

Curriculum Vitae

1. Personal data

Name	: Lazhar BEN-BRAHIM
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2. Short Biography

Specialty: Electrical Engineering (Power Electronics & Electric Drives)

Education:

- **1985:** Engineering Degree from Tunis College of Engineering, ENIT, Tunisia
- **1986:** Master degree from Tunis College of engineering, ENIT, Tunisia
- **1991:** Ph.D. degree from Yokohama National University, Yokohama, Japan.

Experience:

- **1997-present:** University of Qatar
 - **2014-present:** Head of Electrical Engineering Department
 - **2008-present:** Professor EE Department, College of Engineering
 - **2007-present:** Industrial Electronics Chair for RasGas
 - **1998-2005:** Head of Industrial Technology Department (ITD)
 - **2001-2005:** Associate Professor ITD & EE Department
 - **1997-2001:** Assistant Professor Industrial Technology Department
- **1991-1997:** Toshiba Corp. in Japan, as a research engineer in the Power Electronics, Control and Motor Drives Laboratory.

Publications: More than **70** papers (Journals/conferences, TR)

Patents: **10 patents:** 10 granted international patents.

Affiliation: Senior IEEE member

Recent Main Research Grants:

Received more than 20 research grants, main recent research grants are as follows

- NPRP-X-100-2-024 (US\$4,798,236)
- NPRP 09-233-2-096 (US\$1,040,000)
- NPRP 09-426-2-160 (US\$295,000)
- NPRP 08-548-2-223 (US\$1050,000)

International activities & Services to Local Community:

- Organised 5 training courses for Gas & Oil industry during the last three years.
- Member of the panel of reviewers of several IEEE journals and conferences.

Awards:

- Recipient of the 1993 TOSHIBA Advanced Technology Award.
- Industrial Electronics Chair for RasGas (2007-present).
- Awarded more than 20 research grants

3. Academic Qualifications

Degree: **PhD**

March 1991

University : **Yokohama National University – Japan**
College : Faculty of Engineering
Department : Electrical and Computer
Major : Power Electronics Control systems & Electrical Drives-
Thesis : High Performance Torque Control of Induction Motor based on Digitally Controlled PWM Inverter.

Degree: **Master**

December 1986

University : **University of Tunis**
College : **ENIT** (Tunis College of Engineering)
Department : Electrical
Major : Signal processing and System analysis
Title of Thesis : Implementation of a Digital Speed Controller for a DC Motor

Degree: **Engineer (6-year Program)**

June 1985

University : **University of Tunis**
College : **ENIT** (Tunis College of Engineering)
Department : Electrical
Major : Electrical Engineering
Project #1 : Telephonic Alarm System
Project #2 : Control of a CNC Tool Machine

4. Employment History

University of Qatar

1997-Present

2014-present	:	Position	: Head of Electrical Engineering Department
2008-Present	:	Position	:Professor, EED, College of Engineering.
		Duties	:Teaching, research, services
2007-2013	:	Position	:Industrial Electronics Chair for RasGas
2005-2008	:	Position	:Associate Professor, Electrical Engineering Department (EED), College of Engineering.
1998-2005	:	Job Title	:Head of Industrial Technology Department(ITD)
		Duties	:Teaching, research and administration
2001-2005	:	Position	:Associate Professor, ITD, College of Technology
		Duties	:Teaching, research
1997-2001	:	Position	:Assistant Professor
		Duties	:Teaching, research

Yokohama National University (Japan)

July 2000 – September 2000

Job Title	:	Visiting Researcher
Duties	:	Research (Motion Control, Robotics, ...etc)

Toshiba Corp. (Japan) Power Electronics & Control Lab.

1991-1997

Job Title	:	Researcher Engineer
Duties	:	Research & Design in Power Electronics, Control, Sensors and Motor Drives (PWM Inverter, PWM Converter, Sensorless Control, Neural Network Control, Electric Drives, Cycloconverter Control, Energy Saving Drives, Snubber Circuit Design, DSP Controller Design, Simulation, Design of Controller hardware, Vector Control, V/F Control, Adaptive Control, MRAS, Autotuning, Hybrid Electric Vehicle, ASIC Design, Sensors, Instrumentation ...etc)

Yokohama National University (Japan)

1987-1988

Job Title	:	Researcher-student
Duties	:	Research (Sliding mode control, UPS control, Motor Control, Robot control, ...etc)

Tunis College of Engineering

1985-1987

Job Title	:	Lecturer
Duties	:	Teaching (Electronics /Digital Fundamentals)

Tunisian Telecom Electric

1985-1987

Job Title	:	Engineer
Duties	:	Electronic Manufacturing

5. Research & Publications

Patents

Inventor and Co-inventor of several control methods for use with motor drives and power electronics apparatus, these inventions are registered in the following patents:

Patents:

1. Japan Patent No. P08-294300 "Speed Estimation", 5 December 1996
2. US Patent Number: 5502633, 26 March 1996
3. Rep. Of China Patent Number: 31507, 08 July 1995
4. Australia Patent Number: 651920, 29 December 1994
5. US Patent Number: 5361197, 1 November 1994
6. Japan Patent No. PH06-98545 "Neutral Point Clamped inverter control Apparatus", 8 Jan. 1994
7. Japan Patent No. PH05-268773 "Control Method for Inverter Based on PWM", 15 Oct. 1993.
8. L. Ben-Brahim, M. Benammar, M. Alhamadi, N. Alemadi, M. Alhitmi " Apparatus For The Determination Of The Angle From Sine/Cosine Transducers " UK patent GB2447901B, June 1st 2011.
9. L. Ben-Brahim, M. Benammar, M. Alhamadi, N. Alemadi, M. Alhitmi " PLL Type Resolver To 360 Degrees Linear Converter Apparatus " UK patent GB2448350B, June 1st 2011.

