

# CURRICULUM VITA

**Hafiz Malik**

*Associate Professor,*

Department of Electrical and Computer Engineering  
University of Michigan-Dearborn, Dearborn, MI 48128

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## Education

**Ph.D.** — Electrical and Computer Engineering **May 2006**  
University of Illinois At Chicago, Chicago, IL  
Advisors: Dr. Ashfaq Khokhar, Dr. Rashid Ansari

**B.S.** — Electrical and Communication Engineering **November 1999**  
University of Engineering and Technology Lahore, Pakistan

## Employment History

**Associate Professor** **May 2014 to present**

Department of Electrical and Computer Engineering  
University of Michigan - Dearborn, Dearborn, Michigan

**Ford Faculty Intern** **June 2017 to August 24, 2017**

Cybersecurity Team, Research & Advanced Engineering  
Ford Motor Company, Dearborn, Michigan

**Assistant Professor** **September 2007 to April 2014**

Department of Electrical and Computer Engineering  
University of Michigan - Dearborn, Dearborn, Michigan

**Post-Doctoral Research Associate** **June 2006 to August 2007**

Department of Electrical and Computer Engineering  
Stevens Institute of Technology, Hoboken, NJ

**Graduate Research Associate****June 2005 to May 2006**

Applied Physic Lab, Eye Research Institute  
University of Illinois At Chicago, Chicago, IL

**Graduate Research Associate****August 2001 to May 2006**

Department of Electrical and Computer Engineering  
University of Illinois At Chicago, Chicago, IL

**Teaching Associate****November 1999 to July 2001**

Department of Computer Sciences  
Lahore University of Management Sciences, Pakistan

**Services at the University of Michigan – Dearborn*****Department of Electrical and Computer Engineering (ECE) committees:***

- Coordinator of Electrical and Computer Engineering ABET 2016-17 visit
  - Successfully completed ECE Department ABET 2016-17 visit
- Computer Engineering MSE Assessment Coordinator 2013 – present
- Undergraduate Student Advisor, October 2013 – present
- Graduate Student Advisor, Computer Engineering MSE program, October 2012 – present
- Chaired committees of ECE Continuing Review for Dr. Herbert Kaufman and Dr. Mark Steffka
- Served on four faculty of search committees over past three years
- B.S. in Digital Forensics-Curriculum Development Committee, 2008 to present. Member.

***College of Engineering and Computer Science (CECS) committees:***

- Member of CECS ABET 2016-17 College Visit Committee
- Member of CECS Graduate Curriculum Development Committee, Sep. 2017 – present

***UM-Dearborn committees:***

- Member of Graduate Subcommittee of University Curriculum and Degree Committee (UCDC), Sep. 2017 – present
- Reviewer for the University of Michigan Internal Proposal Review Committee
- Reviewer for the Program Review for the Michigan Association of State Universities (formerly Presidents Council) – Last year I reviewed two proposals for MS degree in Cybersecurity.

## Honors and Awards:

- Academic Service-Learning (ASL) Faculty Fellow, University of Michigan – Dearborn, Winter 2013
- Receive UIC Graduate College Travel Award for SPIE 2006.
- Session Chair, Second Secure Knowledge Management Workshop, 2006.
- Lead Organizer for Special Track on Doctoral Dissertation in Multimedia, IEEE International Symposium on Multimedia (ISM) 2006.
- Elected President of Pakistan Graduate Student Council at UIC from 2002 – 2005.
- Member of Graduate Student Council at UIC, 2004 – 2005.
- Receive UIC Graduate Student Council Travel Award for IEEE ICASSP 2004
- Receive UIC Graduate Student Council Travel Award for ACM DRM 2005.
- Earned BE in EE degree with honors, University of Engineering and Technology Lahore, 1999.

## Scientific and Professional Societies Memberships

- Treasure, IEEE SEM Chapter 16 (2012 – present)
- Secretary, IEEE SEM Chapter III (2009 – 2011)
- Board Member of Multimedia Communication Technical Committee (MMTC), IEEE Comm. Society
- Co-Editor for IEEE COMMSOC MMTC R-Letter, Vol 1(2)
- Member of Institute of Electrical and Electronics Engineers (IEEE)
- Member Technical Committee of IEEE on Information Forensics and Security
- Member of IEEE Communication Society
- Member of IEEE Signal Processing Society
- Member of IEEE Computational Intelligence Society
- Member Audio Engineer Society (AES)
- Member Technical Committee of AES on Audio Forensics
- Pakistan Engineering Council (PEC) (Lifetime Member)

## Research Activities

- **Grants**

- [1] ForensicExaminer: Testbed for Benchmarking Digital Audio Forensic Algorithms, \$291,471, **Malik, H. (PI)**, National Science Foundation, 09/15/2018 – 08/31/2021
- [2] “UM-Dearborn REU: Spoofing Autonomous Vehicle Sensors”, \$2,960.00, **Malik, H. (PI)**, Research and Sponsored Program Office, University of Michigan – Dearborn, 05/01/2018 – 08/31/2018.
- [3] “Sensor Data Integrity Through Dynamic Watermarking”, \$219,444, **Malik, H. (PI)**, Ford Motor Company, USA, March 2018 – February 2020.

- [4] “Physical-Fingerprinting of CAN-bus ECUs” \$6000.00, **Malik, H. (PI)**, Campus Grant from Research and Sponsored Program Office, University of Michigan – Dearborn, 2016-August 2017.
- [5] “REU: Model Driven Framework for Audio Forensics”, \$16,000.00, **Malik, H. (PI)**, National Science Foundation, 6/1/2016 – 12/31/2016.
- [6] “Development of Audio Forensic Analysis Tool”, \$50,000.00, **Malik, H. (PI)**, National Science Foundation, 1/1/2016 – 12/31/2016.
- [7] “Model Driven Framework for Audio Forensics”, \$70,000.00, **Malik, H. (PI)**, National Science Foundation, 7/1/2014 – 12/31/2016.
- [8] “Digital Multimedia Forensics”, \$495,480.00, **Malik, H. (Co-PI)**, NSTIP – KINGDOM OF SAUDI ARABIA, 1/1/2014 – 12/31/2015.
- [9] “Multimodal Sensing Enabled Real-time Intelligent Wireless Camera Networks for Secure Spaces”, \$239,170.00, **Malik, H. (Consultant)**, *National ICT R&F Fund, Pakistan*, 3/1/2013 – 8/31/2015.
- [10] Ambient Air Quality Monitoring using Integrated Secure Wireless Sensor and Vehicular Networks,” \$145,608.00, **Malik, H. (PI)**, The National Academies, 11/15/2010 – 30/4/2014.
- [11] “Model Driven Approaches for Audio Forensics,” \$6000.00, **Malik, H. (PI)**, Campus Grant from Research and Sponsored Program Office, University of Michigan – Dearborn, 2011-2012.
- [12] “A Laboratory for Multimedia, Mobile Devices, and Digital Forensics,” **Malik, H. (PI)**, Quaid – i – Azam University Islamabad, Pakistan, 08/05/2010 - 08/04/2011.
- [13] “Securing Biometric Templates: Theory and Practice,” \$6000.00, **Malik, H. (PI)**, Campus Grant from Research and Sponsored Program Office, University of Michigan – Dearborn, 2008-2010.
- [14] “Securing Biometric Templates: Theory and Practice,” \$60,000.00, **Malik, H. (PI)**, HP-CEEP, University of Michigan – Dearborn, 2008-2010.
- [15] “UM-Dearborn Faculty Professional Development Grant,” \$500.00, **Malik, H. (PI)**, Office of the Provost, University of Michigan – Dearborn, 2008-2009.

