. 64, no. 11, 2016.
- [7] A. Ozdemir, M. Bolanos, E. M. Bernat and S. Aviyente, "Hierarchical Spectral Consensus Clustering for Group Analysis of Functional Brain Networks," *IEEE Transactions on Biomedical Engineering*, vol. 62, no. 9, pp. 2158-2169, 2015.
- [8] T. P. Moran, E. M. Bernat, S. Aviyente, H. S. Schroder and J. Moser, "Sending Mixed Signals: Worry is associated with enhanced initial error processing but reduced call for subsequent cognitive control," *Social, Cognitive and Affective Neuroscience*, in press, 2015. **(impact factor=5.884)**
- [9] R. K. Singleton II, E. G. Strangas and S. Aviyente, "Extended Kalman Filtering for Remaining Useful Life Estimation of Bearings," *IEEE Transactions on Industrial Electronics*, vol. 62, no. 3, pp. 1781-1790, 2015. **(impact factor=6.5)**
- [10] Y. Liu, J. Moser and S. Aviyente, "Community detection for directional neural networks inferred from multichannel multi-subject EEG data," *IEEE Transactions on Biomedical Engineering*, vol. 61, no. 7, pp. 1919-1930, 2014.
- [11] E. Strangas, S. Aviyente, S. Zaidi and J. Neely, "The Effect of Failure Prognosis and Mitigation on Reliability of Permanent Magnet AC Motor Drives," *IEEE Transactions on Industrial Electronics*, vol. 60, no. 8, pp. 3519-3528, 2013. **(impact factor=6.5)**
- [12] M. Bolanos, E. M. Bernat, B. He and S. Aviyente, "A Weighted Small World Network Measure for Assessing Functional Connectivity," *Journal of Neuroscience Methods*, vol. 212, no. 1, pp. 133-142, 2013.
- [13] J. Antonino-Davidu, S. Aviyente, E. G. Strangas and M. Riera, "Scale Invariant Feature Extraction Algorithm for the Automatic Diagnosis of Rotor Asymmetries in Induction Motors," *IEEE Transactions on Industrial Informatics*, vol. 9, no. 1, pp. 100-108, 2013 .
- [14] A. Y. Mutlu, E. M. Bernat and S. Aviyente, "A Signal-Processing-Based Approach to Time-Varying Graph Analysis for Dynamic Brain Network Identification," *Computational and Mathematical Methods in Medicine*, special issue on Graph Theoretical Approaches in Brain Networks, Article ID 451516, 2012.
- [15] Y. Liu and S. Aviyente, "Quantification of Effective Connectivity in the Brain Using a Measure of Directed Information," *Computational and Mathematical Methods in Medicine*, special issue on Methodological Advances in Brain Connectivity, Article ID 635103, 2012.
- [16] A. Y. Mutlu and S. Aviyente, "Multivariate Empirical Mode Decomposition for Quantifying Multivariate Phase Synchronization," *EURASIP Journal on Advances in Signal Processing*, special issue on Recent Advances in Theory and Methods for *Nonstationary* Signal Analysis, January 2011.
- [17] S. Aviyente and A. Y. Mutlu, "A new time-varying measure of phase and phase synchrony," *IEEE Transactions on Signal Processing*, vol. 59, no. 7, pp. 3086-3098, July 2011. **(impact factor=3.198)**

- [18] S. H. Zaidi, S. Aviyente, M. Salman, K. Shin and E. G. Strangas, "Prognosis of Gear Failures in DC Starter Motors Using Hidden Markov Models," *IEEE Transactions on Industrial Electronics*, vol. 58, no. 5, pp. 1695-1706, May 2011. **(impact factor=6.5)**
- [19] S. R. Sponheim, E. M. Bernat, S. S.Kang and S. Aviyente, "A new measure for characterizing deficient functional connectivity of the brain after blast injury," *Neuroimage*, vol. 54, Supplement 1, pp. S21-S29, January 2011. **(impact factor=6.132)**
- [20] S. Aviyente, E. M. Bernat, W. S. Evans and S. R. Sponheim, "A phase synchrony measure for quantifying dynamic functional integration in the brain," *Human Brain Mapping*, vol. 32, no. 1, pp. 80-93, January 2011. **(impact factor=6.924)**
- [21] S. Aviyente, E. M. Bernat, S. M. Malone, W. G. Iacono, "Time-Frequency data reduction for event related potentials: Combining principal components analysis and matching pursuit," *EURASIP Journal on Advances in Signal Processing*, special issue on Applications of Time-Frequency Signal Processing in Wireless Communications and Bioengineering, Article ID 289571, 2010.
- [22] M. Al-Khassaweneh, H. Al-Zoubi and S. Aviyente, "Watermarking of speech signals in the time-frequency domain," *Integrated Computer-Aided Engineering*, vol. 17, no. 1, pp. 59-67, 2010.
- [23] S. Aviyente, "Computationally efficient scale covariant time-frequency distributions," *EURASIP Journal on Advances in Signal Processing*, Article ID 204351, 2009.
- [24] E. G. Strangas, S. Aviyente and S. H. Zaidi, "Time-Frequency analysis for efficient fault diagnosis and failure prognosis for interior permanent magnet AC motors," *IEEE Transactions on Industrial Electronics*, vol. 55, no. 12, pp. 4191-4199, 2008. **(impact factor=6.5)**
- [25] M. Al-Khassaweneh and S. Aviyente, "The relationship between two directed information measures," *IEEE Signal Processing Letters*, vol. 15, pp. 801-804, December 2008.
- [26] K. Huang and S. Aviyente, "Wavelet feature selection for image classification," *IEEE Transactions on Image Processing*, vol. 17, no. 9, pp. 1709-1720, September 2008. **(impact factor=3.111)**
- [27] W. Zanardelli, E. Strangas and S. Aviyente, "Identification of intermittent electrical and mechanical faults in permanent AC drives based on time-frequency analysis," *IEEE Transactions on Industry Applications*, vol. 43, no. 4, pp. 971-980, July-Aug. 2007.
- [28] S. A. Khayam, H. Radha, S. Aviyente and J. R. Deller, "Markov and multifractal wavelet models for wireless MAC-to-MAC channels," *Performance Evaluation*, vol. 64, no. 4, pp. 298-314, May 2007.
- [29] K. Huang and S. Aviyente, "Information theoretic wavelet packet subband selection for texture classification," *Signal Processing*, vol. 86, no. 7, pp. 1410-1420, July 2006.
- [30] S. Aviyente and W. J. Williams, "Multitaper marginal time-frequency distributions," *Signal Processing*, vol. 86, no. 2, pp. 279-295, February 2006.
- [31] S. Aviyente and W. J. Williams, "Minimum entropy time-frequency distributions", *IEEE Signal Processing Letters*, vol. 12, no. 1, pp. 37-40, January 2005.
- [32] S. Aviyente and W. J. Williams, "A centrosymmetric kernel decomposition for time-frequency distribution computation," *IEEE Transactions on Signal Processing*, vol. 52, pp. 1574-1584, June 2004. **(impact factor=3.198)**
- [33] S. Aviyente, L. W. Brakel, R. K. Kushwaha, M. Snodgrass, H. Shevrin and W. J. Williams, "Characterization of event related potentials using information theoretic distance measures," *IEEE Transactions on Biomedical Engineering*, vol. 51, pp. 737-743, May 2004.

