

*University of Qatar Faculty Curriculum Vitae*  
*(Electrical Engineering)*

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**Name:** *Mohammed Abdulla E. Al-Hitmi*

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**Education:**

<b>PhD</b>	<b>2001</b>	Control Engineering	University of Sheffield
<b>M.S</b>	<b>1994</b>	Control Engineering	University of Sheffield
<b>B.S</b>	<b>1992</b>	Electrical Engineering	University of Qatar

**Employment History:**

<b>Date</b>	<b>Description</b>
<b>1992-1993</b>	Demonstrator, Department of Electrical Engineering, University of Qatar.
<b>1994-1995</b>	Assistant Lecturer, Department of Electrical Engineering, University of Qatar.
<b>2002-present</b>	Assistant Professor, Department of Electrical Engineering, University of Qatar.

**Principal Publications:**

**Journals:**

1. Badnava, Sareh, Nader Meskin, Adel Gastli, **Mohammed Al-Hitmi**, Jawher Ghommam, Mostefa Mesbah, and Faical Mnif. "Platoon transitional maneuver control system: A review." *IEEE Access* (2021).
2. Berbar, Anas, Adel Gastli, Nader Meskin, **Mohammed Al-Hitmi**, Jawher Ghommam, Mostefa Mesbah, and Faical Mnif. "Reinforcement Learning-based Control of Signalized Intersections having Platoons." *IEEE Access* (2022).
3. Padmanabhan, Regina, Hadeel S. Abed, Nader Meskin, Tamer Khattab, Mujahed Shraim, and **Mohammed Abdulla Al-Hitmi**. "A review of mathematical model-based scenario analysis and interventions for COVID-19." *Computer Methods and Programs in Biomedicine* 209 (2021): 106301.
4. **M. Al-Hitmi**, P. Kiran, A. Iqbal "A hybrid switched inductor with flexible high voltage gain boost converter for DC micro-grid application" *IET Power Electron*, 1–13. (2021), <https://doi.org/10.1049/pel2.12140>.
5. M. Benammar, S. Ahmad, A. Abdaoui, H. Tariq, F. Touati, **M. Al-Hitmi**, D. Crescini, "A Smart Rig for Calibration of Gas Sensor Nodes" *Sensors* 2020, 20, 2341.
6. B.P. Reddy, M. Meraj, A. Iqbal, S. Sivakumar, **M. Al-Hitmi**, (2020), "A single dc source-based 3-level inverter topology for a 4-pole open-end winding 9-phase PPMIM drives", *IEEE Trans. On Ind. Electronic*, (Early Access)