Pending Patents:

1. UK patent application GB0911185.7 date of filing 1/3/2009

Book Chapters

- ✓ Ben-Brahim, L, T. Yoshino (2013) "**High Power Drive Systems For Industrial Applications –Practical Examples**", *Power Electronics for Renewable Energy Systems, Transportation and Industrial Applications*", WILEY 2013

Journal papers

- ✓ M. Trabelsi, k. Ghazi, H. Abu-Rub, L. Ben-Brahim, "Finite Control Set Model Predictive Control for Grid Connected Packed U Cells Multilevel Inverter," *IEEE Trans. Ind. Electronics*, 2016, accepted.
- ✓ L. Ben-Brahim, A. Gastli, M. Trabelsi, k. Ghazi, M. Houchati, H. Abu-Rub, "Modular Multilevel Converter Circulating Current Reduction using Model Predictive Control," *IEEE Trans. Ind. Electronics*, 2016, accepted. DOI 10.1109/TIE.2016.2519320
- ✓ N. A. Al-Emadi, L. Ben-Brahim, M. Benammar "A New Tracking Technique for Mechanical Angle Measurement" Elsevier, *Measurement Journal* Vol. 54, pp. 58-64 Elsevier, 2014.
- ✓ D. Sun, Baoming Ge, D. Bi, Y. Liu, H. Abu-Rub, L. Ben-Brahim, F. Z. Peng, "Modeling, Impedance Design, and Efficiency Analysis of Quasi- Z Source Module in Cascaded Multilevel Photovoltaic Power System," in *IEEE Transactions on Industrial Electronics*, vol. 61, no. 11, pp. 6108-6117, Nov. 2014.

- ✓ *M. Trabelsi, K.A. Ghazi, N. Al-Emadi, L. Ben-Brahim, "A weighted real-time predictive controller for a grid connected flying capacitors inverter", Elsevier International Journal of Electrical Power and Energy systems, vol. 49, pp. 322-332, 2013.*
- ✓ *M. Trabelsi, L. Ben-Brahim, "A New Design of dSpace Microcontroller-based Real-Time Digital Predictive Controller for Grid Connected Photovoltaic Power Conditioning System", International Journal of Advanced Research in Computer and Communication Engineering, Vol. 2, Issue 10, October 2013*
- ✓ *M. Trabelsi and L. Ben-Brahim "An adaptive hysteresis dead-band-based SVPWM method for multi-level inverter", Int. J. Power Electronics, Inderscience, Vol. 5, Nos. 3/4, pp. 280-299, 2013.*
- ✓ *L. Ben-Brahim, M. Benammar, M. Alhamadi " A Resolver Angle Estimator Based On Its Excitation Signal" IEEE Transactions On Industrial Electronics, Vol. 56, No. 2, pp. 574-580, February 2009.*
- ✓ *L. Ben-Brahim "A Discontinuous PWM Method for Balancing the Neutral Point Voltage in Three-Level Inverter-Fed Variable Frequency Drives (VFDs)" IEEE Transactions on Energy Conversion, Vol. 23, No. 4, pp. 1057-1063, December 2008.*
- ✓ *L. Ben-Brahim, M. Benammar, M. Alhamadi, N. Alemadi, M. Alhitmi " A New Low Cost Linear Resolver Converter" IEEE Sensors Journal, Volume 8, Issue 10, Page(s):1620–1627, Oct. 2008.*
- ✓ *M. Benammar; L. Ben-brahim; Mohd. A. Alhamadi; M. El-Naimi, "A Novel Method for Estimating the Angle from Analog Co-Sinusoidal Quadrature Signals," Sensors & Actuators A: Physical, A 142- pp.225-231, March 2008.*
- ✓ *L. Ben-Brahim and S. Tadakuma " A Novel Multilevel Carrier-Based PWM Control Method for GTO Inverter in Low Index Modulation Region" IEEE Transactions On Industry Applications, Vol. 42, No. 1, January-February 2006.*
- ✓ *M. Benammar; L. Ben-brahim; Mohd. A. Alhamadi "A High Precision Resolver-to-DC Converter ", IEEE Transactions on Instrumentation & Measurement, Vol. 54, No. 6, December 2005.*
- ✓ *L. Ben-Brahim " On the Compensation of Dead-Time and Zero Current Crossing for a PWM Inverter Controlled AC Servo Drive" IEEE Transactions on Industrial Electronics, Vol. 51, No. 5, October 2004.*
- ✓ *M. Benammar, L. Ben-Brahim and M. Alhamadi " A Novel Resolver-to-360 Degree Linearized Converter ", IEEE Sensors Journal, Vol. 4, No. 1, pp:96-101, February 2004.*
- ✓ *L. Ben-Brahim "repetitive control based PWM inverter dead-time compensation for ac servo drive" Qatar Engineering Journal, Vol. 15, 2002.*
- ✓ *L. Ben-Brahim, S. Tadakuma and A. Akdag " Speed Control of Induction Motor without Rotational Transducers" IEEE IA Transactions, VOL. 35, NO.4, pp. 844-850, July/August 1999.*
- ✓ *L. Ben-Brahim "Motor Speed Identification via Neural Networks" IEEE Industry Applications Magazine, Vol. 1, No. 1 pp. 28-32 January/February 1995.*
- ✓ *L. Ben-Brahim and A. Kawamura "Digital Control of Induction Motor Current Using Predictive State Observer" IEEE Transactions on power electronics Vol. 7, No.3, pp. 551-559 July 1992. (Also published in the book "Sensorless Control of AC Motor Drives" IEEE Press 1996, by Rajashekara et al.).*