- **Patents/Invention Disclosures**

- [1] **Malik, H.**, Kulkarni, A., and Moore, J., “Dynamic Watermarking Using Seeded Randomized Pixels to Embed Time Stamp and Date Values with Verification and Validation for Camera Based Sensors” (US patent pending, 2017)
- [2] **Malik, H.**, Kulkarni, A., and Moore, J., “Dynamic Watermarking Using Seeded Randomized Pixel Values to Embed GPS” (US patent pending, 2017)
- [3] **Malik, H.**, Kulkarni, A., and Moore, J., “Seeded Value Dynamic Watermarking Injection for Camera Sensor” (US patent pending, 2017)

- [4] **Malik, H.**, “Physical Fingerprinting of Controller Area Network Bus and Electronic Control Units” (US patent pending, 2017)
- [5] **Malik, H.**, and Nehal Uddin “License Plate verification system via VIN number from cloud and vehicle” (US patent pending, 2017)
- [6] **Malik H.**, and M.K. Khan, M.K., “Online Audio Authentication Tool” (US patent pending, 2016)
- [7] **Malik, H.**, Ansari, R. Sumb, N., Gjomemo, R., and Venkatakrisnan, V. “Countering Fraud in Remote Check Deposit”, (**US Patent Pending, PCT/US2013/070369, WO2014078696 A3**).
- [8] **Malik, H.**, Subbalakshmi, K. P., and Chandramouli, R., “A blind message extraction algorithm from quantization index modulation based steganography” (Stevens Institute of Technology, 2009).
- [9] **Malik, H.**, Khokhar, A., and Ansari, R., “An Improved Watermark Detector for Spread Spectrum based Watermarking” (University of Illinois Chicago, 2005).
- [10] **Malik, H.**, Khokhar, A., and Ansari, R., “Watermark Embedder in Audio Information” (University of Illinois Chicago, 2005).

## Publications

- **Publication in Refereed Journals**

- [1] **Malik, H.**, Gjomemo, R., Venkatakrisnan, V.N., and Ansari, R., “Digital Check Forgery Attacks on Client Check Truncation Systems and Countermeasures,” Springer Journal on *Multimedia Tools and Applications* (submitted)
- [2] Khalil, M.S., Kurniawan, F., **Malik, H.**, and Khan, M.K., “A Study of the Microphone's Fingerprint Uniqueness Based On Gabor, MFCC and PLP Features,” Public Library of Science (PLOS) ONE. (submitted)
- [3] Khalil, M.S., Kurniawan, F., **Malik, H.**, and Khan, M.K., “A Study of the Microphone's Fingerprint Uniqueness Based On Gabor, MFCC and PLP Features,” *Public Library of Science (PLOS) ONE*. (submitted)
- [4] Javed, A. Irtaza, A., Bajwa, K.B., **Malik, H.**, and Mahmood M.T., “Decision Tree Analysis of Cricket Videos: A Multimedia Approach for Video Summarization,” *IET Image Processing*, 2018.
- [5] Malik Mahmood, K., Anjum, M.S., **Malik, H.**, Malik, G.M., Soltanian-Zadeh, H., “ISADAQ: A Novel Framework for Intracranial Saccular Aneurysm Detection and Quantification using Morphological Analysis of Cerebral Angiograms”, IEEE Access, 2018.
- [6] Avatefipour, O., **Malik, H.**, “State-of-the-Art Survey on In-Vehicle Network Communication “CAN-Bus” Security and Vulnerabilities,” Int. J. of Computer Science and Network, Vol. 6(6), December 2017.

- [7] Elzaghir, W., Yi Zhang, Y., Natarajan, N., Massey, F., Mi, C., and **Malik, H.**, “Control of a Hybrid Electric Vehicle with Dual Clutch Transmission Configurations during Mode Transition,” *Int. Journal of Electric and Hybrid Vehicles*, 2017.
- [8] Khan, M.K., Zakariah, M., **Malik H.**, and Choo, K.-K. R., “A Novel Audio Forensic Dataset for Digital Multimedia Forensics,” *Australian Journal of Forensic Sciences*, <http://dx.doi.org/10.1080/00450618.2017.1296186>, March 2017.
- [9] Zakariah, M., Khan, M.K., and **Malik H.**, “Digital Multimedia Audio Forensics: Past, Present and Future,” *Springer Journal on Multimedia Tools and Applications*, DOI: 10.1007/s11042-016-4277-2, January, 2017.
- [10] Dilpazir, H., Muhammad, Z., Minhas, Q., Ahmed, F., **Malik, H.**, and Mahmood, H., “Multivariate mutual information for audio-video fusion” *Springer Journal on Signal, Image and Video Processing*, pp. 1863 – 1703, 2016.
- [11] Javed, A., Bajwa, K., **Malik, H.**, and Irtaza, A. “An Efficient framework for automatic highlights generation from sports videos,” *IEEE Signal Processing Letters*, vol. 23(7), pp. 954–958., 2016
- [12] Zhao, H., Chen, Y., Wang, R., and **Malik, H.**, “Audio Splicing Detection and Localization using Acoustic Channel Impulse Response,” *Springer Journal on Multimedia Tools and Applications*, DOI: 10.1007/s11042-016-3758-7, 2016.
- [13] Zhao, H., Chen, Y., Wang, R., and **Malik, H.**, “Anti-Forensics of Environmental-Signature-Based Audio Splicing Detection and Its Countermeasure via Rich-features Classification,” *IEEE Transactions on Information Forensics and Security*, *IEEE Transactions on Information Forensics and Security*, vol. 11(7), pp. 1603 – 1617, July 2016.
- [14] **Malik, H.**, Subbalakshmi, K. P., and Chandramouli, R., “Joint-Channel Modeling to Attack QIM Steganography”, *Springer Journal on Multimedia Tools and Applications*. DOI: 10.1007/s11042-015-3006-6, vol. 75, Issue 21, pp 13585–13611, Nov. 2015.
- [15] Minhas, Q.A., Mahmood, H., and **Malik, H.** “Channel Selection for Simultaneous Move Game in Cognitive Radio Ad hoc Networks,” *Springer Journal on Wireless Networks*, doi: 10.1007/s11276-015-0952-x, SBN: 1022-0038, (Online), ISBN: 978-94-017-9803-7 (print), pp. 531 – 543, 2015.
- [16] **Malik, H.**, and Mahmood, H., “Acoustic Environment Identification using Unsupervised Learning,” *Security Informatics: Thematic Series on Information Visualization and Visual Analytics for Crime Analysis and Prediction*, Vol. 3(11), 2014.
- [17] Abbas, M.M., Tawhid, M., Saleem, K., Zia, M., Saqib, M., Mahmood, H., and **Malik, H.**, “Solar Energy Harvesting and Management in Wireless Sensor Network” *International Journal of Distributed Sensor Networks, Special Issue: Recent Trends in Wireless Sensor Networks with Applications*, Vol. 2014, Article ID 436107, 8 pages, 2014. doi:10.1155/2014/436107.
- [18] **Malik, H.** “Acoustic Environment Identification and Its Applications to Audio Forensics,” *IEEE Transactions on Information Forensics and Security*, vol. 8(11), November 2013, pp. 1827 – 1837.

