

## **Ahmed Galal Abo-Khalil, Ph.D.**

Faculty of Engineering

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### **Education**

- **Ph.D.** in Electrical Engineering, Yeungnam University, South Korea, August 2007.

*Thesis Supervisor* : Professor Dong-Choon Lee.

- **M.Sc.** in Electrical Engineering (Power Section), Assiut University, Egypt, July 1996.

*Thesis Supervisor* : Professor Nabil Hassan Fetih

- **B.Sc.** in Electrical Engineering (Power Section), Assiut University, Egypt, with a merit of "**Very Good**", July 1992.

### **Work Experience**

Assistant Professor, Head of Dept. of Electrical Engineering, Majmaah University , Majmaah, Saudi Arabia.

Employment Period: Feb. 15, 2012 – Present.

Job Duties: Teaching and supervising students in electrical engineering with a focus on advanced power systems, smart-grid systems, renewable energy systems, and intelligent control techniques; performing and documenting research in scholarly journals; and providing service to the department, university and profession.

Assistant Professor, Dept. of Electrical Engineering, Assiut University ,Assiut, 71515, Egypt.

Employment Period: Feb. 1, 2010 – Jan. 31 2012

### **Postdoctoral Research Fellow**

Korea Institute of Energy Research, Daejeon, South Korea.

Employment Period: Oct. 01, 2009 – Nov. 30, 2010.

Job Duties: Performing research works in electrical engineering with a focus on application of wind power and photovoltaic integration with the power system.

### **Postdoctoral Research Fellow**

Electrical, Computer, and Systems Engineering Department Rensselaer Polytechnic Institute, Troy, NY, USA.

Employment Period: Sept. 01, 2008 – Sept. 30, 2009.

Job Duties: Performing researches in electrical engineering with a focus on photovoltaic integration with the power system.

### **Assistant lecturer**

Dept. of Electrical Engineering, Assiut University ,Assiut, 71515, Egypt.

Employment Period: August 01, 1993 – Feb. 28, 2003.

Job Duties: Teaching and supervising undergraduate students in electrical and electronic engineering with a focus on advanced power systems, electrical machines, electrical circuits and basic electronics; performing research works on advanced power systems.

### **Research Interests**

- Advanced power system analysis, dynamics, stability, and control.
- Smart-grid and micro-grid systems.
- Renewable energy systems, especially wind power & photovoltaic power generation systems, and Fuel cells.
- Application of power electronics.
- Application of intelligent control methods to power systems.

### **Courses Taught**

#### **Graduate Courses**

[1] Advanced Power Electronics (Fall and spring 2011 Semesters, Assiut University)

#### **Undergraduate Courses**

[1] Renewable Energy Conversion Systems (Spring 2010 and 2011 Semester, Assiut University)

- [2] Electrical Machines [Including Laboratory Classes] (1995-2003, 2010-2011, Assiut University)
- [3] Basic AC and DC Circuits [Including Laboratory Classes] (1995-2003, 2010-2011, Assiut University)
- [4] Electromagnetic Theory [Including Laboratory Classes] (1995-2003, 2010-2011, Assiut University)
- [5] Electrical Machines (2012, Almajmaah University)
- [6] Power System Analysis (2012, Almajmaah University)
- [7] Electromagnetics II (2012, Almajmaah University)
- [7] Circuit Analysis (2012, Almajmaah University)

## **Scholarly Activities**

### **Reviewer (Transactions/Journals)**

- IEEE Transactions on Power Electronics
- IEEE Transactions on Industrial Electronics
- Journal of IET Renewable Power Generation

## **List of Publications**

### **Book Chapters**

1. Ahmed G. Abo-Khalil " Impacts of Wind Farms on Power System Stability " in " Wind Farm" book, ISBN 980-953-307-562-9.

### **Papers in Refereed Journals [Total 14]**

1. Ahmed G. Abo-Khalil and Byunggyu Yu, "A Current Sensor-less Maximum Power Point Tracking Method for PV System," International Journal of Advancements in Computing Technology (IJACT), Volume 5, Number 11, July 2013, doi : 10.4156/ijact.vol5.issue11.42.
2. Ahmed G. Abo-Khalil and Byunggyu Yu, " Wind Turbine Simulator Development Using a Separately Excited DC Motor," International Journal of Advancements in Computing Technology (IJACT), Volume 5, Number 11, July 2013, doi : 10.4156/ijact.vol5.issue11.41.
3. Ahmed G. Abo-Khalil and Hammad Ab-Zied, " Design and Control of Large Scale Photovoltaic System for High Power applications," International