- ✓ L. Ben-Brahim and A. Kawamura "A Fully Digitized Field Oriented Controlled Induction Motor Drive Using Only Current Sensors" *IEEE Transactions on Industrial Electronics* Vol. 39, No. 3, pp. 241-249, June 1992.
- ✓ L. Ben-Brahim and A. Kawamura "Digital Current Regulation of Field Oriented Controlled Induction Motor Based on Predictive Flux Observer" *IEEE Transactions on Industry Applications*, VOL. 27, NO.5, pp. 956-961, September/October 1991.
- ✓ A. Kawamura and L. Ben-Brahim "Deadbeat Control of Induction Motor Current Using State Observer With Adaptive Poles Selection" *Transaction IEE of Japan*, vol. 108-D, No. 5, pp. 590-597, May, 1990.

Conference Refereed Papers

- ✓ M. Meraj, A. Iqbal, L. Brahim, R. Alammari, H. Abu-Rub, "A High Efficiency and High Reliability Single-Phase Modified Quasi Z-Source Inverter for Non-Isolated Grid-Connected Applications", *IEEE IECON'15*, pp. 1-6, Yokohama, Japan, Nov. 2015.
- ✓ Abdulllah, A.A.; Iqbal, A.; Ben-Brahim, L. , "Space vector pulse width modulation techniques for a five-phase impedance source and quasi impedance source inverters," *IEEE ICIT'15*, pp. 1173-1178, 2015.
- ✓ L. Ben-Brahim, A. Gastli, K.A. Ghazi, "Implementation of Iterative Learning Control based Deadtime Compensation for PWM Inverters" *17th Conference on Power Electronics and Applications, EPE'15-ECCE Europe*, Geneva, Switzerland, 8-10, September 2015.
- ✓ A. Gastli, L. Ben-Brahim, M.B.H. Rhouma, "ANN-Based Extraction Approach of PV Cell Equivalent Circuit Parameters" *17th Conference on Power Electronics and Applications, EPE'15-ECCE Europe*, Geneva, Switzerland, 8-10, September 2015.
- ✓ Azani, H.; Massoud, A.; Ben-Brahim, L.; Williams, B.W.; Holliday, D., "Multiloop control strategy for grid-interfaced three-phase voltage source inverter with passively damped LLCL-filter," in *Renewable Power Generation Conference (RPG 2014)*, 3rd , vol., no., pp.1-6, 24-25 Sept. 2014
- ✓ Azani, H.; Massoud, A.; Benbrahim, L.; Williams, B.W.; Holiday, D., "An LCL filter-based grid-interfaced three-phase voltage source inverter: Performance evaluation and stability analysis," in *Power Electronics, Machines and Drives (PEMD 2014)*, 7th IET International Conference on , vol., no., pp.1-6, 8-10 April 2014
- ✓ Massoud, A.; Ben-Brahim, L.; Hamid, A.; Williams, B.W.; Holliday, D., "Stability analysis of an active-damped LLCL filter- based grid-connected three-phase inverter," in *Microelectronics (ICM)*, 2014 26th International Conference on , vol., no., pp.240-243, 14-17 Dec. 2014
- ✓ K.A Ghazi, L. Ben-Brahim, "Towards Ultra High Frequency and High Efficiency Gate Drive Circuits", *7th IEEE GCC confrenece 2013*, 17-20 Nov. 2013, Doha, Qatar.
- ✓ Ashour, M.; Ben-Brahim, L; Al-Emadi, N. " Matlab/Simulink Implementation & Simulation of Islanding Detection using Passive Methods", *7th IEEE GCC confrenece 2013*, 17-20 Nov. 2013, Doha, Qatar.
- ✓ T. Yoshino, H Masuda, Hiromi Hosoda, M. Tsukakoshi, M. Mostafa, L. Ben-Brahim, "High-Reliability Extra-Large Motor Drives for Oil and Gas Industry", *7th IEEE GCC conference and exhibition 17-20 November 2013*, Doha, Qatar.
- ✓ M. Trabelsi, L. Ben-Brahim, A. Gastli, K.A. Ghazi, "An Improved Predictive Control Approach for Multilevel Inverters", *SLED 2013, 4th Symposium on Sensorless Control for Electrical Drives*, 17.-19. October 2013 – Munich, Germany
- ✓ M. Trabelsi, L. Ben-Brahim, "A Newly Normalized Deadbeat Control for Grid Connected Distributed Generation System", *IEEE Energy Conversion Congress and Expo, ECCE 2013*,

USA, September 2013.