- [19] Zhao, H., and **Malik, H.**, “Audio Recording Location Identification using Acoustic Environment Signature,” *IEEE Transactions on Information Forensics and Security*, vol. 8(11), pp. 1746 – 1759, November 2013.
- [20] **Malik, H.**, Subbalakshmi, K. P., and Chandramouli, R., “Nonparametric Steganalysis of Quantization Index Modulation Based Data Hiding Using Approximate Entropy,” *IEEE Transactions on Information Forensics and Security*, vol. 7(2), pp. 418 – 431, April 2012.
- [21] **Malik, H.**, “Multimedia Social Networks: Behavior Forensics”, *IEEE COMSOC MMTC R-Letter*, Vol. 1(2), December 2010, pp. 10-11.
- [22] **Malik, H.**, “Blind Watermark Estimation Attack for Spread Spectrum Watermarking,” *International Journal on Informatica: Special Issue on Multimedia Information System Security*, vol. 33, March 2009, pp. 49 – 68.
- [23] **Malik, H.**, Khokhar, A., and Ansari, R., “Robust Audio Watermarking using Frequency Selective Spread Spectrum,” *IEE (IET) Information Security*, vol. 2(4), Dec. 2008, pp. 129 – 150.
- [24] **Malik, H.**, Khokhar, A., and Ansari, R., “Robust Data Hiding in Audio using Allpass Filter,” *IEEE Transactions on Audio, Speech, and Language Processing*, vol. 15 (4), May 2007, pp. 1296-1304
- [25] Bokhari, U., **Malik, H.**, Sheikh, N., and Khan, I., “Automated Fingerprint Identification System,” *Journal of IEEE/P*, November 2002.

- **Book Chapters**

- [1] Mahmud, F., Minhas, Q.A., Mahmood, H., Muhammad, Z., and **Malik, H.**, “Power Aware Virtual Path Routing Protocol for Cognitive Radio Ad Hoc Networks,” *IAENG Transactions on Engineering Technologies, Special Volume of the World Congress on Engineering 2015, Springer Netherlands*, ISBN: , 2015.
- [2] Minhas, Q.A., Mahmood, H., and **Malik, H.**, “The role of ad hoc networks in Mobile Telecommunications” in *Recent Developments in Mobile Communications - A Multidisciplinary Approach*, InTech, ISBN: 978-953-307-910-3, 2012.
- [3] Dilpazir, H., Mahmood, H., Shah, T., and **Malik, H.**, “Source Coding and Channel Coding for Mobile Multimedia Communications” in *Mobile Multimedia - User and Technology Perspectives*, InTech, ISBN: 978-953-307-908-0, 2012.
- [4] **Malik, H.**, “Critical Analysis of Digital Steganography,” in *Handbook of Research on Secure Multimedia Distribution*, Shiguo Lian (Ed.), Idea Group Inc., 2008
- [5] **Malik, H.**, Subbalakshmi, K. P., and Chandramouli, R., “Steganalysis: Trends and Challenges,” in *Multimedia Forensics and Security*, C-T. Li (Ed.), Idea Group Inc., 2008

- **Conference Proceedings**

- [1] Shariff, S., Ahmad, Z., Alam, M.S., **Malik, H.**, Ahmad, F., “Design and Optimization of Intelligent Transportation System for Smart Cities”, in *Proc. of WCX SAE World Congress Experience Intelligent Transportation Systems (AE504)*, Detroit, MI, April 9 – 11, 2019.
- [2] Anjum, M.S., Malik, K.M., Soltanian-Zadeh, H., Malik, H., and Malik, G.M., “Saccular Brain Aneurysm Detection and Multiclassifier Rupture Prediction Using Digital Subtraction and Magnetic Resonance Angiograms”, in *Proc. of 5<sup>th</sup> Int. Conf. on Biomedical and Bioinformatics Engineering (ICBBE 2018)*, Okinawa, Japan during November 12-14, 2018.
- [3] Tayyab, M., Hafeez, A., and Malik, H., “Spoofing Attack on Clock Based Intrusion Detection System in Controller Area Networks,” 2018 NDIA Ground Vehicle Systems Engineering and Technology Symposium, Modeling & Simulation, Testing and Validation (MSTV), Technical Session, Novi, MI, AUGUST 7-9, 2018.
- [4] Tayyab, M., Hafeez, A., and Malik, H., “Clock Phishing Attack on Clock Based Intrusion Detection Systems for CAN Protocol,” in *Proc. of 6th Embedded Security in Cars (ESCar) USA*, Ypsilanti, MI, June 20-21, 2018.
- [5] Avatefipour, O., Hafeez, A., Tayyab, M., and **Malik, H.**, “Linking Received Packet to the Source Through Physical-Fingerprinting of CAN-bus,” IEEE Workshop in Information Forensics and Security 2017, Rennes, France.
- [6] Hafeez, A., **Malik, H.**, and Mahmood, K., “Performance of Blind Microphone Recognition Algorithms in the Presence of Anti-Forensic Attacks,” in *Proc. of AES Int. Conf. on Audio Forensics*, Arlington, VA, June 15 – 17, 2017.
- [7] Hussain, M.M., Alam, M.S., Beg M.M.S., and **Malik, H.**, “A Risk Averse Business Model for Smart Charging of Electric Vehicles,” in *Proc. Int. Conf. on Smart Systems, Innovation, and Computing, Jaipur*, India, April 14 – 16, 2017.
- [8] Mahmood, K., Sathyan, V., Kanaan, H., Malik, G.M., and **Malik, H.**, “Autonomous Decentralized Privacy-Enabled Data Preparation Architecture for Multicenter Clinical Observational Research,” in *Proc. of IEEE 13<sup>th</sup> Int. Symposium on Autonomous Decentralized Systems (ISADS)*, 2017.
- [9] Javed, A. Irtaza, A., Bajwa, K.B., **Malik, H.**, and Mahmood M.T., “A Hybrid Approach for Summarization of Cricket Videos,” in *Proc. of IEEE ICCE-Asia: Applied Intelligence for Smart Living and Smart Cities*, Seoul, S. Korea, Oct. 26 – 28, 2016.
- [10] Dilpazir, H., Mahmood, H., Zia, M., and **Malik, H.**, “Face Recognition: A Multivariate Mutual Information Based Approach,” in *Proc. of 2<sup>nd</sup> IEEE Int. Conf. on Cybernetics (CYBCONF 2015)*, 2015, June 24 – 26, Gdynia, Poland.
- [11] Kurniawan, F., Khalil, M.S., Khan, M.K., and **Malik, H.**, “Dual-Microphone Forensics of Identical Model Based on Signal Analysis,” in *Proc. of 5th Int. Conf. on Information Systems and Technologies (ICIST 2015)*, 2015, March 21 – 23, Istanbul, Turkey.
- [12] Kurniawan, F., Khalil, M.S., and **Malik, H.**, “Robust Tampered Detection Method For Digital Audio using Gabor Filterbank,” in *Proc. of Int. Conf. on Image Processing, Production and Computer Science (ICIPCS 2015)*, 2015, June 3-4, Istanbul, Turkey.



