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# MUHAMMAD ZUBAIR IKRAM

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Department of Computer Science

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## Employment

- University of Texas, Tyler (2021 to 2023) – Adjunct Professor, Department of Electrical and Computer Engineering, and Department of Computer Science
- University of Texas, Dallas (2018 to 2021) – Adjunct Professor, Department of Electrical and Computer Engineering, and Department of Computer Science
- Southern Methodist University (2013 to 2015) – Adjunct Professor, Electrical Engineering
- Meta Platforms, Incorporated (2021 to date) – Principal Research Scientist, Reality Labs Research.
- Texas Instruments Incorporated (2002 to 2021) – Research Engineer, Perception and Analytics Lab.

## Education

- Ph.D. (2001) – Georgia Institute of Technology, Electrical and Computer Engineering
- M.S. (2001) – Georgia Institute of Technology, Electrical and Computer Engineering
- MBA, (2012) – University of Texas, Dallas
- M.Eng.Sc. (1997) – University of Melbourne, Electrical and Electronic Engineering
- B.Sc. (Hons) (1993) – University of Engineering and Technology, Lahore, Electrical Engineering

## Honors

- Elected to the TI Technical Ladder in recognition of excellence in technical contributions.
- Graduated with High Distinction from the University of Texas, Dallas.
- Class Valedictorian – B.Sc. (Electrical Engineering).
- Selected for the Nippon Telegraph and Telephone (NTT) Corporation, Japan visiting researcher position for the year 2001.
- Recipient of the merit scholarship for graduate studies awarded by the Australian Agency for International Development (AusAID).

- Recipient of the Australian Cooperative Research Center for Sensor Signal and Information Processing (CSSIP) top-up award.
- Recipient of the President of Pakistan Merit Scholarship for excellent performance in higher secondary school examination.
- Member of Eta Kappa Nu – Electrical Engineering Honor Society.
- Member of Sigma Xi – Scientific Research Honor Society.
- Member of Beta Gamma Sigma – Business Honor Society.
- Member of Golden Key International Honor Society.

## Patents

Inventor of more than 25 patents.

## Journal Papers

- M. Z. Ikram and D. R. Morgan, “Permutation inconsistency in blind speech separation: Investigation and solutions,” *IEEE Trans. Speech Audio Processing*, Vol. 13, pp. 1-13, Jan. 2005.
- M. Z. Ikram, “Blind separation of delayed instantaneous mixtures: A cross-correlation based approach,” *Int. J. Adaptive Control Signal Processing*; Vol. 18, pp. 265-278, Apr. 2004.
- M. Z. Ikram and G. T. Zhou, “Estimation of multicomponent polynomial phase signals of mixed orders,” *Signal Processing*, Vol. 81, pp. 2293-2308, Oct. 2001.
- M. Z. Ikram, K. Abed-Meraim, and Y. Hua, “Estimating the parameters of chirp signals: An iterative approach,” *IEEE Trans. Signal Processing*, Vol. 46, pp. 2426-3441, Dec. 1998.
- M. Z. Ikram and N. A. Siddiqui, “Multirate IIR filter design and implementation in STLC7545 analog front-end for voice communication,” *IEE Electron. Lett.*, Vol. 34, pp. 32-33, Jan. 1998.
- M. Z. Ikram, K. Abed-Meraim, and Y. Hua, “Iterative parameter estimation of multiple chirp signals,” *IEE Electron. Lett.*, Vol. 33, pp. 657-659, Apr. 1997.
- M. Z. Ikram, K. Abed-Meraim, and Y. Hua, “Fast quadratic phase transform for estimating the parameters of multicomponent chirp signals,” *Digital Signal Processing*, Vol. 7, pp. 127-135, Apr. 1997.

## Refereed Conference Papers

- M. Z. Ikram and A. Ahmad, “Automated Radar Mount-Angle Calibration in Automotive Applications,” in *Proc. IEEE Radar Conference*, 2019.
- M. Z. Ikram, A. Ahmad, and D. Wang, “High-Accuracy Distance Measurement Using Millimeter-Wave Radar,” in *Proc. IEEE Radar Conference*, 2018.
- M. Z. Ikram, D. Wang, and M. Ali, “Joint Antenna-Array Calibration and Direction of Arrival Estimation for Automotive Radars,” in *Proc. IEEE Radar Conference*, 2016, pp. 1-5.
- M. Z. Ikram, “Double-Talk Detection in Acoustic Echo Cancellers Using Zero-Crossings Rate,” in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2015, pp. 1121-1125.
- M. Z. Ikram and M. Ali, “A New Data Association Method for 3-D Object Tracking in Automotive Applications,” in *Proc. IEEE Radar Conference*, 2014, pp. 1187-1191.
- M. Z. Ikram, “Non-Linear Acoustic Echo Cancellation Using Cascaded Kalman Filtering,” in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2014, pp. 1334-1338.
- M. Z. Ikram and M. Ali, “3-D Object Tracking in Millimeter-Wave Radar for Advanced Driver Assistance Systems,” in *Proc. IEEE Global Conference on Signal and Information Processing*, 2013, pp. 723-726 (Invited Paper).
- M. Z. Ikram, “Blind Source Separation and Acoustic Echo Cancellation: A Unified Framework,” in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2012, pp. 1701-1704.
- M. Z. Ikram, “Promoting convergence in multi-channel blind signal separation using PNLMS,” in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2011, pp. 1741-1744.
- D. N. Parikh, M. Z. Ikram, and D. V. Anderson, “Implementation of blind source separation and a post-processing algorithm for noise suppression in cell-phone applications,” in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2010, pp. 1634-1637.
- M. Z. Ikram, “On structured total least squares for blind identification of multichannel FIR filters,” in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2008, pp. 2821-2824.
- M. Z. Ikram, “Blind separation of delayed instantaneous mixtures: A cross-correlation based approach,” in *Proc. IEEE Int. Symp. Signal Proc. Info. Tech.*, 2002.