- ✓ M. Trabelsi, L. Ben-Brahim, T. Yokoyama, “ Repetitive Scheme Plugged-in Parallel with Deadbeat Controller for VFD Fed by Cascaded Multilevel Inverter”, *IEEE Energy Conversion Congress and Expo, ECCE 2013, USA, September 2013.*
- ✓ M. Trabelsi, L. Ben-Brahim, K.A Ghazi, “An Improved Real-Time Digital Feedback Control for Grid Connected Multilevel Inverter”, *39th Annual Conference of the IEEE Industrial Electronics Society, IECON 2013, Austria, November 2013.*
- ✓ Trabelsi, M.; Ghazi, K.A. ; Al-Emadi, N. ; Ben-Brahim, L. (2012)“ An original controller design for a grid connected PV system” *IECON 2012 - 38th Annual Conference on IEEE Industrial Electronics Society, 25-28 Oct. 2012, Montreal, Canada*
- ✓ Fayyad, Y.; Ben-Brahim, L. “Multilevel cascaded Z source inverter for PV power generation system”, *2012 International Conference on Renewable Energy Research and Applications (ICRERA), 11-14 Nov. 2012, Nagasaki, Japan.*
- ✓ Fayyad, Y.; Ben-Brahim, L. “A Wavelet-Based Passive Islanding Detection Technique”, *2012 International Conference on Renewable Energy Research and Applications (ICRERA), 11-14 Nov. 2012, Nagasaki, Japan.*
- ✓ L. Ben-Brahim, M. Benammar, T.Yoshino, H. Hosoda, R. Kurosawa and Y. Fayyad, “Electric Drives for LNG Plants”, *Proceedings of the 3rd Gas Processing Symposium, Qatar, March 2012*
- ✓ M. Trabelsi, M. Brahim, K.A Ghazi, L. Ben-Brahim, S. Al-Dosari, J. Belhadj, “A New Design of Predictive Controller Combined with an Islanding Detection Method for a Grid Connected Photovoltaic Power Conditioning System” *The Third International Renewable Energy Congress, pp. 352-358, Hammamet-Tunisia, December 20-22, 2011*
- ✓ A.I. Maswood, L. Ben-brahim, P. H. Raj “An Investigation into the Efficiency of Silicon Carbide Based Power Inverters” *PEIA2011, Doha, Qatar, November 2011.*
- ✓ M. Trabelsi, L. Ben-Brahim “Experimental Photovoltaic Power Supply based on Flying Capacitors Multilevel Inverter” *International Conference On Clean Electrical Power ICCEP 2011, Ischia Italy, June 14th-16th, 2011*
- ✓ Y. Tajima, Y. Hori, T. Ino, T. Yokoyama, L. Ben-Brahim, and M. Trabelsi, “Deadbeat Control with Multi-Sampling Compensation For Medium-Voltage Motor Drives by Cascaded Multi-Cell Inverter Using FPGA Based Hardware Controller” *8th International Conference on Power Electronics - ECCE Asia, The Shilla Jeju, Korea, May 30-June 3, 2011.*
- ✓ M. Trabelsi, L. Ben-Brahim, “Development of a grid connected photovoltaic power conditioning system based on flying capacitors inverter” *8th International Multi-Conference on Systems, Signals and Devices (SSD), Sousse, Tunisia, March 2011*
- ✓ M. Tsukakoshi, M. Al Mamun, K. Hashimura, H. Hosoda, J. Sakaguchi, L. Ben-Brahim “ Novel Torque Ripple Minimization Control for 25MW Variable Speed Drive System Fed by Multilevel Voltage Source Inverter” *39th Turbomachinery Symposium, Houston , USA, October 4-7, 2010*
- ✓ L. Ben-Brahim, M. Benammar “ A New PLL Method for Resolvers” *The 2010 International Power Electronics Conference, IPEC2010,, pp. 299-305, Sapporo Japan, June 21-24 2010*
- ✓ L. Ben-Brahim, M. Trabelsi, T. Yokoyama and T. Ino “ A Real Time Digital Feedback Control for VFD Fed by Cascaded Multi-Cell Inverter” *The 2010 International Power Electronics Conference, IPEC2010,, pp. 2493-2500, Sapporo Japan, June 21-24 2010*
- ✓ L. Ben-Brahim, M. Benammar, A. Mahran, A. Alhomsy " A New Closed-Loop Converter for Sinusoidal Encoders -Preliminary Results-", *13th European Conference on Power Electronics and Applications, EPE2009, Barcelona, Spain, September 8-10 2009.*
- ✓ L. Ben-Brahim “Iterative Learning Control for Variable Frequency Drives” *IEEE Power Electronics Specialist Conference, PESC08, pp. 617-623, Greece, June 15-19, 2008.*