Conference Papers

- [1] M. Villafane-Delgado and S. Aviyente, "Graph Information Theoretic Measures on Functional Connectivity Networks Based on Graph-To-Signal Transform," in *IEEE Global Conference on Signal and Information Processing*, 2016.
- [2] A. Ozdemir, M. Iwen and S. Aviyente, "Multiscale Tensor Decomposition," in *Asilomar Conference on Signals, Systems and Computers*, 2016.
- [3] M. Villafane-Delgado and S. Aviyente, "Temporal Network Tracking Based on Tensor Factor Analysis of Graph Signal Spectrum," in *IEEE Statistical Signal Processing Workshop*, 2016.
- [4] E. Al-sharoha and S. Aviyente, "Evolutionary spectral graph clustering through subspace distance measure," in *IEEE Statistical Signal Processing Workshop*, 2016.
- [5] A. Ozdemir, M. Iwen and S. Aviyente, "A multiscale approach for tensor denoising," in *IEEE Statistical Signal Processing Workshop*, 2016.
- [6] A. Ozdemir and S. Aviyente, "On-line Low Rank+Sparse Structure Learning for Dynamic Network Tracking," in *IEEE International Conference on Acoustics, Speech and Signal Processing*, 2016.
- [7] M. Villafane-Delgado and S. Aviyente, "Functional Connectivity Brain Network Analysis Through Network to Signal Transform Based on the Resistance Distance," in *IEEE International Conference on Acoustics, Speech and Signal Processing*, 2016.
- [8] A. Ozdemir, M. Iwen and S. Aviyente, "Locally Linear Low-Rank Tensor Approximation," accepted for publication in *IEEE Global Conference on Signal and Information Processing*, 2015.
- [9] A. G. Mahyari and S. Aviyente, "A Tucker Decomposition Based Approach for Topographic Functional Connectivity State Summarization," in *IEEE Global Conference on Signal and Information Processing*, 2015.
- [10] M. Villafane-Delgado and S. Aviyente, "A Time-Frequency Based Bivariate Synchrony Measure for Reducing Volume Conduction Effects in EEG," in *IEEE Global Conference on Signal and Information Processing*, 2015.
- [11] E. Strangas and S. Aviyente, "Failure Prognosis Methods in Electrical Drives- State of the art and future directions," *IEEE Workshop on Electrical Machines Design, Control and Diagnosis*, pp. 254-260, 2015.
- [12] D. M. Zoltowski and S. Aviyente, "Low-Rank Tensor Decomposition Based Dynamic Network Tracking," *IEEE Global Conference on Signal and Information Processing*, pp. 468-472, 2014.
- [13] M. Villafane-Delgado and S. Aviyente, "Effective Connectivity in fMRI from Mutual Prediction Approach," *Asilomar Conference on Signals, Systems and Computers*, pp. 200-203, 2014.
- [14] A. Ozdemir and S. Aviyente, "Graph Wavelet Transform: Application to Image Segmentation," *Asilomar Conference on Signals, Systems and Computers*, pp. 496-499, 2014.
- [15] A. G. Mahyari and S. Aviyente, "Fourier Transform for Signals on Dynamic Graphs," *Asilomar Conference on Signals, Systems and Computers*, pp. 2001-2004, 2014.
- [16] R. Singleton, E. Strangas and S. Aviyente, "Discovering the Hidden Health States in Bearing Vibration Signals for Fault Prognosis," *IEEE Industrial Electronics Conference (IECON)*, pp. 3438-3444, 2014 (**best presentation award**).
- [17] D. M. Zoltowski, E. M. Bernat and S. Aviyente, "A Graph Theoretic Approach to Dynamic Functional Connectivity Tracking and Network State Identification," *IEEE International Conference of the Engineering in Medicine and Biology Society*, pp. 6004-6007, 2014.
- [18] A. Ozdemir, A. G. Mahyari, E. M. Bernat and S. Aviyente, "Multiple Subject Analysis of Functional Brain Network Communities Through Co-Regularized Spectral Clustering," *IEEE International Conference of the Engineering in Medicine and Biology Society*, pp. 5992-5995, 2014.
- [19] M. Villafane-Delgado, D. Zhu and S. Aviyente, "Computation of Resting State Networks from fMRI through a Measure of Phase Synchrony," *IEEE International Conference of the Engineering in Medicine and Biology Society*, pp. 1456-1459, 2014.

- [20] A. G. Mahyari and S. Aviyente, "Identification of dynamic functional brain network states through tensor decomposition," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. 2099-2103, 2014.
- [21] A. G. Mahyari and S. Aviyente, "A Multi-scale Energy Detector for Anomaly Detection in Dynamic Graphs," *Asilomar Conference on Signals, Systems and Computers*, pp. 962-965, 2013.
- [22] A. G. Mahyari and S. Aviyente, "Multi-scale Anomaly Detection in Complex Dynamic Networks," *IEEE Global Conference on Signal and Information Processing*, pp. 603-606, 2013.
- [23] A. G. Mahyari and S. Aviyente, "Two-Dimensional SVD for Event Detection in Dynamic Functional Brain Networks," *IEEE Global Conference on Signal and Information Processing*, pp. 37-40, 2013.
- [24] KY. Kwon, S. Aviyente and W. Li, "Investigation of phase-locked neuronal oscillation with optical stimulation based on a time-frequency approach," *Proceedings of IEEE/EMBS Conference on Neural Engineering*, pp. 423-426, 2013.
- [25] R. K. Singleton, E. G. Strangas and S. Aviyente, "Time-frequency complexity based remaining useful life (RUL) estimation for bearing faults," *IEEE International Symposium on Diagnostics for Electric Machines, Power Electronics and Drives*, pp. 600-606, 2013.
- [26] A. Y. Mutlu and S. Aviyente, "Subspace Analysis for Characterizing Dynamic Functional Brain Networks," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. 1272-1276, 2013.
- [27] A. Y. Mutlu and S. Aviyente, "Hyperspherical Phase Synchrony Measure for Quantifying Global Synchronization in the Brain," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. 1267-1271, 2013.
- [28] A. Y. Mutlu and S. Aviyente, "Hyperspherical phase synchrony for quantifying multivariate phase synchronization," *Proceedings of IEEE Statistical Signal Processing Workshop*, pp. 888-891, 2012.
- [29] Y. Liu and S. Aviyente, "The relationship between transfer entropy and directed information," *Proceedings of IEEE Statistical Signal Processing Workshop*, pp. 73-76, 2012.
- [30] M. E. Bolanos, S. Aviyente and H. Radha, "Graph entropy rate minimization and the compressibility of undirected binary graphs," *Proceedings of IEEE Statistical Signal Processing Workshop*, pp. 109-112, 2012.
- [31] A. Y. Mutlu and S. Aviyente, "Dynamic network summarization using convex optimization," *Proceedings of IEEE Statistical Signal Processing Workshop*, pp. 117-120, 2012.
- [32] S. Cardona-Romero and S. Aviyente, "Discriminative sparse image representation for classification based on a greedy algorithm," *Proceedings of IEEE Statistical Signal Processing Workshop*, pp. 181-184, 2012.
- [33] J. Harper, S. Aviyente, S. Malone and E. M. Bernat, "Functional Integration Between Medial and Lateral Prefrontal Cortex (MPFC-LPFC) During Action Monitoring and Response Inhibition: A Time-Frequency Power and Phase-Synchrony Analysis of Theta Activity," *Society for Psychophysiological Research*, October 2012.
- [34] M. Bolanos, A. Mutlu, S. Aviyente and E. Bernat, "Identifying multivariate EEG Synchronization networks through multiple subject community detection," *Asilomar Conference on Signals, Systems and Computers*, pp. 122-126, 2011.
- [35] Y. Liu and S. Aviyente, "Time-lagged Directed Information," in *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. 3864-3867, 2011.
- [36] A. Y. Mutlu and S. Aviyente, "Joint frequency spectral lag representation for cross-frequency modulation analysis in the brain," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. 3800-3803, 2011.
- [37] M. E. Bolanos and S. Aviyente, "Quantifying the functional importance of neuronal assemblies in the brain using Laplacian Hückel graph Energy," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. 753-756, 2011.