7. S. Ahmed, **M. Al-Hitmi**, A. Iqbal, K. Rahman, I. Ashraf (2020), "Low switching frequency modulation of 3x3 matrix converter in UPFC application using differential evolution method", *International Transactions on Electrical Energy Systems*, vol. 30, issue 1, e12179 Jan. 2020
8. **M. Al-Hitmi**, S. Moinuddin, A. Iqbal, "Space vector vs Carrier-based PWM for a seven-phase VSI", *CPSS Transaction on Power Electronics Applications*, Volume 4, issue 3, pp. 230-243, Sept. 2019.
9. M. Siddique, S. Mekhilef, N.M.Shah, J. S. M. Ali, M. Meraj, A. Iqbal, **M. Al-Hitmi**, (2019), "A New Single Phase Single Switched-Capacitor Based Nine-Level Boost Inverter Topology with Reduced Switch Count and Voltage Stress", *IEEE Access*, vol. 7., issue 1, pp. 174178-174188.
10. A. Khandakar, M. Chowdhury, M. Kazi, K. Benhmed, F. Touati, **M. Al-Hitmi** and A. Gonzales "Machine Learning Based Photovoltaics (PV) Power Prediction Using Different Environmental Parameters of Qatar", *Energies* 2019, 12(14), 2782.
11. S. Hussain, **M. Al-Hitmi**, S. Khaliq, A. Hussain, M. Saqib "Implementation and Comparison of Particle Swarm Optimization and Genetic Algorithm Techniques in Combined Economic Emission Dispatch of an Independent Power Plant", *Energies* 2019, 12, 2037.
12. K. Rahman, N. Al-Emadi, M. Al-Hitmi, A. Iqbal, (2019), "Common Mode Voltage Reduction in a Three-to-Seven Phase Direct Matrix Converter Using Space Vector PWM", *IET EPA* doi: 10.1049/iet-epa.2018.5188, vol. 13, issue 8, pp. 1219-1228, Aug. 2019.
13. H. Tariq, A. Tahir, F. Touati, **M. Al-Hitmi** 1, D. Crescini and A. Ben Manouer, "Geographical Area Network—Structural Health Monitoring Utility Computing Model", *ISPRS International Journal of Geo-Information* 2019, 8, (Published on-line) doi:10.3390/ijgi8030154.
14. S. Ahmed, **M. Al-Hitmi**, A. Iqbal, I. Ashraf, M. Meraj, "Low Order Harmonics Control in Staircase Waveform useful in high power application by a Novel Technique", *International Transactions on Electrical Energy Systems* Nov. 2018, (Published on-line) <https://doi.org/10.1002/etep.2769>.
15. **M. Al-Hitmi**, S. Ahmad, A. Iqbal, S. Padmanaban, I. Ashraf, "Selective Harmonic Elimination in a Wide Modulation Range Using Modified Newton–Raphson and Pattern Generation Methods for a Multilevel Inverter", *Energies* 2018, 11, 458.
16. Z. Aleem, S. Winberg, A. Iqbal, **M. Al-Hitmi**, M. Hanif, "Single-phase Transformer based HF-Isolated Z-Source Inverters with Voltage Clamping Techniques for Solar PV Applications", *IEEE Trans. On Ind. Elect.* DOI: 10.1109/TIE.2018.2889615 (Early Access)
17. M. Siddique, S. Mekhilef, N.M. Shah, J. Sathik, M. Meraj, Iqbal, A., **M. Al-Hitmi**, "A New Single Phase Single Switched-Capacitor Based Nine-Level Boost Inverter Topology with Reduced Switch Count and Voltage Stress", *IEEE Access*, vol. 7., issue 1, pp. 174178-174188
18. K. Rahman, A. Iqbal, **M. Al-Hitmi**, D. Obrad, Ahmed, S., "Performance Analysis of A Three-to-Five Phase Dual Matrix Converter Based on Space Vector Pulse Width Modulation", *IEEE Access (Early Access)*, Jan. 2019, DOI: 10.1109/ACCESS.2019.2892514
19. **M. Al-Hitmi**, K. Rahman, N. Al-Emadi, A. Iqbal, "Control and Modulation of a Three to Asymmetrical Six-phase Matrix Converter based on Space Vector", *Journal of Power Electronics*, vol. 19, no. 2, pp. 475-486.

20. T. Kamel, D. Abdelkader, B. Said, **M. Al-Hitmi**, A. Iqbal, "Sliding Mode Control Based DTC of Sensorless Parallel-Connected Two Five-Phase PMSM Drive System", *Journal Electrical Engineering & Technology*.2018; 13(3): 1185-1201.
21. **M. Al-Hitmi**, H. Kesraoui, K. Rahman, A. Iqbal, "Comparative Study of Classical and Fuzzy-Regulator in Five Phase Synchronous Machine Control With Open Phase", *Journal of Intelligent & Fuzzy Systems*, DOI:10.3233/JIFS-169802, 2018.
22. A.A. Abdullah, M. Meraj, **M. Al-Hitmi**, A. Iqbal, "Space vector pulse width modulation control techniques for a five-phase quasi-impedance source inverter", *IET Electric Power Applications*, vol. 12, issue 3, pp. 379-387, 2018.
23. F. Touati, N.A. Chowdhury, K. Benhmed, A.J.R. Gonzales, **M. Al-Hitmi**, M. Benammar, A. Gastli, L. Ben-Brahim "Long-term performance analysis and power prediction of PV technology in the State of Qatar", *Renewable Energy*, 113 (2017) 952-965.
24. F. Touati, **M. Al-Hitmi**, N. A. Chowdhury, J. Abu Hamad, A.J.R. Gonzales, "Investigation of Solar PV Performance Under Doha Weather Using A Customized Measurement and Monitoring System", *Renewable Energy*, 89, pp. 564-577, 2016.
25. F. Touati, **M. Al-Hitmi**, K. Benhmed, R. Tabish "A fuzzy logic based irrigation system enhanced with wireless data logging applied to the state of Qatar", *Computers and Electronics in Agriculture*, Vol. 98, pp. 233-241, Oct. 2013.
26. F. Touati, **M. Al-Hitmi**, H. Bouchech, "Study of the Effects of Dust, Relative Humidity and Temperature on Solar PV Performance in Doha: Comparison Between Mono-Crystalline and Amorphous PVs", *Int. Journal of Green Energy*, (Taylor's and Francis), Vol. 10, issue 7, pp. 680-689, 2013.
27. F. Touati, **M. Al-Hitmi**, K. Benhmed, "A Fuzzy Logic Based Irrigation Management System in arid Regions Applied to the State of Qatar", *WIT Transactions on Ecology and the Environment*, Vol. 168, pp. 189-199, 2012.
28. L. Ben-Brahim, M. Benammar, M. Alhamadi, N. Alemadi, **M. Al-Hitmi** " A New Low Cost Linear Resolver Converter" *IEEE Sensors Journal*, Vol. 8, pp. 1620-1627, 2008.