- ✓ *L. Ben-Brahim, M. Benammar, M. Alhamadi, N. Alemadi, M. Alhitmi " A New Angle Determination Method for Resolvers" The IEEE 10th International Workshop on Advanced Motion Control, Vol.1 pp. 126-131, Trento, Italy, March 26th -28th, 2008.*
- ✓ *M. Benammar, L. Ben-Brahim, M. Alhamadi, N. Alemadi, M. Alhitmi " A Resolver Converter Based upon a Novel Open-Loop Technique" IEEE International Conference On Industrial Technology, IEEE ICIT2008, China, 23-24 April 2008.*
- ✓ *M. Benammar, Lazhar Ben-Brahim, Mohd. A. Alhamadi, Nasser Al-Emadi, Mohammed Al-Hitmi, "An Open-Loop Technique for Angle Determination from Position Encoders", IEEE International Symposium on Industrial Electronics (ISIE2008), Cambridge, UK, June 30-July 2, 2008.*
- ✓ *L. Ben-Brahim " A neutral point voltage balancing method for multi-level GTO inverters" IEEE Industry Applications Conference IAS'06, IAS24P1, Florida, USA, October 2006.*
- ✓ *M. Benammar, L. Ben-Brahim, M. Alhamadi, Mohamed El-Naimi " Accurate interface for resolvers and sinusoidal encoders" Eurosensor XX Conference, M3B-P2, Sweeden, September 2006.*
- ✓ *M. Benammar, L. Ben-Brahim, M. Alhamadi, Mohamed El-Naimi " A novel converter for sinusoidal encoders" IEEE Sensor Conference, Korea, October 2006.*
- ✓ *M. Alhamadi, M. Benammar and L. Ben-Brahim "Precise method for linearizing sine and cosine signals in resolvers and quadrature encoders applications" IEEE IECON'04, Seoul, Korea, November 2004.*
- ✓ *L. Ben-Brahim, M. Benammar and M. Alhamadi " A New Iterative Learning Control Method for PWM Inverter Current Regulation ", IEEE PEDS'03 Proceedings, pp. 1460-1465, November 2003.*
- ✓ *L. Ben-Brahim, T. Yokoyama and A. Kawamura " Digital Control for UPS Inverters ", IEEE PEDS'03 Proceedings, pp. 1252-1257, November 2003.*
- ✓ *L. Ben-Brahim and S. Tadakuma " A New Multilevel Carrier-Based PWM Control Method for GTO Inverter in Low Index Modulation Region" Proceeding IEEE IAS'03, USA, October 2003.*
- ✓ *L. Ben-Brahim and S. Tadakuma " A new PWM control for GTO minimum on-pulse compensation" Proceeding IEEE IAS'01, pp.1015-1022 vol.2, USA, October 2001.*
- ✓ *L. Ben-Brahim "New optimal methods for PWM Inverter Dead-time Compensation", EPE2001, Graz, Austria, August 2001.*
- ✓ *L. Ben-Brahim and A. Kawamura " Improvement of PWM inverter Output" Japan IAS Conference, Tokushima, Japan August 2000.*
- ✓ *M. Alhamadi, L. Ben-Brahim and S. Tadakuma " Industrial AC motor drives -Status of technology" International Power Electronics Conference, IPEC-Tokyo, April 2000.*
- ✓ *L. Ben-Brahim " Improvement of a PWM Controlled NPC GTO Inverter for AC Motor Drives" Proceedings of the IEEE ISIE'99 , Vol.2, pp. 819-824, Slovenia, July 1999.*
- ✓ *L. Ben-Brahim, A. Gastli and M. A. Al-Hamadi " Autotuning for sensorless AC motor drive systems" Proceedings of the IEEE ISIE'99 , Vol. 1, pp. 367-372, Slovenia, July 1999.*
- ✓ *L. Ben-Brahim and S. Tadakuma " Speed Control of Induction Motor without Rotational Transducers" Proceeding IEEE IAS'98, pp.625-632, USA, October 1998.*