- Journal of Control, Automation and Systems, Vol. 1, No. 2, April 2013.
4. Ahmed G. Abo-Khalil, " Design and Simulation of a Grid-Connected Photovoltaic System for the EE Department Building in Assiut University ," Journal of Engineering Sciences, JES, Vo. 40. No. 5, Spt. 2012.
  5. Hammad Ab-Zied and Ahmed G. Abo-Khalil, " Modelling and Simulation of a Grid-Connected Photovoltaic System for an Middle-Class Apartment in New Assiut City," Journal of Engineering Sciences, JES, Nov. 2012.
  6. Ahmed G. Abo-Khalil " Current Injection-Based DC-link Capacitance Estimation Using Support Vector Regression " IET Journal of Power Electronics, Vol. 5, No. 1, Jan. 2012, PP. 53-58.
  7. Ahmed G. Abo-Khalil " Synchronization of DFIG Output Voltage to Utility Grid in Wind Power System" Elsevier Journal of Renewable Energy, Vol. 44, Sept. 2012, PP. 193-198.
  8. Ahmed G. Abo-Khalil and D. C. Lee, "Maximum Power Point Tracking Based on Sensorless Wind Speed Using Support vector Regression," IEEE Transactions on Industrial Electronics, Vol. 55, No. 3, March 2008.
  9. Ahmed G. Abo-Khalil and D. C. Lee, " DC-Link Capacitance Estimation in AC/DC/ACPWM Converters using Voltage Injection," IEEE Transactions on Industrial Applications, Vol. 44, No. 5, Sept. 2008.
  10. Ahmed G. Abo-Khalil and D. C. Lee, " DC-Link Capacitance Estimation using Support Vector Regression in AC/DC/AC PWM Converters ," Korean Institute of Electrical Engineering Journal, vol.56, no.1, pp. 81-87. Jan. 2007.
  11. Ahmed G. Abo-Khalil, D. C. Lee, J. W. Choi, and S. G. Kim, " Maximum Power Point Tracking Controller Connecting PV System to Grid," Korean Institute of Power Electronics Journal, Vol. 6. No. 3, July 2006.
  12. Ahmed G. Abo-Khalil and D. C. Lee, "Model-Based Loss Minimization Control for Induction Generators in Wind Power Generation Systems," Korean Institute of Electrical Engineering Journal, Vol. 55B. No. 7, July 2006.
  13. Ahmed G. Abo-Khalil, Y. S. Kim, and D. C. Lee, "Maximum Output Power Control of Wind Generation System Using Fuzzy Control," Korean Institute of Electrical Engineering Journal, Vol 54B, No. 10, Oct. 2005.
  14. Ahmed G. Abo-Khalil and D. C. Lee, " Development of Wind Turbine Simulators Using PSCAD," Przeglad Ele. Journal, Poland, pp. 107-113, Feb. 2006.