- [13] Ge, H., and **Malik, H.**, “Exposing Image Forgery with Wedge-Shaped Constraint”, *Proc. of Asia-Pacific Computer Science and Application Conference (CSAC 2014)*, 2014, December 27 – 28, Shanghai, China.
- [14] Ge, H., and **Malik, H.**, “Exposing Image Forgery Using Inconsistent Reflection Vanishing Point,” *IEEE/IET Int. Conference on Audio, Language, and Image Processing (ICALIP)*, 2014, July. 7 - 9, Shanghai, China.
- [15] Bhutta, M.U., Mehmood, H., and **Malik, H.**, “An Intelligent Approach for Robust Detection and Recognition of Multiple Color and Font Styles Automobiles License Plates - A Feature-Based Algorithm,” *IEEE/IET Int. Conference on Audio, Language, and Image Processing (ICALIP)*, 2014, July. 7 - 9, Shanghai, China.
- [16] Mahmud, F., Minhas, Q.-A., Mahmood, H., and **Malik, H.**, “Connectivity Driven Virtual Path Routing Protocol for Cognitive Radio Ad Hoc Networks,” *IET International Conference of Wireless Networks*, 2014, July 2 – 4, London, U.K.
- [17] Liu, C., and **Malik, H.**, “A New Investment Strategy Based on Data Mining and Neural Networks,” *IEEE Int. Joint Conference on Neural Networks 2014 (IJCNN'14)*, 2014, July 6 - 11, Beijing, China.
- [18] Zhao, H., Chen, Y., Wang, R., and **Malik, H.**, “Audio Source Authentication and Splicing detection using Acoustic Environmental Signature,” *ACM Workshop on Information Hiding and Multimedia Security 2014 (IH&MMSec'14)*, 2014, June 11-13, Salzburg, Austria.
- [19] Gjomemo, R., **Malik, H.**, Sumb, N., Ansari, R., and Venkatakrishnan, V.N., “Digital Check Forgery Attacks on Client Check Truncation Systems”, *Int. Conf. on Financial Cryptography and Data Security*, 2014, March 3 – 7, Barbados. [Acceptance rate 18.5%]
- [20] Rodrick, D., and **Malik, H.**, “Can electroencephalogram (EEG) signals predict postural balance performance?,” in *Proc. 57th Annual Meeting of the Human Factors and Ergonomics Society*, 2013, Sep. 30-Oct. 4, San Diego, CA.
- [21] Ahmad, R., Raza, S.P., and **Malik, H.**, “Visual Speech Detection using an Unsupervised Learning Framework,” *Proc. of 12<sup>th</sup> Int. Conference on Machine Learning and Applications (ICMLA'13)*, 2013, December, Miami, FL. [Oral presentation Acceptance rate 28.0%]
- [22] Ahmed, A. and **Malik, H.** “Security of Biometrics using Multimodal Approach”, *Int. Symposium on Biometrics and Security Technologies (ISBAST'13)*, 2013, July, Chengdu, Sichuan China.
- [23] Ahmad, R., Raza, S.P., and **Malik, H.**, “Unsupervised Multimodal VAD using Sequential Hierarchy,” *IEEE Symposium Series on Computational Intelligence 2013 (ISSCI'13)*, 2013, April, Singapore.
- [24] Minhas, Q.A., Mehmood, H., and **Malik, H.**, “Incentive Driven Cooperation to Avoid Packet Loss in Multihop Ad hoc Networks,” in *Proc. 8<sup>th</sup> Int. Conf. on Emerging Technologies (ICET'12)*, 2012, October, Islamabad, Pakistan.