- ✓ M. Elloumi, L. Ben-Brahim and M. Al-Hamadi "Survey of Speed Sensorless Controls for IM drives" *Proceeding IEEE IECON'98 Vol.2*, pp.1018-1023, Germany, August/September 1998.
- ✓ L. Ben-Brahim "The analysis and Compensation of dead-time effects in three phase PWM inverters" *Proceeding IEEE IECON'98 Vol.2*, pp.792-797, Germany, August/September 1998.
- ✓ L. Ben-Brahim and S. Tadakuma "Practical Considerations for Sensorless Induction Motor Drive system" *Proceeding IEEE IECON'98 Vol.2*, pp.1002-1007, Germany, August/September 1998.
- ✓ L. Ben-Brahim "Improvement of the stability of a V/f controlled Induction Motor drive system" *Proceeding IEEE IECON'98 Vol.2*, pp.859-864, Germany, August/September 1998.
- ✓ L. Ben-Brahim and R. Dhaouadi "Disturbance observer based robust force control of a robot manipulator" *4th International Conf. on Control, Automation, Robotics & Vision, ICARCV'96 Vol.1*, pp.196-200, Singapore, December 1996.
- ✓ L. Ben-Brahim and R. Dhaouadi "Tracking Control of Robot Manipulators " *JTEA'96, Vol.1*, pp.253-262, November 1996.
- ✓ L. Ben-Brahim and R. Dhaouadi "Robust force control of a robot manipulator without force sensor" *JTEA'96, Vol.1*, pp.244-252, November 1996.
- ✓ L. Ben-Brahim and R. Dhaouadi " Self-tuning Force Controller for a Robot Manipulator using Neural Networks" *JTEA*, pp. 69-76, Tunisia, November 1995.
- ✓ L. Ben-Brahim et all. " Implementation of an Induction Motor Speed Estimator via Neural Networks" *International Power Electronics Conference, IPEC-Yokohama*, pp. 52-58, April 1995.
- ✓ L. Ben-Brahim and R. Kurosawa " Identification of Induction Motor Speed using Neural Networks" *Power Conversion Conference, PCC-Yokohama*, pp. 689-694 April 1993 (Also published in the book "Sensorless Control of AC Motor Drives" IEEE Press 1996, by Rajashekara et all.).
- ✓ L. Ben-Brahim and A. Kawamura "Digital Current Regulation of Field Oriented Controlled Induction Motor Using Only Current Sensors" *International Symposium on Power Electronics, Seoul, Korea* April 1992.
- ✓ L. Ben-Brahim and A. Kawamura "A Fully Digital Control of a Field Oriented Induction Motor Drive using Flux Observer with and without Speed Sensor -600Hz Switching Frequency Case- " *IEEE Industrial Electronics Conference IECON'91 Proceedings, Vol. 1* pp. 633-638, Kobe, JAPAN, Nov. 1991.
- ✓ L. Ben-Brahim and A. Kawamura "Digital Current Regulation of Field Oriented Controlled Induction Motor Based on Predictive Flux Observer" *IEEE Industry Application Society IAS Proceedings*, pp. 607-612, Seattle, U.S.A. Oct. 1990.
- ✓ L. Ben-Brahim and A. Kawamura "Digital Control of Induction Motor Current Using Predictive State Observer" *International Power Electronics Conference IPEC'90, Proceedings*, pp.489-496, Tokyo, JAPAN, April 1990.
- ✓ L. Ben-Brahim and R. Kurosawa "Adaptive Speed Estimation via Neural Networks" *IEE of Japan IAS annual meeting*, p. (6-49)-(6-50) March 1993.
- ✓ S. Miyazaki, R. Kurosawa and L. Ben-Brahim "Characteristics Improvement of a PWM Controlled Three Level GTO Inverter" *National Convention record I.E.E. Japan, March 1993 (in Japanese)*.

- ✓ *L. Ben-Brahim and A. Kawamura "Speed and Voltage Sensorless Field Oriented Control of Induction Motor Based on Observer with Digital Current Regulation" IEE of Japan Industry Application Society IAS Proceedings, pp. 1.125-132, Osaka, JAPAN, August 1990.*
- ✓ *L. Ben-Brahim and A. Kawamura "Deadbeat Control of Induction Motor Current Using State Observer With Adaptive Poles Selection" IEE of Japan Industry Application Society IAS Proceedings, pp. 323-328, Hakata, JAPAN, August 1989.*
- ✓ *L. Ben-Brahim and A. Kawamura "Simulation Study of Digital Control of Induction Motor Current with Deadbeat Response" Technical Meeting of IEE of Japan on Semiconductor Power Conversion, SPC-88-64, Nagaoka, JAPAN, 1988.*

Technical Reports

- ✓ *L. Ben-Brahim, M. Benammar, J.Romero " RasGas Plant Harmonics Study -Harmonics Measurement-" RasGas, January 2010.*
- ✓ *Development of High Power Three-level GTO inverter for Induction Motor Drives", Power Electronics control and Motor Drives Lab Toshiba Corporation, Japan, March 1992.*
- ✓ *L. Ben-Brahim " Development of High Power Three-level GTO inverter for Induction Motor Drives", Power Electronics control and Motor Drives Lab Toshiba Corporation, Japan, March 1992.*
- ✓ *L. Ben-Brahim " NPC AC/DC Converter Control" Power Electronics control and Motor Drives Lab Toshiba Corporation, Japan, November 1992.*
- ✓ *L. Ben-Brahim " Simulation of Speed Sensorless using NN Method" Power Electronics control and Motor Drives Lab Toshiba Corporation, Japan, January 1993.*
- ✓ *L. Ben-Brahim " Comparison between Neural Networks and MRAS based speed estimators" Power Electronics control and Motor Drives Lab Toshiba Corporation, Japan, November 1993.*
- ✓ *L. Ben-Brahim " Converter Stability using MatrixX" Power Electronics control and Motor Drives Lab Toshiba Corporation, Japan, September 1994.*
- ✓ *L. Ben-Brahim " Speed Sensorless Vector Controlled IM Drive based on Neural Networks Technique" Power Electronics and Motor Drives Lab Toshiba Corporation, Japan, July 1995.*
- ✓ *L. Ben-Brahim " Medium Voltage (MV) Inverter for Induction Motor Drive Systems" Power Electronics control and Motor Drives Lab Toshiba Corporation, Japan, March 1996.*
- ✓ *L. Ben-Brahim " A Method to Stabilize the V/f Control Scheme for High Voltage Induction Motor Drive System" Power Electronics control and Motor Drives Lab Toshiba Corporation, Japan, July 1996.*
- ✓ *L. Ben-Brahim " High Voltage Energy Saving Drive System for Induction Motor " Power Electronics control and Motor Drives Lab Toshiba Corporation, Japan, May 1997.*