- [38] Y. Liu and S. Aviyente, "Multichannel EEG analysis based on multi-scale multi-information," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. 589-592, 2011.
- [39] E. Strangas, S. Aviyente, J. Neely, S. S. H. Zaidi, "Improving the reliability of electrical drives through failure prognosis," *IEEE International Symposium on Diagnostics for Electric Machines, Power Electronics and Drives*, pp. 669-675, 2011.
- [40] J. Antonino-Daviu, S. Aviyente, E. G. Strangas and M. Riera-Guasp, "A scale invariant algorithm for the automatic diagnosis of rotor bar failures in induction motors," *IEEE International Symposium on Industrial Electronics*, pp. 496-501, 2011.
- [41] J. Antonino-Daviu, S. Aviyente, E. G. Strangas, M. Riera-Guasp, J. Roger-Folch and R. B. Perez, "An EMD-based invariant feature extraction algorithm for rotor bar condition monitoring," *IEEE International Symposium on Diagnostics for Electric Machines, Power Electronics and Drives*, pp. 669-675, 2011.
- [42] Y. Liu, J. Moser and S. Aviyente, "Community Detection for Directional Neural Networks Inferred from EEG Data," *IEEE International Conference of the Engineering in Medicine and Biology Society*, pp. 7155-7158, 2011.
- [43] M. Bolanos, E. M. Bernat and S. Aviyente, "Multivariate synchrony modules identified through multiple subject community detection in functional brain networks," *IEEE International Conference of the Engineering in Medicine and Biology Society*, pp. 2534-2537, 2011.
- [44] M. Bolanos, S. Aviyente and E. M. Bernat, "Graph Analysis of Neuronal Interactions for the Error-Related Negativity," in *IEEE International Conference of the Engineering in Medicine and Biology Society*, 2010 (**finalist for the student best paper award**).
- [45] Y. Liu and S. Aviyente, "Directed Network Inference Using a Measure of Directed Information," in *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, 2010.
- [46] M. Bolanos, E. M. Bernat and S. Aviyente, "Identifying Functional Clusters in the Brain Using Phase Synchrony," in *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, 2010.
- [47] S. Aviyente, "A New Class of Complex Time-Frequency Distributions for Estimating Phase Synchrony between Signals," *Proceedings of IEEE Statistical Signal Processing Workshop*, pp. 561-564, 2009.
- [48] Y. Liu, S. Aviyente and M. Al-Khassaweneh, "A high dimensional directed information estimating using data-dependent partitioning," *Proceedings of IEEE Statistical Signal Processing Workshop*, pp. 606-609, 2009.
- [49] M. Bolanos and S. Aviyente, "Identifying Centralized Hubs within Neural Functional Connections," *Proceedings of IEEE Statistical Signal Processing Workshop*, pp. 25-28, 2009.
- [50] Y. Liu and S. Aviyente, "Directed Information Measure for Quantifying the Information Flow in the Brain," *IEEE International Conference of the Engineering in Medicine and Biology Society*, pp. 2188-2191, 2009.
- [51] M. Bolanos, S. Aviyente and E. Bernat, "Identification of Small World Topologies in Neural Functional Connections Quantified by Phase Synchrony Measures," *IEEE International Conference of the Engineering in Medicine and Biology Society*, pp. 5308-5311, 2009.
- [52] A. Y. Mutlu and S. Aviyente, "Inferring Effective Connectivity in the Brain from EEG Time Series Using Dynamic Bayesian Networks," *IEEE International Conference of the Engineering in Medicine and Biology Society*, pp. 4739-4742, 2009.
- [53] S. H. Zaidi, S. Aviyente, M. Salman, K-K. Shin and E. G. Strangas, "Failure Prognosis of DC Starter Motors Using Hidden Markov Models," *IEEE International Symposium on Diagnostics for Electric Machines, Power Electronics and Drives*, pp. 1-7, 2009.