- M. Z. Ikram and D. R. Morgan, "A beamforming approach to permutation alignment for multichannel frequency-domain blind speech separation," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2002, pp. 881-884.
- M. Aoki, M. Z. Ikram, and K. Furuya, "Improving the performance of SAFIA in a reverberant environment," in *Proc. Autumn Meeting Acoust. Soc. Japan*, 2-6-16, 2001, pp. 621-622.
- M. Z. Ikram and D. R. Morgan, "A multiresolution approach to blind separation of speech signals in a reverberant environment," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2001, pp. 2757-2760.
- G. T. Zhou and M. Z. Ikram, "Unsupervised detection and parameter estimation of multi-component sinusoidal signals in noise," in *Proc. Asilomar Conference on Signals, Systems, and Computers*, 2000, pp. 1245-1249.
- K. Abed-Meraim, Y. Hua, M. Z. Ikram, and P. Duhamel "A fast algorithm for conditional maximum likelihood blind identification of SIMO/MIMO FIR systems," in *Proc. European Signal Processing Conference (EUSIPCO)*, 2000, pp. 1553-1556.
- M. Z. Ikram and D. R. Morgan, "Exploring permutation inconsistency in blind separation of speech signals in a reverberant environment," in *Proc. IEEE International Conference on Acoustics, Speech, and Signal Processing*, 2000, pp. 1041-1044.
- M. Z. Ikram, A. Belouchrani, K. Abed-Meraim, and D. Gesbert, "Parametric estimation and suppression of non-stationary interference in DS-spread spectrum communications," in *Proc. Asilomar Conference on Signals, Systems, and Computers*, 1998, pp. 1401-1405.
- M. Z. Ikram and G. T. Zhou, "Order determination and parameter estimation of multicomponent polynomial phase signals," in *Proc. IEEE Workshop on Statistical Signal and Array Processing*, 1998, pp. 352-355.
- M. Z. Ikram, N. A. Siddiqui, and K. Abed-Meraim, "Design and implementation of IIR filters in STLC7545 analog front-end for voice communication," in *Proc. IEEE Conference on Speech and Image Technologies for Computing and Telecommunications*, 1997, pp. 64-67.
- M. Z. Ikram, A. Belouchrani, K. Abed-Meraim, and Y. Hua, "Interference excision of non-stationary signals in spread spectrum communications," in *Proc. IEEE Workshop on Signal Processing Applications*, 1997, pp. 207-210.
- M. Z. Ikram, K. Abed-Meraim, and Y. Hua, "Multiple moving target SAR imaging in noisy environment," in *Proc. International Conference on Telecommunications*, 1997, pp. 1039-1043.

- M. Z. Ikram, K. Abed-Meraim, and Y. Hua, “An iterative approach to the parametric estimation of chirp signals,” in *Proc. IEEE Conference on Digital Signal Processing Applications*, 1996, pp. 681-685.
- 8. M. Z. Ikram, K. Abed-Meraim, and Y. Hua, “Fast discrete quadratic phase transform for estimating the parameters of chirp signals,” in *Proc. Asilomar Conference on Signals, Systems, and Computers*, 1996, pp. 798-802.
- 9. M. Z. Ikram, K. Abed-Meraim, and Y. Hua, “Estimating the Doppler parameters in SAR imaging for moving targets,” in *Proc. IEEE Nordic Signal Processing Symposium*, 1996, pp. 207-210.
- 10. M. Z. Ikram, “Comparative performance analysis of two techniques for estimation of linear chirp signals,” in *Proc. IEEE National Multi-Topic Conference, Islamabad, Pakistan*, 1997, pp. 200-203.

### **Professional Activities**

- Elected Senior Member of the IEEE, USA
- Associate Editor of IEEE Signal Processing Letters, 2012-2013
- Elected Member of the IEEE Signal Processing Society Technical Committee on Audio and Acoustic Signal Processing
- Elected Member of the IET, UK
- Elected Vice President of the IEEE Signal Processing Society Dallas Section for the years 2002 – 2005
- Registered (Licensed) Professional Engineer in the state of Texas
- Member of the International Linear Algebra Society
- Frequent reviewer of various journals and conferences in the field of signal processing and communications.
- Tutorials chair of the IEEE INMIC Conference, Lahore, Pakistan, 2001
- Member, Executive Committee, IEEE Lahore Section, 2001 – 2002
- Counselor of the IEEE Student Branch, Lahore University of Management Sciences
- Member of the organizing committee of the IEEE International Conference on Communication, Atlanta, 1998