Research Grants

List of selected ongoing and completed research grants

No	Title of Research	Granting Body	Grant Amount	Project Duration
1	Integration of Power Conversion, Energy Management, and Communications Techniques for Electric Vehicles in the Smart Grid	Qatar Foundation (NPRP No.: 8-627-2-260)	US\$700,000	3 years
2	1-MW PV Power RD&D Using SiC-based qZS Cascade Multilevel Inverter and Battery Energy Storage	Qatar Foundation (NPRP-EP X-033-2-07)	US\$4,600,000	5 years
3	Research on Variable Frequency Drives and Power Electronics Converters	"Ras Gas Project" QUEX-RASGAS-11/12-8	50,000	One year
4	Quasi-Z Source Inverter based Cascade Multilevel Photovoltaic Power Generation System	Qatar Foundation (NPRP 09-233-2-096)	US\$1,039,705	3-year (2010/2013)
5	Unity Power-Factor Adjustable Speed Drive For Energy Neutral Building	Qatar Foundation (NPRP 09-426-2-160)	US\$295,000	3-year (2010/2013)
6	Real Time Digital Feedback Control Of VFD Fed By A Multi-Cell Inverter	Qatar Foundation (NPRP08-548-2-223)	US\$1050,000	3-year (2009/2012)
7	A Photovoltaic Power Supply operating in grid-connected mode	Qatar Foundation UREP#09-071-2-019	US\$30,000	1-year (2011)
8	Techno-Economic Analysis Of Solar PV/ Battery/Fuel Engine Based Hybrid System For Telecom Sector In Qatar	Qatar Foundation UREP#07-100-2-026	US\$50,000	1-year (2009/2010)
9	A Microcontroller Based PWM inverter controller For VFD	Qatar Foundation UREP#6-075 -2 -017	US\$30,000	1-year (2008/2009)
10	A servomotor control using new Speed/position estimator	Qatar Foundation UREP#4-4-24	US\$30,000	1-year (2007/2008)
11	A Resolver To Analog Convertor For Mechanical Angle Measurement	Qatar Foundation UREP#2-14-71	US\$29,000	1-year (2006/2007)
12	A DSP Based Electric Motor Drive System For Industrial Use	Qatar Foundation UREP#2-15-71	US\$20,000	1-year (2006/2007)
13	A Novel Microcontroller-Based Instrument for Mechanical Angle Measurement	Qatar University (Grant # 07009E)	QR70,000	1-year (2008/2009)
14	Development of a robust servo drive system	Qatar University (Grant: 06001E)	QR40,000	2-year (2007/2008)
15	Development of advanced linear converters for sinusoidal encoders	Qatar University (Grant:05014E)	QR60,000	2-year (2006/2007)
16	A servomotor control using new Speed/position estimator	Qatar Foundation (UREP#4-4-24)	US\$30,000	1-year (2008/2009)
17	A DSP based electric motor drive system for industrial use	Qatar Foundation (UREP#2-15-71)	US\$20,000	1-year (2007/2008)
18	A Resolver to Digital (R/D) Converter for Mechanical Angle Measurement	Qatar Foundation (UREP#2-14-71)	US\$29,000	1-year (2007/2008)
19	Harmonics Study at RasGas Plant - Effects of VFDs	RASGAS Company	QR 61,000	1-year (2008/2009)
20	Development of High Power Three-level GTO inverter for Induction Motor Drives	Toshiba Corp.	≈US\$4,000,000	3-year (1991/1994)
21	NPC AC/DC Converter Control	Toshiba Corp.	≈US\$1,000,000	2-year

				(1993/1995)
22	Speed Sensorless Vector Controlled IM Drive based on Neural Networks Technique	Toshiba Corp.	≈US\$250,000	1-year (1994/1995)
23	AC/DC Converter-Multi-Inverter Stability Analysis	Toshiba Corp.	≈US\$150,000	1-year (1994/1995)
24	Large Scale Induction Motor Drive System	Toshiba Corp.	≈US\$300,000	1-year (1995/1996)
25	Medium Voltage Multi-Cell Inverter for Induction Motor Drive Systems	Toshiba Corp.	≈US\$4,000,000	2-year (1996/1997)

6. Awards

- **Recipient of Heavy Apparatus Advanced Technology Award (1993).**
- **Recipient of several grants for research at Qatar University**
- **Industrial Electronics Chair for RasGas (September 2007).**
- **Recipient of several funds for research at Toshiba Corporation**