## Papers in International Conference Proceedings (Refereed) [Total 34]

1. Ahmed. G. Abo-khalil et. al, "A novel islanding detection method for three-phase photovoltaic generation systems", IEEE Applied Electrical Engineering and Computing Technologies (AEECT) , Jordan, Dec. 2013 , pp: 1-5.
2. Ahmed G. Abo-Khalil and Hammad Abo-Zied " Effect of the driver Parameters on the Switching Losses of the IGBT Switch at High Frequency High Power Applications ," Middle East power conference Mepcon, Egypt, Dec. 2012.
3. Ahmed G. Abo-Khalil and Hammad Ab-Zied, " Sensorless Control for DFIG Wind Turbines Based on Support Vector Regression," Industrial Electronics Conference IECON, Canada, Oct. 2012.
4. Ahmed G. Abo-Khalil , Sameh Saad" A New Approach to improve the Energy Efficiency of Middle-East Buildings" Future of Energy in Arab World Conference, Assiut, Egypt, March, 2013.
5. Ahmed G. Abo-Khalil and Byunggyu Yu, " Current Estimation-based Maximum Power point Tracker of Grid Connected PV," Power Electronics and Drives Systems (PEDS), Japan, 2013.
6. Ahmed G. Abo-Khalil "A New Wind Turbine Simulator using a Squirrel-Cage Motor for Wind Power Generation Systems " *The Power Electronics and Drive Systems Conference PEDS*, December 2011, Singapore.
7. Ahmed G. Abo-Khalil "Gradient Approximation Based Maximum Power Point Tracking for PV Grid Connected System " *The Power Electronics and Drive Systems Conference PEDS*, December 2011, Singapore.
8. Ahmed G. Abo-Khalil " Maximum Power Point Tracking Based on Sensorless Wind Speed Using Support Vector Regression " *The Middle East Power Conference MEPCON*, December 2010, Egypt.
9. Ahmed G. Abo-Khalil " Dynamic Modelling of Grid-Connected Variable Speed Wind Turbines " *World Wind Exhibition and Conference WWEC*, November 2011, Egypt.
10. Byunggyu YU, Mikihiro Matsui, Ahmed G. Abo-Khalil, Gwonjong Yu, " A Correlation-Based Islanding Detection Method Using Current Disturbance for PV System" *The International Conference on Electrical Machines and*

*Systems ICEMS*, November 2009, Japan.

11. Byunggyu YU, Ahmed G. Abo-Khalil, Mikihiro Matsui, Gwonjong Yu, "Sensorless Fuzzy Logic Controller for Maximum Power Point Tracking of Grid- Connected PV system" *The International Conference on Electrical Machines and Systems ICEMS*, November 2009, Japan.
12. Byunggyu YU, Ahmed G. Abo-Khalil, Mikihiro Matsui, Gwonjong Yu, "Support Vector Regression Based Maximum Power Point Tracking for PV Grid-Connected System" Photovoltaic Specialists Conference PVSC 34<sup>th</sup>, June 2009 Philadelphia USA.
13. Ahmed G. Abo-Khalil and D. C. Lee, " Maximum Power Point Tracking Based on Sensorless Wind Speed Using Support Vector Regression ," *Proc. PCC*, Nagoya, Japan, April 2007.
14. H.-G. Park, Ahmed G. Abo-Khalil, D. C. Lee and K. M. Son, "Torque Ripple Elimination for Doubly-Fed Induction Motors under Unbalanced Source Voltage," *Proc Power electronics and Drive Systems PEDS,07*, pp. 1301 - 1306, Nov. 2007.
15. Ahmed G. Abo-Khalil, H.-G. Park and D. C. Lee and "Loss Minimization Control for Doubly-Fed Induction Generators in Variable Speed Wind Turbines," *Proc. IECON'07*, pp. 1109 - 1114, Nov. 2007.
16. Ahmed G. Abo-Khalil and D. C. Lee, "Dynamic Modeling and Control of Wind Turbines for Grid-Connected Wind Generation System," *Proc. Power Electronics Specialists Conference*, Korea 2006.
17. Ahmed G. Abo-Khalil, D. C. Lee, and S. P-Ryu, " Synchronization of DFIG Output Voltage to Utility Grid in Wind Power System," *Proc. IASTED*, Greece, June 2006.
18. Ahmed G. Abo-Khalil and D. C. Lee, " Grid Connection of Doubly-Fed Induction Generators in Wind Energy Conversion," *Proc. IPEMC*, China, August 2006.
19. Ahmed G. Abo-Khalil and D. C. Lee, " DC-Link Capacitance Estimation using Support Vector Regression in AC/DC/AC PWM Converters," *Proc. IAS*, USA, Oct. 2006.
20. Ahmed G. Abo-Khalil, H. G. Kim, D. C. Lee and J. K. Seok, " Maximum Output Power Control of Wind Generation System Considering Loss Minimization of Machines ," *Proc. IECON'04*, pp. 1676 - 1681, 2004.