- [25] Zhao, H. and **Malik, H.** “Audio Forensics Using Acoustic Environment Traces,” in *Proc. IEEE Statistical Signal Processing Workshop (SSP’12)*, 2012 August, Ann Arbor, MI.
- [26] **Malik, H.** and Miller, J., “Microphone Identification using Higher-Order Statistics,” in *Proc. of 46th AES Conference on Audio Forensics*, 2012, June 14 – 16, Denver, CO.
- [27] **Malik, H.**, “Securing Speaker Verification System Against Replay Attack,” in *Proc. of 46th AES Conference on Audio Forensics*, 2012, June 14 – 16, Denver, CO.
- [28] Zhao, H., Wang, H., and **Malik, H.**, “Steganalysis of YouTube Compressed Video Using Higher-Order Statistics in 3D DCT Domain,” in *Proc. 8<sup>th</sup> Int. Conference on Intelligent Information Hiding and Multimedia Signal Processing (IIHMSP-2012)*, 2012, July 18-20, Piraeus-Athens, Greece.
- [29] **Malik, H.** and Zhao, H., “Recording Environment Identification using Acoustic Reverberation,” in *Proc Int. Conference on Acoustic, Speech and Signal Processing (ICASSP’12)*, 2012, March – April, Kyoto, Japan.
- [30] **Malik, H.**, “Securing Speaker Verification System Against Replay Attack,” 3<sup>rd</sup> *IEEE Intl. Workshop on Information Forensics and Security (WIFS’11)*, 2011, November, Iguacu Falls, Brazil.
- [31] Chaudhary, U. and **Malik, H.**, “Recording Environment Classification using Acoustic Signature”, *Audio Engineering Society 129th Convention 2010, (AES 10)*, 2010, October, San Francisco, CA.
- [32] **Malik, H.**, “Statistical Modeling of Footprints of QIM Steganography,” *IEEE Int. Conf. on Multimedia and Expo 2010 (ICME 2010)*, 2010, July, Singapore.
- [33] Ikram, S., and **Malik, H.**, “Digital Audio Forensics using Background Noise,” *IEEE Int. Conf. on Multimedia and Expo 2010 (ICME 2010)*, 2010, July, Singapore.
- [34] **Malik, H.**, and Farid, H., “Audio Forensics from Acoustic Reverberation”, *IEEE Int. Conference on Acoustics, Speech, and Signal Processing 2010, (ICASSP 2010)*, 2010, March, Dallas, TX.
- [35] Seok, J., and **Malik, H.**, “Audio Watermark Detection Using UICA”, 8<sup>th</sup> *Int. Conf. on Independent Component Analysis and Signal Analysis (ICA’09)*, 2009, March, Paraty, Brazil.
- [36] **Malik, H.**, “Steganalysis of QIM Steganography Using Irregularity Measure”, *Proc. of 10<sup>th</sup> Workshop on Multimedia & Security (MM & Sec 2008)*, 2008, September, Oxford, UK.
- [37] **Malik, H.**, “Commentary Paper on A Probabilistic Bayesian Framework for Model-Based Object Tracking Using Undecimated Wavelet Packet Descriptors” *IEEE Int. Conf. On Advanced Video and Signal Based Surveillance (AVSS)*, 2008, September, Santa Fe, NM.
- [38] **Malik, H.**, “Commentary Paper on Visual Players Detection and Tracking in Soccer Matches” *IEEE Int. Conf. On Advanced Video and Signal Based Surveillance (AVSS)*, 2008, September, Santa Fe, NM.

- [39] **Malik, H.**, Subbalakshmi, K. P., and Chandramouli, R., “Nonparametric Steganalysis of QIM Data Hiding Using Approximate Entropy”, *Proc. of IS&T/SPIE Security, Steganography, and Watermarking of Multimedia Content X*, vol. 6819, 2008, January, San Jose, CA.
- [40] **Malik, H.**, Subbalakshmi, K. P., and Chandramouli, R., “Nonparametric Steganalysis of QIM-Based Data Hiding Using Kernel Density Estimation”, *Proc. of 9<sup>th</sup> Workshop on Multimedia & Security (MM&Sec 2007)*, 2007, September, Dallas, TX.
- [41] **Malik, H.**, Khokhar, A., Ansari, R., and Salvemini, M., “Blind Detection for Additive Embedding using Underdetermined ICA”, *IEEE Int. Symposium on Multimedia*, 2006, December, San Diego, CA.
- [42] **Malik, H.**, Baqai, F., Khokhar, A., and Ansari, R., “Secure Data-Hiding in Multimedia using Non-negative Matrix Factorization”, *Int. Workshop on Multimedia Content Representation, Classification and Security (MRCS)*, 2006, September, Istanbul, Turkey.
- [43] **Malik, H.**, Khokhar, A., and Ansari, R., “A New Detector for Spread Spectrum based Image Watermarking using Underdetermined ICA”, *Proc. of IS&T/SPIE Security, Steganography, and Watermarking of Multimedia Content VIII*, vol. 6072, 2006, January, San Jose, CA.
- [44] **Malik, H.**, Khokhar, A., and Ansari, R., “An Improved Detector/Decoder for Spread Spectrum based Watermarking using Independent Component Analysis”, *Fifth Workshop Digital Rights Management (DRM)*, 2005, 2005, November, Washington D.C.
- [45] **Malik, H.**, Khokhar, A., and Ansari, R., “An Improved Detector for Spread Spectrum based Watermarking using Independent Component Analysis: Performance Analysis,” *Int. Conf. on Digital Rights Management: Technologies, Issues, Challenges and Systems*, 2005, November Sydney, Australia.
- [46] **Malik, H.**, Khokhar, A., and Ansari, R., “Digital Asset Management: Trends and Technologies”, *Proc. of NSF International Workshop on Frontiers of Information Technology*, 2004, December, Islamabad, Pakistan.
- [47] **Malik, H.**, Khokhar, A., and Ansari, R., “Robust Data Hiding for Audio”, *Proc. of IEEE International Conference on Multimedia and Expo 2004 (ICME'04)*, 2004, June, Taipei, Taiwan.
- [48] **Malik, H.**, Khokhar, A., and Ansari, R., “Robust Audio Watermarking using Frequency Selective Spread Spectrum Theory”, *Proc. of IEEE International Conference on Acoustics, Speech, and Signal Processing 2004 (ICASSP'04)*, 2004, May, Montreal, Quebec, Canada.
- [49] Ansari, R., **Malik, H.**, and Khokhar, A., “Data-Hiding in Audio using Frequency-Selective Phase Alteration”, *Proc. of IEEE International Conference on Acoustics, Speech, and Signal Processing 2004 (ICASSP'04)*, 2004, May Montreal, Quebec, Canada.

- [50] **Malik, H.**, Khokhar, A., Ansari, R., and Baillon, B.C., “Predominant Pitch Contour Extraction from Audio Signals”, *Proc. of IEEE International Conference on Multimedia and Expo 2002 (ICME02)*, 2002, August, Lusiane, Switzerland.
- [51] Bokhari, U., **Malik, H.**, Sheikh, N., and Khan, U., “Automated Fingerprint Identification System”, *Proc. All Pakistan Mathematical Conference 2000*, 2000, November, Jamshoro, Pakistan.
- [52] **Malik, H.**, Bokhari, U., Ahmad, M., and Khan, U., “Progressive Image Coding Using EZW”, *Proc. All Pakistan Mathematical Conference 2000*, 2000, November, Jamshoro, Pakistan.