- [54] M. Al-Khassaweneh, H. Al-Zoubi and S. Aviyente, "Watermarking of Speech Signals in the Time-Frequency Domain," *IEEE International Conference on Electro/Information Technology*, pp. 319-322, 2009.
- [55] S. R. Sponheim, S. Aviyente, S. S. Kang, J. J. Stanwyck, E. M. Bernat , "Gamma Band Synchrony as an Endophenotype for Schizophrenia," International Congress on Schizophrenia Research, 2009.
- [56] S. S. Kang, E. M. Bernat, S. Aviyente, M. V. Chafee, C. Im, A. W. MacDonald, S. R. Sponheim, "Abnormal Neural Synchrony of Cortical Source Signals during Spatial Working Memory Task in Schizophrenia Patients," International Congress on Schizophrenia Research, 2009.
- [57] N. C. Venables, E. M. Bernat, S. Aviyente and C. J. Patrick, "Reduced error-related phase synchrony in externalizing," Society for Psychophysiological Research, October 2008.
- [58] S. S. Kang, N. C. Venables, E. M. Bernat, S. Aviyente and S. R. Sponheim, "Neural phase synchrony during resting state in schizophrenia patients and their unaffected biological relatives," Society for Psychophysiological Research, October 2008.
- [59] S. Aviyente and W. S. Evans, "Time-frequency analysis for the study of phase synchrony in the brain," *Proceedings of SPIE, Advanced Signal Processing Algorithms, Architectures and Implementations*, vol. 7074, pp. 70740Q, 2008.
- [60] R. H. Raza and S. Aviyente, "Quantifying the causal interactions in the brain using a measure of directed transinformation," *IEEE International Conference of the Engineering in Medicine and Biology Society*, pp. 3828-3831, 2008.
- [61] M. Al-Khassaweneh and S. Aviyente, "Image encryption scheme based on using least square approximation techniques," *IEEE International Conference on Electro/Information Technology*, pp. 108-111, 2008.
- [62] W. S. Evans and S. Aviyente, "Multiple trial processing of multivariate phase synchronization in brain signals," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. 477-480, 2008.
- [63] Z. Shan, J. Swary and S. Aviyente, "Underdetermined source separation of EEG signals in the time-frequency domain," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, pp. 3637-3640, 2008.
- [64] E. M. Bernat, S. Aviyente and C. J. Patrick, "Improved source localization of error-related negativity (ERN) using principal components analysis (PCA) of time-frequency activity," *Psychophysiology*, vol. 44, pp. S26, 2007.
- [65] S. Aviyente, S. Zaidi and E. Strangas, "Time-Frequency based feature extraction and classification for fault diagnosis in electric drives," Asilomar Conference on Signals, Systems and Computers, pp. 857-860, November 2007 **(invited)**.
- [66] S. Aviyente and W. S. Evans, "Phase synchrony measures for the study of functional brain networks," *Forty-fifth Annual Allerton Conference on Communication, Control, and Computing*, September 2007 **(invited)**.
- [67] S. H. Zaidi, W. G. Zanardelli, S. Aviyente and E. G. Strangas, "Comparative study of time-frequency methods for the detection and categorization of intermittent faults in electrical drives," *IEEE International Symposium on Diagnostics for Electric Machines, Power Electronics and Drives*, pp. 39-45, September 2007.
- [68] K. Huang and S. Aviyente, "Large margin dimension reduction for sparse image classification," *Proceedings of IEEE Statistical Signal Processing Workshop*, pp. 773-777, August 2007.
- [69] S. Aviyente, "Compressed sensing framework for EEG compression," *Proceedings of IEEE Statistical Signal Processing Workshop*, pp. 181-184, August 2007.

- [70] Z. Shan, J. Swary and S. Aviyente, "Underdetermined source separation in the time-frequency domain," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, vol. 3, pp. 945-948, 2007.
- [71] S. Aviyente, W. S. Evans, E. M. Bernat and S. Sponheim, "A time-varying phase coherence measure for quantifying functional integration in the brain," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, vol. 4, pp. 1169-1172, 2007.
- [72] S. Aviyente, F. Ahmad, and M. G. Amin, "Information theoretic measures for change detection in urban sensing applications," *Proceedings of IEEE Workshop on Signal Processing Applications for Public Security and Forensics*, pp. 1-6, 2007.
- [73] S. Aviyente, "Information theoretic measures for quantifying the integration of neural activity," *Information Theory and Applications Workshop*, pp. 20-26, February 2007 (**invited**).
- [74] K. Huang, M. Yan and S. Aviyente, "Edge-directed inference for microaneurysms detection in digital fundus images", *Proceedings of SPIE Medical Imaging 2007, Vol. 6512*, no. 3, pp. 651237, February 2007.
- [75] K. Huang and S. Aviyente, "Sparse representation for signal classification," *Advances in Neural Information Processing Systems 19*, pp. 609-616, MIT Press, 2006.
- [76] M. Al-Khassaweneh and S. Aviyente, "Image watermarking in the autocorrelation domain," *Proceedings of ACM Multimedia Conference*, pp. 53-58, 2006.
- [77] K. Huang and S. Aviyente, "Rotation invariant texture classification with ridgelet transform and Fourier transform", *Proceedings of IEEE International Conference on Image Processing*, pp. 2141-2144, 2006.
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- [79] S. Aviyente, "Time-frequency decomposition based on information," *Proceedings of SPIE, Advanced Signal Processing Algorithms, Architectures and Implementations*, vol. 6313, 63130R 2006.
- [80] S. Aviyente, F. Ahmad and M. G. Amin, "Information theoretic measures for through-the-wall surveillance," *IEEE Workshop on Sensor Array and Multi-channel Processing*, pp. 626-630, 2006.
- [81] M. Al-Khassaweneh and S. Aviyente, "Robust watermarking in the Wigner domain," *Proceedings of IEEE International Conference on Multimedia and Expo*, pp. 1557-1560, 2006.
- [82] M. Al-Khassaweneh and S. Aviyente, "Spatially adaptive wavelet thresholding for image watermarking," *Proceedings of IEEE International Conference on Multimedia and Expo*, pp. 1597-1600, 2006.
- [83] Z. Shan and S. Aviyente, "Jensen-Renyi divergence for source separation on the time-frequency plane," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, vol. 3, pp. 424-427, 2006.
- [84] Z. Shan and S. Aviyente, "Source separation in the time-frequency domain by maximizing an information-theoretic criterion," *Proceedings of the IEEE International Conference on Electro/Information Technology*, pp. 43-48, 2006.
- [85] M. Al-Khassaweneh and S. Aviyente, "Embedding multi-bit message in the joint time-frequency domain," *Proceedings of the IEEE International Conference on Electro/Information Technology*, pp. 516-519, 2006.
- [86] Z. Shan and S. Aviyente, "Information-Theoretic nonstationary source separation," *International Conference on Independent Component Analysis and Blind Signal Separation*, pp. 885-892, 2006.
- [87] M. Al-Khassaweneh and S. Aviyente, "Image watermarking based on wavelet hard thresholding," *Proceedings of European Signal Processing Conference*, September 2005.