21. Ahmed G. Abo-Khalil, D. C. Lee, J. K. Seok, J. W. Choi and H. G. Kim , " Maximum Power Point Tracking Controller Connecting PV System to Grid ," *Proc. International Conference of Power Electronics'04*, pp. II-36 - II-40, 2004.
22. Ahmed G. Abo-Khalil, D. C. Lee, J. K. Seok, " Variable Speed Wind Power Generation System Based on Fuzzy Logic Control for Maximum Output Power Tracking ," *Proc. Power Electronics Specialists Conference'04*, pp. 2039-2043, 2004.
23. Ahmed G. Abo-Khalil and D. C. Lee "Loss Minimization Control for Induction Generator in Wind Power Systems using Support Vector Regression", *Proc. of Korean Institute of Power Electronics Conf.*, pp. 341-344, April 2006.
24. Ahmed G. Abo-Khalil and D. C. Lee "Online Capacitance Estimation of DC-Link Capacitors using AC Voltage Injection in AC/DC/AC PWM Converters", *Proc. of Korean Institute of Power Electronics Conf.*, pp. 381-384, June 2006.
25. Ahmed G. Abo-Khalil and D. C. Lee "Output Power Control of Wind Generation System using Estimated Wind Speed by Support Vector Regression", *Proc. of Korean Institute of Power Electronics Conf.*, pp. 345-348, June 2006.
26. Ahmed G. Abo-Khalil and D. C. Lee, "Implementation of Grid-Connection of DFIG for Wind power Generation system," *Proc. Korean Institute of Electrical Engineering Conf.* Oct. 2006.
27. Ahmed G. Abo-Khalil and D. C. Lee, " Development of Wind Turbine Simulators Using PSCAD," *Proc. POWER ELECTRONICS AND INTELLIGENT CONTROL FOR ENERGY CONSERVATION (PELINCEC)*, 2005.
28. Ahmed Abo-Khalil and D. C. Lee, "Wind Turbine Simulator Including Pitch Angle Control, Shaft Torsional Vibration and Tower Effect ", *Proc. Korean Institute of Electrical Engineering Conf.*, pp. 411-413, 2005.
29. Ahmed G. Abo-Khalil and D. C. Lee "Optimal Efficiency Control of Wind Generation System Using Fuzzy Logic Control," *Proc. Korean Institute of Electrical Engineering Conf.*, July 2005.
30. Ahmed G. Abo-Khalil and D. C. Lee "Synchronization of Wind power

Generation System using DFIG to Utility Grid”, *Proc. of Korean Institute of Power Electronics Conf.*, pp. 91-95, Nov. 2005.

31. H. K. Kim, Ahmed Abo-Khalil, D. C. Lee, and J. K. Seok, " Grid-Connected Wind Power Generation System Using Cage-Type Induction Generators ,"  
*Proc. of Korean Institute of Power Electronics Conf.*, pp. 73-76, 2003.
32. Ahmed Abo-Khalil, D. C. Lee, J. K. Seok, J. W. Choi, and H. K. Kim, "  
Maximum Output Power Control for PV Generation System based on fuzzy logic algorithm, "  
*Proc. of Korean Institute of Power Electronics Conf.*, pp. 69-72, 2003.
33. Ahmed Abo-Khalil, D. C. Lee, J. K. Seok, J. W. Choi, and H. K. Kim, "  
Maximum power point tracking for photovoltaic system using fuzzy logic controller," *Proc. of Korean Institute of Power Electronics Conf.*, pp. 503-506, 2003.
34. H. K. Kim, Ahmed Abo-Khalil, D.C. Lee, and J. K. Seok, "CVCF Control of Stand-Alone Wind Power System," *Proc. of Korean Institute of Power Electronics Conf.*, pp. 379-382, 2003.

## **Other Skills and Information**

### **[1] Software Knowledge**

MATLAB/SIMULINK, ATP/EMTP, PSCAD/EMTDC, C++, FORTRAN, Microsoft Word, Microsoft Power Point, Excel.

### **[2] Languages Known**

English, Korean , Arabic.

### **[3] Countries Visited**

USA, Canada, Korea, Japan, China.

June 16, 2014  
**Dr. Ahmed G. Abo-Khalil**