- **Presentations**

- [1] **Malik, H.**, “Attacking Clock-based Intrusion Detection System for CAN-bus” *Cybersecurity team, Research and Advanced Group, Ford Motor Company*, July 21, 2017
- [2] **Malik, H.**, “Audio Forensics: Trends and Challenges” (Invited talk) in the *IEEE Workshop on Multimedia Security held with IEEE International Conference on Audio, Speech, and Signal Processing 2016* on March 20, 2016 at the Shenzhen University, China.
- [3] **Malik, H.**, “Unsupervised Multimodal Voice Activity Detection using Sequential Hierarchy”, (Invited talk) Department of Electrical and Computer Engineering ECE-Seminar Series, *University of Michigan – Dearborn*, February 20, 2013, Dearborn, MI.
- [4] **Malik, H.**, “A Hierarchical Framework for Audio Forensics”, (Invited talk), *IEEE SEM Fall 2012 Conference*, November 14, 2012.
- [5] **Malik, H.**, “Multimedia Forensics: Trends and Challenges”, (Invited talk) Department of Electronics, *Quaid-i-Azam University Islamabad*, September 2, 2010, Islamabad, Pakistan.
- [6] **Malik, H.**, “A Component based Framework for Audio Forensics”, (Invited talk) Department of Electrical and Computer Engineering, *University of Michigan-Dearborn*, October 20, 2010, Dearborn, MI.
- [7] **Malik, H.**, “Data Hiding and CyberSecurity”, (Guest Lecture) for Cybersecurity Forensics Department of Computer Science, *Stevens Institute of Technology*, October 4, 2006, Hoboken, NJ.
- [8] **Malik, H.**, Khokhar, A., and Ansari, R. “Digital Asset Management: Trends and Technologies”, *NSF International Workshop on Frontiers of Information Technology*, December 2004, Islamabad, Pakistan.
- [9] **Malik, H.**, “Digital Asset Management of Multimedia Archives”, *Lahore University of Management Sciences*, December 2004, Lahore, Pakistan.
- [10] **Malik, H.**, “Information Hiding using Phase Hopping”, *University of Engineering and Technology – Lahore*, May 2003, Pakistan.

- [11] **Malik, H.**, “Information Hiding in Audio using Phase Dithering”, *National University of Computer and Emerging Sciences-Lahore*, May 2003, Pakistan.

## Teaching activities

### New courses developed at UM – Dearborn

- **Graduate:**
  - [1] **ECE 528: Embedded System Security**
  - [2] **ECE 526: Multimedia Communication Systems**
  - [3] **ECE 527: Multimedia Security and Forensics**
  - [4] **ECE 526: Digital Content Protection**
- **Undergraduate:**
  - [5] **ECE 437: Introduction to Automotive Cybersecurity**
  - [6] **ECE 387: Digital Forensics I**
  - [7] **ECE 467: Digital Forensics II**
  - [8] **ECE 426: Multimedia Forensics**
  - [9] **ECE 427: Digital Content Protection**
  - [10] **ECE387: Digital Forensics I – Lab**
  - [11] **ECE 426: Multimedia Forensics - Lab**

### Ph.D. committees chaired/co-chaired

1. Mohamad El-Kaderi, Winter 2020, “TDB”. Chair. (Currently Ph.D. candidate at the University of Michigan – Dearborn)
2. Raghavendar Changalvala, December 2019, “TBD”. Chair. (Currently Ph.D. candidate at the University of Michigan – Dearborn)
3. Azeem Hafeez, December 2019, “Model Driven Approaches For Multimedia Forensics”. Chair. (Currently Ph.D. candidate at the University of Michigan – Dearborn).
4. Walid Elzaghbir, Winter 2018, “TBD”, Co-chair. (Currently Ph.D. candidate at the University of Michigan – Dearborn).
5. Muhammad Mazhar Abbas, December 2016, “Energy Harvesting Aware Routing in Wireless Ad Hoc Networks for Perpetual Operations”. **Co-chaired**. (Currently faculty at the Quaid-i-Azam University, Islamabad, Pakistan.)
6. Ali Javed, August 2016, “Event Driven Summarization of Sport Video”. **Co-chaired**. (currently faculty at the University of Engineering and Technology, Taxila, Pakistan)
7. V. Padma Priya, May 2016, “Inbuilt Image Encryption and Steganography Security Solutions for Wireless Systems”. **Co-chaired**. (n.a.)

8. Rabia Latif, January 2016, “Distributed Denial of Service (DDoS) Attack Detection and Prevention Mechanism For Cloud- Assisted Wireless Body Area Networks (WBANs)”. **Co-chaired**. (Currently faculty at the National University of Sciences and Technology, Islamabad, Pakistan, Islamabad, Pakistan.)
9. Hong Zaho, April 2013, “On the Exploration of Passive Forensics for Digital Image and Speech”. **Co-chaired**. (Currently at the South University of Science and Technology of China.)
10. Qurratul-Ain Minhas, May 2014, “Incentive Driven Cooperation Approaches for Resource Optimization of Wireless Ad hoc Networks”. **Co-chaired**. (Currently Ph.D. faculty the Quaid-i-Azam University, Islamabad, Pakistan.)
11. Hammad Dilpazir, May 2015, “Information-Theoretic Approaches for Multimodel Information Fusion”. **Co-chaired**. (Currently Ph.D. candidate at the Quaid-i-Azam University, Islamabad, Pakistan.)
12. Farzaneh Razavi Armaghani, June 2013, “Dynamic Information-Theoretic Sensor Selection Schemes for Target Tracking Applications”. **Co-chaired**. (with Dr. Iqbal Gondal Prof. in the Gippsland School of Information Technology, the Monash University, Australia.)
13. Anwaar-ul-Haq, November 2012, “Visual Cues for View-invariant Human Action Recognition”. **Co-chaired**. (with Dr. Iqbal Gondal Prof. in the Gippsland School of Information Technology, the Monash University, Australia.)
14. Dan Shan, na, “Effective Synchronization and Channel Estimation Algorithms of LTE and WAVE Systems applied to Vehicles and High-Speed Train under High-Mobility Environments”. **Co-chaired**. (Currently Ph.D. candidate in Electrical and Computer Engineering Department, the University of Michigan – Dearborn.)
15. Yinghao Huang, na “Text Mining using Domain Ontology Networks”. Co-chair. (Currently Ph.D. candidate in Electrical and Computer Engineering Department, the University of Michigan – Dearborn.)

### **M.S. advised/co-advised**

1. Muhammad Tayyab, Winter 2018, “Attacking Clock-based Intrusion Detection System”. Chair. (Currently MS candidate in Electrical and Computer Engineering Department, the University of Michigan – Dearborn.)
2. Mike Denko, December 2017, “Security and Privacy Analysis of Smart-Home Appliances”. Chair. (currently with Robert Bosch Inc.)
3. Omid Avatefipour, December 2017, “Physical Fingerprinting of CAN bus Communication”. Chair. (currently with Valeo Inc.)
4. Robert J. Zvolensky, April 2017, “Analysis of IoT Security in Healthcare”, **Chair**. (current with US Army)
5. Faisal A. Binzagr, August 2017, “Privacy-Preserving Mining of Web Service Conversations”. Co-chair. (currently PhD candidate at the University of Michigan – Dearborn.)