- [88] M. Al-Khassaweneh and S. Aviyente, "A time-frequency based perceptual and robust watermarking scheme," *Proceedings of European Signal Processing Conference*, September 2005.
- [89] S. Aviyente, "Information-Theoretic signal processing on the time-frequency plane and applications," *Proceedings of European Signal Processing Conference*, September 2005 (**invited**).
- [90] W. G. Zanardelli, E. G. Strangas and S. Aviyente, "Intermittent fault identification for permanent magnet AC drives based on the short-time Fourier transform," *IEEE International Symposium on Diagnostics for Electrical Machines, Power Electronics and Drives*, pp. 3-8, September 2005.
- [91] K. Huang and S. Aviyente, "Statistical partitioning of wavelet subbands for texture classification," *Proceedings of IEEE International Conference on Image Processing*, vol. 1, pp. 441-444, September 2005.
- [92] Z. Shan and S. Aviyente, "Adaptive minimum entropy decomposition on the time-frequency plane," *Proceedings of IEEE Workshop on Statistical Signal Processing*, pp. 861-864, July 2005.
- [93] W. G. Zanardelli, E. G. Strangas and S. Aviyente, "Failure prognosis for permanent magnet AC drives based on wavelet analysis," *International Electric Machines and Drives Conference*, pp. 64-70, May 2005.
- [94] Z. Shan and S. Aviyente, "Image denoising based on the wavelet co-occurrence matrix," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, vol. 2, pp. 645-648, March 2005.
- [95] K. Huang and S. Aviyente, "Mutual information based subband selection for wavelet packet Based image classification," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, vol. 2, pp. 241-244, March 2005.
- [96] S. Aviyente, "A measure of mutual information on the time-frequency plane," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, vol. 4, pp. 481-484, March 2005.
- [97] S. Khayam, S. Aviyente and H. Radha, "On long-range dependence in high bitrate wireless residual channels," *Proceedings of Conference on Information Sciences and Systems*, March 2005.
- [98] M. Al-Khassaweneh and S. Aviyente, "A time-frequency inspired robust image watermarking," *Asilomar Conference on Signals, Systems and Computers*, vol. 1, pp. 392-396, November 2004.
- [99] K. Huang and S. Aviyente, "Combining generalized Gaussian density and energy distribution in wavelet packet analysis for texture classification," *Asilomar Conference on Signals, Systems and Computers*, vol. 2, pp. 2094-2098, November 2004.
- [100] K. Huang and S. Aviyente, "Choosing best basis in wavelet packets for fingerprint matching", *Proceedings of IEEE International Conference on Image Processing*, vol. 2, pp. 1249-1252, October 2004.
- [101] M. Al-Khassaweneh and S. Aviyente, "Robust watermarking on the joint spatial-spectral domain", *Proceedings of IEEE Digital Signal Processing Workshop*, pp. 279-301, August 2004.
- [102] S. Aviyente, "Towards a theory of information processing on the time-frequency plane", *Proceedings of SPIE, Advanced Signal Processing Algorithms, Architectures and Implementations*, vol. 5559, pp. 232-240, August 2004.
- [103] S. Aviyente, "Information processing on the time-frequency plane," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, vol. 2, pp. 617-620, May 2004.
- [104] K. Huang and S. Aviyente, "Fingerprint verification based on wavelet subbands," in *Proceedings of SPIE Defense and Security Symposium*, vol. 5404, pp. 30-38, April 2004.
- [105] S. Aviyente and W. J. Williams, "Entropy based detection on the time-frequency plane," in *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, vol. 6, pp. 441-444, 2003.

- [106] S. Aviyente, "Divergence measures for time-frequency distributions," *Proceedings of IEEE International Symposium on Signal Processing and Applications*, vol. 1, pp. 121-124, 2003.
 - [107] S. Aviyente, "Information theoretic signal detection on the time-frequency plane," *Proceedings of SPIE, Advanced Signal Processing Algorithms, Architectures and Implementations*, vol. 5205, pp. 86-93, 2003.
 - [108] S. Aviyente, "An information theoretic approach to digital watermarking," *Proceedings of SPIE, Visual Communications and Image Processing*, vol. 5150, pp. 842-850, 2003.
 - [109] W. J. Williams and S. Aviyente, "Spectrogram decomposition of time-frequency distributions," *Proceedings of IEEE Sixth International Symposium on Signal Processing and its Applications*, vol. 2, pp. 587-590, 2001.
 - [110] S. Aviyente and W. J. Williams, "Minimum entropy approach to denoising time-frequency distributions," *Proceedings of SPIE, Advanced Signal Processing Algorithms, Architectures and Implementations*, vol. 4474, pp. 57-67, 2001.
 - [111] S. Aviyente and W. J. Williams, "Information bounds for random signals in time-frequency plane," in *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, vol. 6, pp. 3549-3552, 2001.
 - [112] S. Aviyente and W. J. Williams, "Multitaper reduced interference distribution," *Proceedings of the Tenth IEEE Workshop Statistical Signal and Array Processing*, 2000, pp. 569-573, 2000.
 - [113] S. Aviyente and W. J. Williams, "Discrete scale vectors and decomposition of time-frequency kernel," *Proceedings of SPIE, Advanced Signal Processing Algorithms, Architectures and Implementations*, vol. 4116, pp. 100-109, 2000.
 - [114] S. Aviyente and W. J. Williams, "Improved frequency marginal estimates for time-frequency distributions," *Proceedings of IEEE International Conference on Acoustics, Speech and Signal Processing*, vol. 2, pp. 641-644, 2000.
 - [115] W. J. Williams and S. Aviyente, "Minimal window time-frequency distributions," *Proceedings of SPIE, Advanced Signal Processing Algorithms, Architectures and Implementations*, vol. 3807, pp. 146-158, 1999.
 - [116] W. J. Williams and S. Aviyente, "Optimal window time-frequency distribution decompositions," *32nd Asilomar Conference on Signals, Systems and Computers*, pp. 817-821, 1998.
-

FUNDED PROJECTS

1. CIF: Small: Low-Dimensional Structure Learning for Tensor Data with Applications to Neuroimaging, NSF, PI, \$500,000, 07/01/16-06/30/19.
2. Cognitive Control in Anxiety: The Role of Ovarian Hormones, NIH, co-PI (PI: J. Moser), \$3,381,819, 3/25/2016 - 2/28/2021.
3. CIF: Small: A comprehensive framework for dynamic network tracking and clustering with applications to brain connectivity, NSF, PI, \$380,048, 08/01/14-07/31/17.
4. Discretionary Funding Initiative: Long-term Stable Recording in Large-scale Neuronal Networks Using a Trimodal Neural Interfacing Probe, Michigan State University Foundation, PI, \$25,000, 11/26/14-06/30/16.
5. Functional mapping and control of the visual cortex: toward cortically-based visual neuroprosthesis, Michigan State University Foundation, co-PI (PI: W. Li), \$400,000, 09/01/14-08/31/17.
6. GAANN: Biomedical Systems and Device Engineering, U.S. Department of Education, co-PI (PI: T. Grotjohn), \$527,700, 09/01/12-08/31/15.

7. CIF: Small: A Signal Processing Approach to the Analysis of Time-Varying Functional Networks of the Brain, NSF, PI, \$268,567, 09/01/12-08/31/16.
 8. GOALI: Reliability Enhancement of Electric Drive Systems Through Failure Prognosis and Fault Mitigation, NSF, co-PI (PI: E. Strangas), \$478,164, 08/15/11-07/31/16.
 9. Fault Diagnosis and Prognosis for Automotive Starting Systems, General Motors, co-PI (PI: E.Strangas), \$120,000, 04/10/08-01/31/10.
 10. CAREER: Integrated Research and Education in Functional Brain Networks, NSF, PI, \$400,000, 3/1/08-2/28/13.
 11. Signal Processing for Quantifying the Functional Integration in the Brain, NSF, PI, \$155,473, 9/1/07-8/31/10.
 12. Research Gift for Biomedical Signal and Image Processing, Siemens Corporate Research, PI, \$30,000, 07/06-06/07.
 13. Comprehensive Fingerprint Identification, Michigan Economic Development Corporation, PI, \$150,000, 07/03-12/06.
 14. Speech Synthesis for Distance Cueing in Audio Displays, IC-Tech, Air Force STTR, PI, \$35,340, 08/05-04/06.
 15. A joint time-frequency approach to digital watermarking, Intramural Research Grants Program, MSU, PI, \$50,000, 12/03-06/05.
-

EDUCATIONAL ACTIVITIES

Courses Taught at MSU

1. ECE 360, Signals and Linear Systems, Fall 2002.
2. ECE 202, Circuits and Systems II, Spring 2007, 2011.
3. ECE 280, Analytical Methods in Electrical Engineering, Fall 2004, Spring 2005, Fall 2013, Fall 2014.
4. ECE 366, Introduction to Signal Processing, Fall 2006, Fall 2008, Fall 2015.
5. ECE 366, Introduction to Signal Processing, Honors Section, Fall 2005, Fall 2007, Fall 2009.
6. ECE 448, Modeling and Analysis of Biological Systems, Spring 2013.
7. ECE 457, Communication Systems, Spring 2003, 2004, 2005.
8. ECE 458, Communication Systems Lab, Spring 2003.
9. ECE 466, Digital Signal Processing, Fall 2010, 2011.
10. ECE 480, Senior Design Class, Facilitator, Spring 2006, Fall 2007, Fall 2008, Spring 2010, Spring 2013, Fall 2013, Fall 2014.
11. ECE 866, Time-Frequency and Wavelet Analysis, Fall 2003, Spring 2006, Spring 2008, Spring 2010, Spring 2012, Spring 2014, Spring 2016.

