Personal Information:

Date of Birth: 27-02-1961
Married with 2 children
Tel: +2 0100 168 4417
Emails: waleedf@aast.edu , waleedfakhr@yahoo.com

Education:

1988-1993: Doctor of Philosophy in Electrical engineering, Electrical and Computer Engineering department, **University of Waterloo**, Waterloo, Canada, May 1994.
Thesis title:"*Optimal Adaptive probabilistic neural networks for pattern classification*".

1983-1988: Master of Science, Electrical Engineering Department, Alexandria University, Egypt.
Thesis title: "*Diagnosis of Liver disease by signal processing of medical ultrasound signals*".

1978-1983: Bachelor of Science, Electrical Engineering department, Communications section, Alexandria University, Egypt. Graduated with **Distinction with Honors**: 2nd in a class of 80.

Work History:

- July 2013-Present: Professor, Computer Engineering Department, College of Engineering, Arab academy for science and technology, Cairo, Egypt.
- September 2011-July 2013: Professor, Electrical and Electronics Engineering Dept., University of Bahrain.
- September 2007-2011: **Dean, College of Computing and Information Technology, Arab Academy for Science and Technology (AAST), Cairo Branch.**

- September 2006-August 2007: Professor, Electrical and Electronics Engineering Dept., University of Bahrain.
- August 2005-2009: Adjunct Professor, Virginia Technology (VT-MENA) program.
- July 2004: Professor, Computer Engineering Department, AAST, Cairo.
- September 2003 – September 2006: **Chair, Computer Engineering & Computer Science Department,AAST, Cairo.**
- 1999-2003: Associate Professor, Arab academy for science and technology (AAST), Electronics and Communications department, Alexandria and Cairo.
- 1994-1999: Researcher, *NORTEL Technologies*Speech Research Lab, Montreal, Canada.
- 1993-1994: Research Associate, VLSI Group, University of Waterloo, Waterloo, Canada.
- 1988-1993: Teaching and research assistant, VLSI Group, Electrical and computer engineering department, University of Waterloo, Waterloo, Canada.

Teaching Experience:
Taught the following undergraduate courses:

- Image Processing
- Information Security
- Signals and Systems
- Multimedia Systems and Acquisition
- Digital Signal Processing
- Neural Networks
- Pattern Recognition
- Computer Networks
- Engineering Ethics
- Digital logic design
- Electrical Circuits
- Computer Vision

Taught the following Graduate courses
- Advanced Pattern Recognition
- Advanced Digital Signal Processing
- Video, Image and Audio Compression
- Image Processing and Computer Vision

Taught the following VT-MENA graduate courses as Adjunct Professor at Virginia Tech (VT- MENA Program):http://www.mena.eng.vt.edu/faculty/

- Fall 2005: *ECE 5620: Advanced Digital Signal Processing and Filter Design*:
- Spring 2008: *ECE 5524*: *Pattern Recognition*

Institutional and Professional Service Activities:

2009-present: Co-Founder and elected member in the board of trustees of the "ArabicLanguage Technology Enhancement Centre" (ALTEC): www.ALTEC-CENTER.org, a Non Profitable Non-Governmental Organization. As a Co-Founder and member of BoT of this consulting organization, I have contributed in many activities aiming to draw a roadmap to the Arabic language technology applications and resources with focus on education, machine translation, Arabic character recognition, Arabic internet search engines and Arabic voice-enabled services.

Industrial Experience:
1994-1999: Researcher, NORTEL Technologies Speech Research Lab, Montreal, Canada.

I was part of a research team developing MultiLingual Speech Recognition solutions to Telephone Companies. My work included language modeling, acoustic modeling, confidence estimation and rejection methods, as well as directory assistance system performance analysis. (Extensive experience of implementing speech recognition and machine learning techniques using C++)

Programming and software Skills
Python, Tensorflow, Matlab, C, C++

RESEARCH INTERESTS

My research interests are in the fields of Machine learning, neural and deep neural networks, watermarking and signal processing, Biometrics and Face recognition, Natural Language Processing, Printed and handwritten character recognition, Language modeling, Speech and language recognition, sparse coding application in time series prediction and machine learning, Secure cloud computing and Large scale image retrieval.I have supervised more than 30 master students and 3 Ph.D. students.

Publications:

Book Chapters:

Mohamed Moheeb Emara, Waleed Fakhr, Mohamed BakrAbdelHalim, "A Neural Network Approach for Binary Hashing in Image Retrieval", Advances in Intelligent Systems and Computing, Springer, 2016, Volume 533, pp 395-406.

Waleed Fakhr, "High Payload Audio Watermarking using Sparse Coding with Robustness to MP3 Compression", Advances in Security of Information and Communication Networks Communications in Computer and Information Science, Springer, Volume 381, 2013, pp 98-110.

http://rd.springer.com/chapter/10.1007%2F978-3-642-40597-6_8

Waleed Fakhr and M.I. Elmasry, "An overview of Neural Networks", Chapter.1 in "VLSI Neural Networks Engineering", M.I.Elmasry Editor, Kluwer Academic publishers, 1994.

Waleed Fakhr, M. Kamel and M.I. Elmasry, "Minimum Complexity Neural Networks".Chapter.7 in "VLSI Neural Networks Engineering", M.I.Elmasry Editor, Kluwer Academic publishers, 1994.