## Conferences:

1. **M. Al-Hitmi**, A. Iqbal, S. Rahman, K. Pandav, M. Meraj, H. Mehrjrdi, "A Dual Active Bridge Based Wireless Power Transfer System for EV Battery Charging Controlled Using High Speed FPGA" *IEEE ICloT'2020 Conference Doha, Qatar*, February 2-5, 2020, (**Best Paper Award**).
2. S. Gore, K. Pandav, **M. Al-Hitmi**, A. Iqbal, "A Dual Output High Gain DC-to-DC Converter for Electric Vehicle Application", *IEEE Int. Conf. on Power Electronics, Control & Automation*, New Delhi, 16-17 Nov. 2019.
3. P. B. Reddy, A. Iqbal, **M. Al-Hitmi**, A. Hasan, H. Mehrjerdi, A. Paraprath, A. Shakoor, S. Keerthipati, (2019) "Performance Enhancement of PPMIM Drives by using 3 Three-Phase Four-Leg Inverters", *IEEE Int. Conf. on Power Electronics, Control & Automation*, New Delhi, 16-17 Nov. 2019.
4. A. Iqbal, **M. Al-Hitmi**, K. Pandav, M. Daula, S. Rahman, M. Meraj, (2019), "A Quasi Impedance Source Inverter based Wireless Power Transfer System for Battery Charging Applications for Electric Vehicle", *IEEE UPCON*, Aligarh, India (Accepted for publication)
5. B. Prathap Reddy, Atif Iqbal, **M. Al-Hitmi**, Anwarul Hasan, Hasan Mehrjerdi, Asokan Paraprath, Abdul Shakoor, Sivakumar Keerthipati, "Performance

- Enhancement of PPMIM Drives by using 3 Three-Phase Four-Leg Inverters” IEEE Int. Conf. on Power Electronics, Control & Automation, New Delhi, 16-17 Nov. (Accepted for publication)
6. N. A. Chowdhury, A.J.R. Gonzales, F. Touati, **M. Al-Hitmi**, “A Novel System for Prediction of PV Performance in the State of Qatar”, *Proc. International Conference on Sustainable Mobility Applications, Renewables and Technology (SMART2015)*, November 23-25, 2015, Kuwait.
  7. Noor A. Chowdhury, J. Abu Hamad, **M. Al-Hitmi**, F. Touati, “A Novel System for Wireless Monitoring of PV Platforms in the State of Qatar”, *Proc. Third Southern African Solar Energy Conference*, 11-13 May, Skukuza, South Africa, 2015.
  8. J. Abu Hamad, Noor A. Chowdhury, F. Touati, **M. Al-Hitmi**, “Wirelessly Monitoring, Investigating and Overcoming the Effects of Harsh Environment on the Performance of Solar PV Technologies in the State of Qatar”, *World Sustainable Energy Forum - EnerSol WSEF*, 26-28 Nov., Tunis, Tunisia, 2014.
  9. F. Touati, **M. Al-Hitmi**, K. Benhmed, “A fuzzy logic based irrigation management system in arid regions applied to the state of Qatar”, *Proc. 4<sup>th</sup> International Conference on Sustainable Irrigation and Drainage: Management, Technologies and Policies*, 11-13 Dec. 2012, Adelaide, Australia.
  10. F. Touati, **M. Al-Hitmi**, H. Bouchech, “Effects of Dust, Humidity and Temperature on Solar PV Performance: Comparison Between Mono-Crystalline and Semi-Flexible PVs”, *Proc. the First International Conference on Renewable Energies and Vehicular Technology (RENET 2012)*, 26-28 March 2012, Hammamat, Tunisia.
  11. F. Touati, **M. Al-Hitmi**, H. Bouchech: “Towards Understanding the Effects of Climatic and Environmental Factors on Solar PV Performance in Arid Desert Regions (Qatar) for Various PV Technologies”, *World Renewable Energy Congress*, Indonesia, 17-19 October 2011, Bali, Indonesia.
  12. M. Benammar, Lazhar Ben-Brahim, Mohd. A. Alhamadi, Nasser Al-Emadi, **M. Al-Hitmi**, “An Open-Loop Technique for Angle Determination from Position Encoders”, *Proc. IEEE International Symposium on Industrial Electronics*, Cambridge, UK, June 30 to July 2, 2008, pp 1044-1049.
  13. L. Ben-Brahim, M. Benammar, Mohd. A. Alhamadi, N. Al-Emadi, **M. Al-Hitmi**, “A new angle determination method for resolvers”, *Proc. The 10th IEEE Int. Workshop Advanced Motion Control AMC2008*, Trento Italy, 26-28 March, 2008, pp. 126-131.
  14. M. Benammar, L. Ben-Brahim, Mohd. A. Alhamadi, N. Al-Emadi, **M. Al-Hitmi**, “A Resolver Converter Based upon a Novel Open-Loop Technique”, *Proc. IEEE International Conference On Industrial Technology (IEEE ICIT 2008)* 21-24 April 2008, Sichuan University, Chengdu, China. IEEE Catalog Number: CFP08CIT-CDR. ISBN: 978-1-4244-1706-3.
  15. **M. Al-Hitmi**, N. Mort “Non-linear analysis techniques for the modeling of financial time series”, *Proc. Int. Conf. On Intelligent Systems and Applications*, Wollongong, Australia, 11-15 December 2000, ISBN 3-906454-24-X.
  16. **M. Al-Hitmi**, N. Mort, “Time series prediction using self-organizing maps and feed forward neural networks”, *Pro. 13<sup>th</sup> Int. Conference on Systems Engineering*, Las Vegas, August 1999.
  17. **M. Al-Hitmi**, N. Mort, "Exchange Rate Predictions using Self-Organising Maps and Feedforward Neural Networks", *Proc. International Symposium on Intelligent*