Internal Talks

1. "A Signal Processing Framework for Studying Functional Brain Networks During Cognitive Control," Signal Processing Seminar Series, Math Department, February 2014.
2. "A Signal Processing Framework for Studying Functional Brain Networks During Cognitive Control," MSU Cognitive Science Forum, Department of Psychology, February 2012.

3. "Introduction to Electrical and Computer Engineering: Biosignals," High School Engineering Exploration, June 2011.
4. "Introduction to Electrical and Computer Engineering," High School Engineering Exploration and High School Engineering Immersion, College of Engineering, July 2010.
5. "Introduction to Electrical and Computer Engineering," Women in Engineering Program, College of Engineering, July 2008.
6. "Introduction to Signal Processing at MSU," EGR 291, Introduction to Electrical Engineering, Spring 2006, Fall 2006, Spring 2007, Fall 2007.
7. "Time-Frequency Methods and Information Measures for EEG Analysis," presented in ECE 802-606, MSU, Spring 2007.
8. Women in Engineering Program, Panel member, College of Engineering, July 2006.
9. "Time-Frequency Distributions and Applications," Pattern Recognition and Image Processing Lab, Computer Science Department, Michigan State University, October 2003.
10. "Time-Frequency Distributions and Applications," Brownbag Seminar Series, College of Engineering, Michigan State University, April 2003.

External Talks and Seminars

1. "A Signal Processing Framework to Dynamic Functional Connectivity in the Brain," presented at the Department of Electrical and Computer Engineering, Western Michigan University, October 2015.
2. "A Signal Processing Framework to Dynamic Functional Connectivity Networks," University of Maryland, April 2015.
3. "New Approaches to Functional Connectivity in Cognitive Control," presented at Cognitive Neuroscience Symposium, San Francisco, March 2015.
4. "A tensor-based approach to tracking dynamics of functional connectivity in the brain," presented at the IEEE Brain Grand Challenges Workshop, Washington D.C., November 2014.
5. "A Signal Processing Framework for Studying Dynamic Functional Brain Networks," presented at the Department of Electrical and Computer Engineering, Rutgers University, September 2013.
6. "A Signal Processing Framework for Studying Dynamic Functional Brain Networks," presented at the Department of Electrical and Computer Engineering, Sabanci University, July 2013.
7. "A Signal Processing Framework for Studying Dynamic Functional Brain Networks," presented at the Department of Electrical and Computer Engineering, University of Pittsburgh, October 2012.
8. "A Signal Processing Framework for Studying Functional Brain Networks," presented at the Department of Electrical and Computer Engineering, Michigan Technological University, February 2011.
9. "Time-Varying Phase Synchrony," presented at the Department of Psychology, Florida State University, January 2011.
10. "Introduction to Time-Frequency Analysis," presented at the Department of Psychology, Florida State University, January 2011.
11. "A Signal Processing Framework for Studying Functional Brain Networks," presented at the School of Biomedical Engineering, Science and Health Systems, Drexel University, November 2009.
12. "Introduction to Time-Frequency Analysis," presented at Society of Psychophysiological Research, Pre-conference Workshop, October 2009.
13. "A Signal Processing Framework for Inferring Functional Brain Networks," presented at DSP Seminar Series, University of Illinois Urbana-Champaign, April 2009.
14. "Sparse Representations for Image Classification," presented at Image Understanding Division, Office of Naval Research, April 2007.

15. "Image Processing Research at MSU," presented at Siemens Corporate Research, Princeton, NJ, January 2006.
16. "Women in Computing," presented at Oakland University as part of NSF-REU program at Oakland University, June 2006.
17. "Information-Theoretic Measures for Target Identification in Through-the-Wall Imaging," presented at Center for Advanced Communications, Villanova University, June 2006.
18. "Information-Theoretic Signal Processing on the Time-Frequency Plane and Applications," presented at Center for Advanced Communications, Villanova University, September 2005.
19. "Communications and Signal Processing Research at MSU," presented at Texas Instruments, November 2003.

Chair of Ph.D. Dissertation Committees

1. Esraa Al-Sharwa, Ph.D. student, 2014-present.
2. Alp Ozdemir, Ph.D. student, 2013-present.
3. Marisel Villefando, Ph. D. student, 2013-present.
4. Arash Mahyari, Ph.D. student, 2012-present.
5. Rodney Singleton, Ph.D., November 2016. Dissertation: Fault Prognosis of Bearings in Electrical Drives and Motors. Currently at APL.
6. Ying Liu, Ph.D., April 2012. Dissertation: Directed Information for Complex Network Analysis from Multivariate Time Series. Currently at Bosch.
7. Ali Yener Mutlu, Ph.D., December 2012. Dissertation: A Multivariate Time-Frequency Based Phase Synchrony Measure and Applications to Dynamic Brain Network Analysis. Currently Assistant Professor of Computer Engineering at Izmir University of Economics, Turkey.
8. Marcos Bolanos, Ph.D., July 2012. Dissertation: Signal Processing Inspired Graph Theoretic Methods for Understanding Functional Connectivity of the Brain. Currently at CNA Consulting.
9. Zeyong Shan, Ph.D., November 2007. Dissertation: Multichannel Signal Decomposition and Separation in the Time-Frequency Domain. Currently at TGS.
10. Ke Huang, Ph.D., April 2007. Dissertation: Sparse Representations for Image Classification. Currently at Google.
11. Mahmood Al-Khassawneh, April 2007. Dissertation: Image Watermarking in the Time-Frequency Domain. Currently Associate Professor of Computer Engineering, Yarmouk University, Jordan.

Chair of M.S. Committees

12. Suhaily Cardona, M.S. student, August 2012. Thesis: Discriminative Sparse Representations for Image Classification.
13. Westley Evans, M.S. student, December 2008. Thesis: Measuring the Phase Synchrony of Brain Signals Using Time-Frequency Distributions.
14. Jacob Swary, M.S., August 2007. Thesis: Evaluation and Comparison of Data Reduction and Source Separation Techniques for Event Related Potentials.
15. Juhwan Lee, M.S. student, course option, Spring 2004.