Patents with NORTEL:

- "**Speech recognition rejection method using generalized additive models**";**Waleed Fakhr, et. al.** http://www.patentstorm.us/patents/6006182.html.**United States Patent 6006182. (2001)**

- "**Search and Rescoring method for a Speech Recognition System**"; **Waleed Fakhr, et. al.**http://www.patentstorm.us/patents/6253178.html**United States Patent 6253178. (1999).**

Recent Journals Publications

Mohamed Waleed Fakhr, Mohamed Emara, M. Bakr AbdelHalim, "Bagging trees with Siamese-twin neural network hashing versus unhashed features for unsupervised image retrieval". **Neural Computing and Applications (NCAA), Springer, August 2018. (IF: 4.213)**

Ahmed Helmy, M. Waleed Fakhr, Amir Atiya, "Multi-Step Ahead Time Series Forecasting via Sparse Coding and Dictionary Based Techniques". **Journal of Applied Soft Computing (ASOC), Elsevier. April, 2018. https://authors.elsevier.com/a/1X0dp5aecSZbQ4. (IF: 3.907)**

Mohamed Elmasry, M. Waleed Fakhr, Mohamed Abdel-Maguid Salem "Human Action recognition with discriminative EdgeMoves", **IET Journal of Computer Vision. Accepted December 19 2017. http://ietdl.org/t/31VTo. (IF: 1.087)**

Ahmed Jaffar, M. Waleed Fakhr, Mohamed Hesham, "Enhanced Clustering-Based Topic Identification of Transcribed Arabic Broadcast News". IAJIT (International Arab Journal of Information Technology), **(IF: 0.724), Springer, November 2017. Volume 14, Issue 5, Pages 721-728.**

MohabMostafa, Waleed Fakhr, "Joint Image Watermarking, Compression and Encryption Based on Compressed Sensing and Entropy Coding", Under Review, IETE Technical Review journal.

Waleed Fakhr, "Robust Watermarking using Compressed Sensing Framework with Application to MP3 Audio". International Journal of Multimedia & Its Applications (IJMA), December 2012. http://www.oalib.com/paper/2259455#.VC-sfbGLWvQ

Marwan Rajeh Hussain, Abduljalil Zainal, Wael Mohamed Elmedany, Waleed Fakhr, "Development of Telematics Products and Services in Bahrain", Canadian Journal on Electrical and Electronics Engineering. November 2012.

Recent Conference Publications

Ahmed El-Shamy, Aliaa Youssef, Mohamed Waleed Fakhr, "Multi-step-Ahead Time Series Prediction via Bagging Trees Based Neighborhood". Accepted for publication, 28th International Conference on Computer Theory and Applications, November 2018, AAST, Egypt.

Mohamed Waleed Fakhr, "Multiple Encrypted Random Forests using Compressed Sensing for Private Classification", Accepted in International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies (3ICT 2018), Bahrain, 18-20 Nov. 2018.

Asmaa Abo BakrKamel; Mai S. Mabrouk; Mohamed Waleed Fakhr, "Prediction of DNA methylation for every CpG loci in chromosome 18 in embryonic stem cells using support vector machine", December 2017 13th International Computer Engineering Conference (ICENCO).

Waleed Fakhr, "A Multi-Key Compressed Sensing and Machine Learning Privacy Preserving Computing Scheme". 5th International Symposium on Computational and Business Intelligence August 2017.

Mohamed Moheeb, Waleed Fakhr, Mohamed Bakr, "Siamese-Twin Random Projection Neural Network with Bagging Trees Tuning for Unsupervised Binary Image Hashing". 5th International Symposium on Computational and Business Intelligence August 2017.

Mohab Mostafa, Waleed Fakhr, "Joint Image Compression and Encryption Based on Compressed Sensing and Entropy Coding". 13th IEEE Colloquium on Signal Processing and its Applications (CSPA 2017), Penang, Malysia, March 10, 2017.

Mohamed Elmasry, Waleed Fakhr, "Action recognition with discriminative EdgeMoves", 12th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications. February 2017, Portugal.

Mohamed Moheeb, Waleed Fakhr, Mohamed Bakr, "A Neural Network Approach For Binary Hashing In Image Retrieval", AISI2016, 2nd Intl. Conf. on Advanced Intelligent Systems and Informatics. October 2016, Cairo, Egypt.

Ahmed Helmy, Waleed Fakhr, Amir Atiya, "A Comparison of Greedy Approximation Algorithms for Sparse Coding Time Series Forecasting", The ITISE 2016 (International work-conference on Time Series), Spain, June 27-29, 2016

Ahmed Helmy, Waleed Fakhr, Amir Atiya, "Learning Global Forecasting Models from the Sparse Representations of Time Series Data", 36th International Symposium on Forecasting, Santander, Spain, June 19-22, 2016

Waleed Fakhr, "Sparse Locally Linear and Neighbor Embedding for Nonlinear Time Series Prediction". The 10th IEEE International Conference on Computer Engineering and Systems (ICCES 2015). December 2015, Cairo, Egypt.

Waleed Fakhr, "Online Nonstationary Time Series Prediction using Sparse Coding with Dictionary Update", ICTRC, UAE, May 2015.

Waleed Fakhr, Mohamed El-Mahallawy, Al-Nasser Youssef, "L1-Regularized Least Squares Sparse Extreme Learning Machine for Classification", ICTRC, UAE, May 2015.