*Data Engineering and Learning IDEAL '98*, Hong Kong, October 14-16, pp. 35-41, 1998.

### **Submitted Manuscripts:**

1. **M. Al-Hitmi**, Z. Aleem, “Quasi Clamped Impedance Source Inverter Based on Two Transformers”, *Journal of Electrical Engineering & Technology (under review.R1)*

### **Patents:**

1. L. Ben-Brahim, M. Benammar, M. Alhamadi, N. Alemadi, **M. Al-Hitmi**, “Apparatus For The Determination Of The Angle From Sine/Cosine Transducers”, UK patent GB 2447901 A, 1 Oct 2008.
2. L. Ben-Brahim, M. Benammar, M. Alhamadi, N. Alemadi, **M. Al-Hitmi** “PLL Type Resolver To 360 Degrees Linear Converter Apparatus”, UK patent GB 2448350 A, 15 Oct 2008.

### **Grants:**

1. “Multiple Output Contactless Inductive Power Transfer System for Electric Vehicle Battery Charging Station”, Collaborative research grant funded by Qatar University, QUCG-CENG-19/20-5, (270,000 QR) Feb-2019-Feb 2021.
2. “Advanced Reconfigurable Multiphase Motor Drive System for Electric Vehicle Applications”, High Impact Grant funded by Qatar University (540,000 QR), Feb 2019-Feb 2021.
3. “Development of Fuzzy Logic Controlled Multiphase High Power Adjustable Speed Drives”, Qatar University, QUCP-CENG- 17\18-2, from 2017 to 2018QR 425,000.
4. “Development of Independently controlled four wheel drive system for Autonomous Electric Vehicle”, UREP21-062-2-022, Awarded Amount: \$22,000.00, from 15-Feb-2018 to 15-Feb-2019.
5. “Development of a Robust Servo Drive System”, Qatar University: 06001E, 2007 to 2008, budget: QR40000.
6. “Environment-Friendly Self-Tuned Irrigation and Conservation System”, Qatar University: QUUG-ENG-DCE-10/11-13, 2011 to 2012, budget: QR123000.
7. “Investigating the Impact of Environment on Commercial Solar PV Technologies in Qatar”, Qatar University (QUUG-ENG-DCE-10/11-13), 2013 to 2015, budget: \$40,500
8. “Early Warning System for Asset & Underground Monitoring for Safe & Sustainable Environment”, QNRF, Qatar (NPRP 8-1781-2-735), \$899,755.6, 2015-2018.