Member of Thesis Committees

1. Sylmarie Davila Montero (Advisor: Dr. Andrew Mason/ECE), Spring 2017-.
2. Christopher Richard (Advisor: Dr. Steve Lidia /Physics), Fall 2016-.
3. Sami Merhi (Advisor: Dr. Mark Iwen/Math), Spring 2016-.
4. Jinyao Yan (Advisor: Dr. Jack Deller/ECE), Spring 2016-.
5. Charles Otto (Advisor: Dr. Anil Jain/CSE), Ph.D., Fall 2016.

6. Anand Chandrasekhar (Advisor: Dr. Ramakrishna Mukkamala/ECE), Spring 2015-
7. Oleksii Karpenko (Advisor: Dr. Lalita Udpa/ECE), Spring 2015-
8. Lacey Best-Rowden (Advisor: Dr. Anil Jain/CSE), Ph.D., Fall 2016.
9. Inci Baytas (Advisor: Dr. Anil Jain/CSE), Fall 2014-
10. Portia Banerjee (Advisor: Dr. Lalita Udpa/ECE), Fall 2014-
11. Kenji Aono (Advisor: Dr. Shantanu Chakrabartty/ECE), Spring 2014-
12. Thomas Swearingen (Advisor: Dr. Arun Ross/CSE), Spring 2014-
13. Xi Liu (Advisor: Dr. Pang-Ning Tan/CSE), Spring 2013-
14. Andrew Babel (Advisor: Dr. Elias Strangas/ECE), Ph.D., Fall 2014.
15. Jinfeng Yi (Advisor: Dr. Rong Jin/CSE), Fall 2013-
16. Sunpreet Arora (Advisor: Dr. Anil Jain/CSE), Ph.D., Fall 2016.
17. Qi Qian (Advisor: Dr. Rong Jin/CSE), Ph.D., Fall 2015.
18. Tianlong Song (Advisor: Dr. Tongtong Li/ECE), Ph.D., Fall 2015.
19. Youssef Atoum (Advisor: Dr. Xiaoming Liu/CSE), Spring 2013-
20. Mohammed Al-Qizwini (Advisor: Dr. Hayder Radha/ECE), Fall 2012-
21. Reemon Haddad (Advisor: Dr. Elias Strangas/ECE), Ph.D., Fall 2016.
22. AboTalib Mahfoodh (Advisor: Dr. Hayder Radha/ECE), Ph.D., Summer 2016.
23. Zheyun Feng (Advisor: Dr. Rong Jin/CSE), Ph.D., Fall 2015.
24. Jiankun Liu (Advisor: Dr. Ramakrishna Mukkamala/ECE), Ph.D. Summer 2016.
25. Mohsen Mohlespour (Advisor: Dr. Ramakrishna Mukkamala/ECE), Ph.D. Fall 2016.
26. Ahsan Ijaz (Advisor: Dr. Choi/ME), M.S., Summer 2013.
27. Yi Zhu (Advisor: Dr. Robert McGough/ECE), M.S., Summer 2013.
28. Mazin Hameed (Advisor: Dr. Hayder Radha/ECE), M.S., Spring 2012.
29. Arslan Qaiser (Advisor: Dr. Elias Strangas/ECE), M.S., Fall 2012.
30. Kirk Sales (Advisor: Dr. Robert McGough/ECE), M.S., Spring 2012.
31. Snit Sanghlaio (Advisor: Dr. Tongtong Li/ECE), Spring 2010-
32. Mai Abdelhakim (Advisor: Dr. Tongtong Li/ECE), Spring 2014.
33. Chinh Dang (Advisor: Dr. Hayder Radha/ECE), Fall 2011-
34. Abdolreza Abdolhosseini Moghadam (Advisor: Dr. Hayder Radha/ECE), Ph.D., Spring 2013.
35. Hassan Aqeel Khan (Advisor: Dr. Hayder Radha/ECE), Spring 2011-
36. Ravi Krishna (Advisor: Dr. Shantanu Chakrabartty), M.S., Fall 2011.
37. Lei Zhang (Advisor: Dr. Tongtong Li/ECE), Ph.D., Fall 2011.
38. Alessandra Paulino (Advisor: Dr. Anil Jain/CSE), Ph.D., Spring 2013.
39. Rami Halloush (Advisor: Dr. Hayder Radha/ECE), Ph.D., Fall 2011.
40. Matt Jennings (Advisor: Dr. Robert McGough/ECE), Spring 2009-
41. Serhat Bucak (Advisor: Dr. Anil Jain/CSE), Ph.D., Spring 2014.
42. Brendan Klare (Advisor: Dr. Anil Jain/CSE), Ph.D., Spring 2012.
43. Tianbao Yang (Advisor: Dr. Rong Jin/CSE), Ph.D., Spring 2012.
44. Guanqun Zhang (Advisor: Dr. Ramakrishna Mukkamala/ECE), Ph.D., Fall 2012.
45. Soroor Soltani (Advisor: Dr. Ramakrishna Mukkamala/ECE), Summer 2008-
46. Sauleh Etemady (Advisor: Dr. Hayder Radha/ECE), Spring 2007-
47. Sajjad Zaidi (Advisor: Dr. Elias Strangas/ECE), Ph.D., Summer 2010.

48. Hamid Valizadegan (Advisor: Dr. Rong Jin/CSE), Ph.D., Summer 2010.
49. Da Xu (Advisor: Dr. Ramakrishna Mukkamala/ECE), Ph.D., Spring 2010.
50. Xiaoxiao Chen (Advisor: Dr. Ramakrishna Mukkamala/ECE), Ph.D., Fall 2009.
51. Tong Wei (Advisor: Dr. Rong Jin/CSE), Ph.D., Fall 2010.
52. Mohammed Halloush (Advisor: Dr. Hayder Radha/ECE), Ph.D., Spring 2009.
53. Gokul Swamy (Advisor: Dr. Ramakrishna Mukkamala/ECE), Ph.D., Spring 2009.
54. Kiran Misra (Advisor: Dr. Hayder Radha/ECE), Ph.D., Spring 2009.
55. Feng Kang (Advisor: Dr. Rong Jin/CSE), Ph.D., Summer 2007.
56. Syed Ali Khayam (Advisor: Dr. Hayder Radha/ECE), Ph.D., Fall 2006.
57. Aparna Gurijala (Advisor: Dr. Jack Deller/ECE), Ph.D., Summer 2006.
58. Ramin Eslami (Advisor: Dr. Hayder Radha/ECE), Ph.D., Spring 2006.
59. Westley Zanardelli (Advisor: Dr. Elias Strangas/ECE), Ph.D., Fall 2005.
60. Yongying Gao (Advisor: Dr. Hayder Radha/ECE), Ph.D., Fall 2004.
61. Sivanvitha Devarakonda (Advisor: Dr. Hayder Radha/ECE), M.S., Fall 2007.
62. Yasir Suhail (Advisor: Dr. Karim Oweiss/ECE), M.S., Spring 2005.