6. Uday Kumar Bejawada, April 2017, "Latency Measurements of V2X Communication". Co-Chair. (currently na)
7. Alexander Melville, April 2017, "An Automatic System for Characterization and Detection of Ocular Noise". Co-Chair. (currently na)
8. Priyanshu Moudgil, August 2016, "A Machine Learning-based Framework for On-Board Diagnostics of Autonomous Vehicles". Chair. (Currently with Ford Motor Co.)
9. Haytham Almawla, April 2016, "Attack covert Communication using VoIP". **Chair.** (Currently at GM)
10. Wenqi tang, December 15, "Measurement and Modeling of packet interval for Wi-Fi Distributed Coordination Function Protocol". Co-chair. (Currently PhD candidate at UM-Dearborn)
11. Nevrus Kaja, April 2016, "Building Trust in Cloud Computing". Co-Chair. (Currently PhD candidate at UM-Dearborn)
12. Rameez Ahmad, December 2014, "On Improving Voice Activity Detection Using Unsupervised Visual Speech Detector", **Chair.** (Currently with Boch USA.)
13. Harsh Shah, December 2014 "Non-Reflective Camera Assembly Design". **Chair.**
14. Muhammad Shah, April 2014, "Resource Optimization in Service Procedure and Service Revenue Code Conversion Applications". **Chair.** (Currently with Blue Cross Blue Sheil of Michigan.)
15. Syed Paymaan Raza, June 2014, "Human Activity Identification and Tracking using Slow Feature Analysis". **Chair.** (Currently with Mathworks, Inc.)
16. Jiaqi Yuan, December 2011, "Link Level Simulation and Prototyping for Long Term Evolution (LTE) Systems". Co-chair. (na.)
17. Chen Luo, December 2011, "Physical Layer Simulation and Implementation for Long Term Evolution (LTE) on Freescale MSC8156 EVM". Co-chair. (na.)
18. Dia Li, August 2011, "Text Document Categorization using a Clustering and Vector Space Models". Co-chair. (na.)
19. Xiang He, July 2011, "Wireless Sensor Network Physical Layer Simulation using Matlab and Implementation on FPGA". **Chair.** (Currently Ph.D. candidate at the Oakland University.)
20. Sohaib Ikram, December 2010, "Model Based Audio Forensic Analysis". **Chair.** (Currently at LEAR Corporation, USA.)
21. Sri Srujan Vallepalli, December 2010, "Reliable Covert Communication". **Chair.** (Currently at AT&T.)
22. Usman Chaudhary, December 2010, "Audio Forensics Recording Environment Modeling". **Chair.** (Currently at Ericsson Inc.)
23. Abdul Haseeb Ahmed, July 2010, "Multimodel Information Fusion Method to Secure Iris Code". **Chair.** (Currently at the Ari University, Islamabad, Pakistan.)

24. Walid Aldeeb, April 2010, "A Study on the Channel and BER-SNR Performance of Ultra Wide Band Systems Applied in Commercial Vehicles". Co-chair. (Currently CTO at Metro Property Group.)
25. Yinghao Huang, September 2009, "Medical Text Document Classification and Information Retrieval". Co-chair. (Currently Ph.D. candidate in Electrical and Computer Engineering Department, the University of Michigan – Dearborn.)
26. John Romain, September 2008, "Intra-Vehicle Heterogeneous Network Control Systems". Co-chair. (Currently at GM.)
27. Vartan Kasheshian, April 2008 , "Ultra-wideband UWB Performance Analysis for Tracking". Co-chair. (na.)

### **Undergraduate senior design project directed**

1. Reyes Castaneda Barba, Ryan Kott, Stuart Ward, "Obstacle detection and classification using camera based system", April 2017.
2. Christopher Bodrie, Michael Krcmarik, Jeffrey Roberts, "Intruder detection and gesture recognition", April 2017.
3. Ma – Wu, B., Dughlas, K., Garcia, M.G., and Kovach, S., "Fingerprint based Access Control System". Fall 2014 - Winter 2015
4. Dietrch, J., Gherardini, N., and Sprau, S., "Digital Audio Effect System". Winter 2014.
5. Li, K., and Zhao, Y., "Testbed for Air Pollution Monitoring using Wireless Sensor Networks". Winter 2014.
6. Dong, Y., and Gao, T., "Real-Time Monitoring and Mapping of Air Pollution". Winter 2014.
7. Chen, Z., Zhao, Y., Shao, X., and Li, X., "Communication between Base Station and Vehicles with Wireless Sensor Network". Fall 2012 – Winter 2013.
8. Yang, X., Tian, J., Zhou, L., and Atwain, A., "Audio Source Localization and Tracking". Winter 2013.
9. Sleiman, A., and Khalil, M., "Solar Powered Wireless Sensor Network". Winter 2012 – Summer 2012.
10. Aboukhodr, A., Lozen, S., Reid, A., and Smyth, C., "Audio Source Localization and Tracking". Winter 2012.
11. Noor, N. and Iwies, N., "American Sign Language Recognition". Summer 2011.
12. Turner, J., Neil, C., Patel, C., and Trupiano, N., "Video Security System". Summer 2010.
13. Gage, T., Styles, N., Belzak, P., and Davis, M., "Intelligent Audio Localization System". Summer 2010.
14. Walters, D., Chemali, H., and Elsamanody, I., "JPEG Image Steganography and Steganalysis". Summer 2009.



15. Anani, A., Lytle, G., Bazzi, F., and Smereka, J., “Biometric Security System”. August 2008.

16. Morse, K., “Automatic Biometric Security System using Iris”. May 2008.

**Short courses, workshops, and other teaching assignments**

<b>Course Title</b>	<b>Location/Institute</b>	<b>Date</b>
EV 311: Electronic Circuits	University of Michigan – Shanghai Jiao Tong University (UM-SJTU) Join Institute, Changahi, China	Summer’ 14
EV 501: Random Processes	University of Michigan – Shanghai Jiao Tong University (UM-SJTU) Join Institute, Changahi, China	Summer’ 14
EEE3374: Signals and Systems	Lawrence Technological University	Spring’ 14
EEE4253: Computer Architecture	Lawrence Technological University	Summer’ 13
EEE5114: Engineering Analysis	Lawrence Technological University	Spring’ 12
EEE5284: Parallel Architectures	Lawrence Technological University	Spring’11
Multi-Sensor Data Fusion [EPD 62012: Autonomous Connected Vehicle Technologies; Phase 2]	University of Michigan – Dearborn	June 6 – 7, 20 12
Multimedia Forensics and Security Workshop	Department of Electronics at the Quaid-i-Azam University, Islamabad, Pakistan	Aug. 23 – Sep 3, 2010
Digital Signal Processing	Lawrence Technological University	Spring’10