7. Courses for local Industry

1. *“harmonics measurement and Power Quality Analysers” Training RasGas Company, February 3rd 2009. This was conducted in the Power Electronics Lab of QU.*
2. *Variable Frequency Drives Short course: This 3-day course was offered to 21 Engineers (from RasGas and Qatar Gas) during period 16-18 June 2009. This course took place at Qatar University.*
3. *Electric Motors Short course: This one day course was offered to 13 RasGas Engineers on March 11th 2010. This course took place in Al Waha Club.*
4. *Power Electronics Short course: This one day course was offered to 15 RasGas Engineers on March 18th 2010. This course took place in Al Waha Club.*
5. *Electric Drives Short course: This one day course was offered to 13 RasGas Engineers on March 25th 2010. This course took place in Al Waha Club.*

8. University Courses taught:

Courses taught at the University of Qatar (College of Engineering & Technology) are as follows from 1997 to 2007 for undergraduate level:

Course title	College
<i>Electomechanics</i>	College of Engineering
<i>Electric Machines I, II</i>	College of Engineering
<i>Digital Control</i>	College of Engineering
<i>Electric Machines Lab</i>	College of Engineering
<i>Power Electronics & Drives</i>	College of Engineering

<i>Electric Circuit (2)</i>	College of Engineering
<i>Selected Topics in Computer Engineering</i>	College of Engineering
<i>Power Electronics & Motor Drives</i>	College of Technology
<i>Control Systems</i>	College of Technology
<i>Electronics(1)</i>	College of Technology
<i>Electronics (2)</i>	College of Technology
<i>Instrumentation & Measurement</i>	College of Technology
<i>Microprocessor</i>	College of Technology
<i>Computer Fundamental</i>	College of Technology
<i>Electronic Communications</i>	College of Technology

9. Invited Speaker (Seminars) :

Invited to give the following seminars:

Seminar Title	Location	Date
<i>Multilevel inverters</i>	Yokohama National University, Japan	<i>June 2010</i>
<i>Control of Electomechanics systems</i>	Catholic University of Louven, Belgium	<i>March 1996</i>
<i>Motion Control Trends</i>	Aizu University, Japan	<i>October 1996</i>
<i>State of Art of Electric Machine Drives</i>	Qatar University (Engineering College)	<i>March 1998</i>
<i>DSP and ASICs for Control of Servomotor</i>	Qatar University (Faculty of Science)	<i>April 1999</i>
<i>Autotuning for sensorless AC motor drive systems</i>	<i>IEEE Conference ISIE'99, Slovenia</i>	<i>July 1999</i>
<i>Motion Control without Speed & Position Sensors for Servo Applications</i>	Yokohama National University, Japan	<i>September 2000</i>

10. Graduation Projects:

Supervised the following projects at Qatar University:

Project title	Level
<i>Digital speedmeter</i>	<i>Undergraduate</i>
<i>Telephonic Alarm system</i>	<i>Undergraduate</i>
<i>PLC based automatic drilling process</i>	<i>Undergraduate</i>
<i>Resolver to analog converter</i>	<i>Undergraduate</i>
<i>Traffic light control using uP</i>	<i>Undergraduate</i>
<i>PWM Inverter Implementation</i>	<i>Undergraduate</i>
<i>Inverted Pendulum</i>	<i>Undergraduate</i>
<i>AM Radio</i>	<i>Undergraduate</i>
<i>Curve Tracer</i>	<i>Undergraduate</i>

11. Membership of Professional Institutions

Name of organization/academic Institution	Membership period		Nature of membership
	From	To	
IEEE (RA,IES,IAS,PELS societies)	1988	1991	Student Member
IEEE (RA,IES,IAS,PELS societies)	1991	2001	Member
IEEE (RA,IES,IAS,PELS, IM & Sensors societies)	2002	present	Senior Member

12. Community & University Activities/Contributions

Community/Activity	Nature of Contribution
IEEE Transactions on Industrial Electronics 1998-2004	Journal Editorial Board (reviewer)
IEEE Transactions on Power Electronics 1993-2000	Journal Editorial Board (reviewer)
IEEE Transactions on Mechatronics	Journal Editorial Board (reviewer)
International Journal of Control (AUTOMATICA) 2003-Present	Journal Editorial Board (reviewer)
IEEE IECON & ISIE CONFERENCES 1999-present	Technical Committee Board
<i>IEEE Conferences</i>	<i>Sessions Chairman</i>
Industrial Technology Department	Head of Department
Faculty of Technology	Board of Faculty Council
Qatar Engineering Journal	Reviewer (2002)
Qatar Standards Committee	Member

Curriculum Development:

Participated in the development of the following Curriculum for the College of Technology:

- *Control Engineering*
- *Industrial Electronics Engineering*
- *Maintenance Engineering*

13. Computer Skills & Languages

Regularly using computer for teaching, research and developing softwares:

Softwares	Purpose of use
C language, Fortran, Basic, Matlab, ATPDRAW, PSPICE, Workview	Simulations (Research)
MS Word, MS Excel, MS Power point, Latex, Gnuplot	Writing reports, papers, hand out for students, presentation, teaching..etc
Netscape navigator/MS explorer	Browsing the web/email web page construction ...etc
Awk,perl	Filtering data

Languages

Language proficiency	Reading			Writing			Conversation		
	Excellent	Good	Average	Excellent	Good	Average	Excellent	Good	Average
Arabic	x				x		x		
English	x			x			x		
French	x			x			x		
Japanese			x			x			x