Undergraduate Research Students

1. Zoe Dittman, Fall 2016- Spring 2017.
 2. David Zoltowski, Fall 2013-Spring 2015.
 3. Andrew White, Fall 2011.
 4. Steven Hartz, Fall 2011-Spring 2012.
 5. Jacob Swary, Summer and Fall 2006.
 6. Jakub Mazur, Spring 2007.
 7. Fardowsa Hajiabdi, Spring 2005.
 8. Robert Walsh, Fall 2003-Spring 2004.
 9. Dahlia Kandil, Summer 2003.
 10. Sheryar Ghani, Summer and Fall 2003.
-

SERVICE

University Service

1. Chair, ECE Undergraduate Studies Committee, AY 13-14, 14-15, 15-16.
2. Member, Faculty Search Committee, Spring 2016.
3. Member, College of Engineering Biomedical Engineering Chairperson Search Committee, AY 14-15.
4. Member, College of Engineering Biomedical Engineering Department Planning Committee, AY 13-14.
5. Member, Faculty and Academic Council, AY06-07, 07-08.
6. Member, ECE Research Task Force, AY10-11, AY 11-12, AY 12-13.

7. Member, ECE Graduate Studies Committee, AY02-03, 03-04, 04-05.
8. Member, ECE Awards Committee, AY03-04, 04-05, 05-06, 06-07, 07-08.
9. Member, ECE Undergraduate Studies Committee, AY05-06, AY10-11, AY 11-12, AY 12-13.
10. Member, ECE Faculty Search Committee, AY 12-13.
11. Reviewer, MSU Intramural Research Grants Program, Fall 2002, 2004, 2005.
12. Departmental Coordinator for MSU Science, Engineering and Technology Day, 2004-2007.
13. Departmental Coordinator for Future Engineers Open House, 2007-2012 and 2015.

Professional Service

Editorship

1. Associate Editor, Journal of Electronic Imaging, 2009-2016.
2. Senior Associate Editor, IEEE Transactions on Signal Processing, 2015-present.

Conference Organization

1. IEEE GlobalSIP Symposium Organizer, 2015 and 2016.
2. Special Session Organizer, IEEE Industrial Electronics Conference, 2014.
3. Technical Area Chair, Biomedical Signal and Image Processing, Asilomar Conference on Signals, Systems and Computers, 2014.
4. Program Committee Member, Special Sessions Chair, IEEE Workshop on Statistical Signal Processing (SSP) 2012.
5. Program Committee Member, Publications and Publicity Chair, IEEE Conference on Electro-Information Technology (EIT) 2006.
6. Special Session Organizer and Session Chair, IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP) 2007, Asilomar Conference on Signals, Systems and Computers, 2010.
7. Technical Program Committee Member
 - Area Chair for Biomedical Signal and Image Processing, EUSIPCO 2017.
 - IEEE Workshop on Digital Signal Processing and Signal Processing Education (DSP/SPE) 2010.
 - IEEE Symposium on Signal Processing and Information Technology (ISSPIT) 2008.
 - ACM Multimedia Modeling Conference (MMM) 2008.
 - European Signal Processing Conference (EUSIPCO) 2008
 - European Signal Processing Conference (EUSIPCO) 2007.
 - International Conference on Electrical and Electronics Engineering 2007.
 - IEEE International Conference on Signal Processing and Communications (ICSPC) 2007.
8. Session Chair, Asilomar Conference on Signals, Systems and Computers, 2016.
9. Session Chair, IEEE Engineering in Medicine and Biology Conference (EMBC), 2011.
10. Session Chair, IEEE Conference on Electro-Information Technology (EIT), 2006.
11. Session Chair, European Signal Processing Conference, 2005.

Book Reviews

12. Harmonic Analysis, A Gentle Introduction, Carl. L. DeVito, Jones and Bartlett.
13. Fundamentals of Communication Systems, John G. Proakis and Masoud Salehi, Prentice Hall.

14. Signals and Systems, Luis Chaparro, McGraw Hill.

Reviewer for Journals

1. Reviewer, IEEE Transactions on Signal and Information Processing over Networks (2015-present).
2. Reviewer, IEEE Signal Processing Magazine, 2015.
3. Reviewer, IEEE Journal of Selected Topics in Signal Processing, 2015.
4. Reviewer, Brain Topography, 2015.
5. Reviewer, PLoS One (2014- present).
6. Reviewer, Journal of Neural Engineering (2013-present).
7. Reviewer, IEEE Transactions on Neural Systems and Rehabilitation Engineering (2013-present).
8. Reviewer, Digital Signal Processing (2013-present).
9. Reviewer, Biomedical Signal Processing and Control (2014-present).
10. Reviewer, IEEE Transactions on Signal Processing (2000-present).
11. Reviewer, IEEE Signal Processing Letters (2003-present).
12. Reviewer, IEEE Transactions on Image Processing (2004-present).
13. Reviewer, IEEE Transactions on Information Forensics and Security (2005-present).
14. Reviewer, IEEE Transactions on Biomedical Engineering (2007-present).
15. Reviewer, Signal Processing (2006-present).
16. Reviewer, EURASIP Journal of Advances in Signal Processing (2003-present).
17. Reviewer, IEEE Transactions on Industrial Electronics (2009-present).
18. Reviewer, IEEE Transactions on Information Theory (2008).
19. Reviewer, Applied and Computational Harmonic Analysis (2008).
20. Reviewer, Neurocomputing (2008).
21. Reviewer, International Journal of Structural Health Monitoring (2008).
22. Reviewer, Journal of Electronic Imaging (2005).
23. Reviewer, International Journal on Computers and Electrical Engineering (2005).
24. Reviewer, ASME Journal of Dynamic Systems, Measurement and Control (2004).
25. Reviewer, IEE Electronic Letters (2004).
26. Reviewer, Autosoft Journal (2004).
27. Reviewer, IEE Proceedings in Vision, Image, and Signal Processing (2003).

Other Reviewing (Conference and Proposal Review)

1. Reviewer
 - IEEE International Conference on Acoustics, Speech and Signal Processing (2000,2005, 2007, 2011, 2012, 2013, 2014, 2015, 2016, 2017).
 - IEEE International Conference on Image Processing 2015, 2016.
 - IEEE Workshop on Statistical Signal Processing 2012.
 - European Signal Processing Conference (2005, 2006, 2007, 2008).
 - IEEE Cognitive Information Processing Conference 2008.
 - IEEE International Conference on Communications (ICC) 2008.
 - ACM Multimedia Modeling Conference 2008.

- International Conference on Electrical and Electronics Engineering 2007.
 - IEEE International Conference on Signal Processing and Communications 2007.
 - IEEE International Symposium on Signal Processing and Applications 2007.
 - IEEE Engineering in Biology and Medicine Conference 2006, 2011, 2012, 2013, 2014, 2015.
 - IEEE Vehicular Technology Conference 2006.
 - American Society of Engineering Education Conference 2005.
2. NSF Panel Reviewer, 2008, 2010, 2013, 2014, 2015, 2017.
 3. NERC Proposal Reviewer 2012.