Digital Communications	Lawrence Technological University	Spring'10
Switching Theory and Logic Design	Stevens Institute of Technology	Jan. 15 – May15, 2007.
Statistical Communication and Signal Processing	University of Illinois At Chicago	Aug. 20 – Dec. 15, 2004

## Directed Studies

- [1] Xiang, T., “Securing Wireless Sensors using Ambient Signature”. Directed study (ECE 591). Fall 2012.
- [2] Iqbal, Z., “Advances in the Wireless Communications”. Directed study (ECE 591). Winter 2010.
- [3] Houssaini, O. Iraqui, “Wireless Sensor Networks: Computation and Security Tradeoff”. Directed Study (ECE 491). Winter 2013.
- [4] Clancy, E., “Study of i.MX31 Application Development System Overview and MIPS Architecture”. Directed Study (ECE 475). Fall 2012.
- [5] Lamies, F. Fakouri, “Digital Forensics”. Directed study (ECE 492). Summer 2011.
- [6] Pathak, S., “Design of Secure Speaker Recognition System”. Directed study (ECE 591). Fall 2010.
- [7] Ryan, N., “Digital Forensics”. Directed study (ECE 492). Fall 2010.
- [8] Walters, D., “Design of Near Infrared Camera”. Directed study (ECE 491). Summer 2009.

## Professional Activities

### a) Editorial Activities

- Associate Editor, IEEE Transactions on Information Forensics and Security (TIFS), August 2014 – present
- Associate Editor, Springer Journal of Signal, Image, and Video Processing (SIVP) May 2013 – present.
- Guest Editor, IEEE Access – Special Section on Latest Advances and Emerging Applications of Data Hiding, IEEE Publishing
- Guest Editor, The Scientific World Journal - Special Issue: “Security of Information and Networks,” Volume 2015 (2015), Article ID 150640, Hindawi Publishing.

### b) Technical Program Committee Membership

- IEEE International Conference on Connected Vehicles & Expo (ICCVE), 2012- 17

- IEEE International Conference on Communication Systems and Network Technologies (CSNT), 2014, 2015
- IEEE International Conference on Computational Intelligence and Communication Networks (CICN), 2013, 2014, 2015
- IEEE TrustCom 2013, 2014, 2014
- IEEE ICASSP 2012-17
- IEEE ICME 2006-17
- IEEE ICIP 2008-17
- IEEE Globecom - Communication and Information System Security Symposium 2012, 2014, 2014, 2015
- IEEE AVSS 2008, 2009.
- IEEE MINES 2009, 2010.
- IEEE ISPA 2010
- ChinaCom 2008
- IEEE CCNC 2006, 2007, 2008
- IEEE ICC 2007, 2012-17
- IEEE SSCI 2013, 2014
- NSF Int. Workshop FITs 2004, 2005, 2006.

### **c) Technical Reviews**

#### **For the Following Journals**

- IEEE Transactions on Information Forensics and Security
- IEEE Transactions on Image Processing
- IEEE Transactions on Signal Processing
- IEEE Transactions on Multimedia
- IEEE Signal Processing Letters
- IEEE Transactions on Speech, Audio and Language Processing
- IEEE Journal on Selected Areas in Communications
- IET Proceedings on Information Security

- IET Proceedings on Image Processing
- ELSEVIER Journal of Image Communication
- EURASIP Journal on Signal Processing
- EURASIP Pattern Recognition Letters
- Springer Journal of Multimedia Tools and Applications.
- Springer Journal of Singal, Image and Video Processing
- EURASIP Journal Applied Signal Processing
- PLOS ONE an Open Access International Journal
- EURASIP Journal Audio, Speech, and Music Processing
- EURASIP Journal Information Security
- ELSEVIER Journal of Information Sciences
- ELSEVIER Journal of Systems and Software
- ELSEVIER Journal of Applied Mathematical Modeling

#### d) Other Services

1. Invited talk entitled “**Audio Forensics: Trends and Challenges**” in the *IEEE Workshop on Multimedia Security held with IEEE International Conference on Audio, Speech, and Signal Processing 2016* on March 20, 2016 at the Shenzhen University, China.
2. Regular NSF merit review panelist for NSF CISE - CNS Program
3. Merit review panelist for American Association for the Advancement of Science (AAAS) Research Competitiveness Program
4. Co-Organizer of the special session, "Data Mining for Industrial Applications" in the IEEE Computational Intelligence 2013 Symposium
5. Invited talk entitled “**Multimedia Forensics: Trends and Challenges**” in the *First Workshop on Multimedia Forensics and Security* held in King Saud University, Saudi Arabia on May 5, 2014
6. Organized a two-day hands-on workshop entitled “**Professional Training on Multimedia Forensics and Security**” held in King Saud University, Saudi Arabia on May 6 - 7, 2014
7. Invited talk entitled “**Environment Monitoring using Wireless Sensor Technologies**” and also demonstrate functionality of prototype sensor nodes in the in the *Second Pakistan-U.S. Science & Technology Cooperation Program Symposium: Economic Growth through Technology Transfer* held in Islamabad, Pakistan, from May 30, 2014 – June 8, 2014.

8. Invited talk entitled “**Intelligent Systems: Design and Applications**” hosted by Ford Research and Advanced Engineering Group at the Ford Research and Innovation Center on February 19, 2015
9. Invited talk entitled “**Multimedia Forensics**” hosted by the Electronics Department at the Quaid-i-Azam University, Islamabad, Pakistan, on June 7, 2014
10. Hosted first *IEEE Workshop on Digital Forensics* at the University of Michigan - Dearborn on April 5, 2013.
11. Invited talk entitled, “**A Hierarchical Framework for Audio Forensics**” in the *IEEE-SEM FALL 2012 Section Conference* on Nov. 14, 2012.
12. Advised a group of four local high school students for U.S. Army’s 10<sup>th</sup> eCybermission competition, 2011-2012. The group won the **First Prize**.
13. A regular participant in the Open House and High School Outreach events to showcase research activities at *the Information Systems, Security, and Forensic Lab* at the University of Michigan – Dearborn since Winter 2009.
14. *Serving as a member of PhD External Examination Committee* for the **Institute of Graduate Research, the Monash University, Australia**. Fall 2012 – present.
15. *Co-Organizer of the special session, “Data Mining for Industrial Applications”* in the IEEE Computational Intelligence 2013 Symposium.
16. Organized workshop on “**Multimedia Forensics**” in the Department of Electronics at the Quaid-i-Azam University Islamabad, Pakistan, August 20 - 27, 2010.
17. Organized Special Track on Doctoral Dissertation in Multimedia, in the 6<sup>th</sup> IEEE International Symposium on Multimedia (ISM) 2006.
18. Proposal/white paper reviewer for the Department of Homeland Security (DHS) border protection programs.
19. Kentucky Science & Engineering Foundation (KSEF) programs.