### **Courses Taught During Academic Year:**

Semester	Course No.	Name	Contact Hours/week
Spring 2002	503457	Selected Topics in Control or Signal Processing	5
Fall 2002	503200	Electric circuits and Devices	4

Fall 2002	503304	Electrical Instruments and Measurements	5
Spring 2003	503200	Electric circuits and Devices	4
Spring 2003	503386	Computational Methods for EE	5
Fall 2003	503304	Electrical Instruments and Measurements	5
Fall 2003	503351	Signals and Systems	5
Fall 2003	503457	Selected Topics in Control or Signal Processing	5
Spring 2004	503352	Control Systems 1	5
Spring 2004	503453	Control Systems 2	5
Fall 2004	503351	Signals and Systems	5
Fall 2004	503457	Selected Topics in Control or Signal Processing	
Spring 2005	503352	Control Systems 1	5
Spring 2005	503201	Electric Circuits	5
Fall 2005	501200	Probability and Statistics for Engineers	3
Fall 2005	503201	Electric Circuits	5
Spring 2006	501200	Probability and Statistics for Engineers	3
Spring 2006	503351	Signals and Systems	5
Fall 2006	503200	Probability and Statistics for Engineers	3
Fall 2006	503351	Signals and Systems	5
Spring 2007	503202	Electric Circuits II	3
Spring 2007	503203	Electric Circuits Lab II	3
Spring 2007	503351	Signals and Systems	5
Fall 2007	503201	Electric Circuits	5
Fall 2007	503457	Selected Topics in control or Signal Processing	3
Spring 2008	ELEC201	Electric Circuits	5
Spring 2008	ELEC352	Control Systems	5
Fall 2008	ELEC202	Electric circuits II	3
Fall 2008	ELEC453	Advanced Control systems	3
Spring 2009	ELEC352	Control Systems	5
Spring 2009	ELEC202	Electric Circuits	3
Spring 2009	ELEC203	Electric Circuits II Lab	3
Fall 2009	ELEC201	Electric Circuits	5
Fall 2009	ELEC453	Advanced Control Systems	3
Spring 2010	ELEC202	Electric Circuits II	3
Spring 2010	ELEC203	Electric Circuits II Lab	3
Spring 2010	ELEC352	Control Systems	5
Fall 2010	ELEC201	Electric Circuits	5
Fall 2010	ELEC453	Advanced Control Systems	3
Spring 2011	ELEC352	Control Systems	5
Spring 2011	ELEC202	Electric Circuits II	3
Spring 2011	ELEC203	Electric Circuits II Lab	3
Fall 2011	ELEC201	Electric Circuits	5
Spring 2012	ELEC201	Electric Circuits	5
Spring 2012	ELEC352	Control Systems	5
Fall 2012	ELEC202	Electric Circuits II	3
Fall 2012	ELEC203	Electric Circuits II Lab	3
Fall 2012	ELEC201	Electric Circuits	5
Spring 2013	ELEC202	Electric Circuits II	3

Spring 2013	ELEC203	Electric Circuits II Lab	3
Spring 2013	ELEC352	Control Systems	5
Fall 2013	ELEC453	Advanced Control Systems	3
Fall 2013	ELEC202	Electric Circuits II	3
Fall 2013	ELEC203	Electric Circuits Lab	3
Spring 2014	ELEC352	Control Systems	5
Spring 2014	ELEC202	Electric Circuits II	3
Fall 2014	ELEC202	Electric Circuits II	3
Spring 2015	ELEC352	Control Systems	5
Spring 2015	ELEC201	Electric Circuits	5
Fall 2015	ELEC201	Electric Circuits	5
Spring 2016	ELEC202	Electric Circuits II	3
Spring 2016	ELEC352	Control Systems	5
Fall 2016	ELEC202	Electric Circuits II	3
Fall 2016	ELEC201	Electric Circuits	5
Spring 2017	ELEC352	Control Systems	5
Fall 2017	ELEC202	Electric Circuits II	3
Spring 2018	ELEC352	Control Systems	5
Fall 2018	ELEC453	Advanced Control Systems	3
Fall 2018	ELEC201	Electric Circuits	5
Spring 2019	ELEC352	Control Systems	5
Fall 2019	ELEC201	Electric Circuits	5
Fall 2019	ELEC655	Advanced Topics in Control System Theory	3
Spring 2020	ELEC352	Control Systems	5
Spring 2021	ELEC201	Electric Circuits	5

## Committees:

Industrial Relation committee	2003-2005
Curriculum Committee	2006-2008
Recruitment committee	2008-2016
College of Engineering Requirements Unit	2008-July 2012
Quality Assurance committee	2008-July 2012
Faculty Affairs committee	2009-2010.
Outreach committee	2011-July 2012
Non-QU Course Equivalency Committee	2012-July 2012
Graduate Studies and Research Committee	2015- 2020
Curriculum Committee	2017-2020
Head of Department	2020-present
CENG Faculty Planning, Recruitment, and Retention Committee (FPR2C)	Feb 2017-present.