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Objective

Seeking a full-time position, with a reputable company in the field of power electronics, machines and drives where my skills and knowledge can be utilized and developed.

Personal data

Date of Birth: 25th Dec. 1975
Place of Birth: Cairo, Egypt
US Permanent Resident

Education

Jan. 2005 – present

Marquette University

Ph.D. Candidate at Marquette University.

Advisor: Prof. Nabeel Demerdash.

Expected graduation date: May 2009.

Current research scope: Robust control of PWM AC motor drive system under faulty condition.

Previous research projects: Diagnosis of Stator Inter-Turn Short Circuit for Polyphase Induction Motors in Closed-Loop Vector-Controlled Drives, Design of a 5hp six phase/three phase reconfigurable motor, Diagnostics of Adjacent/ non Adjacent broken bars in three phase induction motor.

Course work included: Probability & stochastic processes, Transients in Motor-Drives and power systems, Machine learning, Advanced Mathematics, Motor-Drive systems Diagnostics, Design and analysis of electric motors in adjustable speed drives, Digital signal processing (audit), Advanced modeling of electrical machines I, Adaptive digital filters, Modern control theory, Finite element analysis, non linear control (seminar), Advanced electrical machines II, Electromagnetic Interference in power converters.
GPA: 3.8

Sept.1999 – May 2003

Faculty of Engineering, Electrical Dept, Cairo University, Egypt

M.SC in Electrical Engineering.

Major: Power Electronics.

Thesis title: Regulated DC power supply with high power factor.

Advisor: Prof. Osama Mahgoub

Course work included: Power semiconductor devices, Generalized theory of electrical machines, Microcontrollers, Special topics in power electronics.

Sept. 1993 – May. 1998

Faculty of Engineering, Electrical Dept, Cairo University, Egypt

B.SC in Electrical Engineering.

Major: Power Electronics and Machine Drives.

Minor: Power systems & Automatic Control.

Cumulative Grade: Very good with honor degree (80 %), ranking the third in a class of 170 students.

Course Work Included: Elect. Energy Utilization, Power System Analysis, Protection System, High Voltage, Machines, Power Electronics I, Advanced Power Electronics, Industrial Management, Automatic Control, Distributed control system and Programmable logic controller.

Research and laboratory Experience

July.2007-present

Rockwell Automation, Drives Business, Mequon, WI, USA

Power electronics intern “part time” working on a project titled “Power Quality Test-Bed for Drive Qualification Testing”

Project activities:

Hardware:

- Schematics design and layout review for a DSP based line-loss test fixture control board. Board has been built, tested, and now in service”.

Board main features: Three channels for voltage measurements, TMS320F2812 DSP, two digital outputs, two digital inputs, JTAG and USB serial interface (board tested and currently in service).

- Schematics design and layout guidelines for a general purpose DSP control board.

Board main features: six voltage measurements channels, six current measurements channels, TMS320F2812 DSP, Interface with the new drive generation power layer board, two digital outputs, two independent three phase PWM channels, two digital inputs, USB serial interface, CAN interface Instantaneous OC protection, Instantaneous OV protection.

- Re-evaluate and characterize the power structure design of a new AC drive generation to be used as a power quality test fixture for drives testing purposes (400 Hp).
- Design and implement a drive’s output filter for a power quality test fixture.

Software:

- Designed, implemented and experimentally verified a stand alone DSP based software control /user interface algorithms for the line loss fixture “tested and verified”.
- Developing software algorithms for a power quality test fixture capable of emulating voltage sags, frequency disturbances, unbalances according to IEC61000-4-11 & IEC 61000-4-34.
- Firmware testing for the new generation of the AC drives.

Jan. 2006 –Feb.2007

Eaton Innovation Center, Milwaukee, WI, USA

Power electronics intern “part time”. Worked on project titled “Hybrid Electric Power Integrated Configuration Systems”

Project Description: UPS support for emergency back up of micro-grid applications.

Project activities:

Hardware:

- Commissioned a 50HP Diesel GENSET emulator for lab experiments.
- Modified the signal conditioning circuit for the DSP board used in this project.
- Designed and test the interface board between the DSP board and contactors.

Software:

- Designed, Implemented and experimentally verified software algorithms for a high performance DSP based Phase Locked Loop (PLL) system.
- Designed, implemented and experimentally verified software algorithms for a new DSP based synchronization and load sharing technique between the generator and a UPS unit for hybrid micro-grid applications.
- Designed, implemented and experimentally verified software algorithms for generator protection such as over current, over voltage, reverse power, low forward power.
- Designed, implemented and experimentally verified software algorithms for general functions such as DSP based digital filters for signal conditioning, root mean square estimators, instantaneous active power calculation, and instantaneous reactive power calculation.

Modeling & analysis:

- Implemented and verified a small signal model for the prototype Diesel GENSET for control design and analysis purposes.

May.1998– Jan. 2003

Power Electronics laboratory, Faculty of Engineering, Cairo University, Egypt

Part time research engineer

Hardware:

- Designed and implement a low cost electronic soft starter, ac voltage controller.
- Designed and test low cost IGBTs and thyristors gate-drive circuits.

Invention disclosures

- Generator synchronization method for minimizing transients at closing of synchronizing breaker. (Partner: Eaton Innovation Center, Milwaukee, filling in progress)
- Fast and stable load sharing method for hybrid power systems used in distributed generation. (Partner: Eaton Innovation Center, Milwaukee, filling in progress)
- Power Quality test bed for emulating supply disturbances (partner: Rockwell Automation, Mequon, filling in progress)

Publications

- **Ahmed Sayed-Ahmed**, Behrooz Mirafzal, ChiaChou Yeh, and Nabeel A.O. Demerdash, “Analysis of Stator Winding Inter-Turn Short-Circuit Faults in Poly-phase Induction Machines for Identification of the Faulty Phase and Estimation of the Fault Severity,” Conference Proceedings of the IEEE Industry Applications Society Annual Meeting, 41st IEEE-IAS Annual Meeting, Tampa, FL, Vol. 3, pp. 1519-1524, Oct. 8-12, 2006.
- **A. Sayed-Ahmed**, G. Y. Sizov, and N. A. O. Demerdash, “Diagnosis of Inter-Turn Short-Circuit for a Polyphase Induction Motor in Closed-Loop Vector-Controlled Drives,” Conference Proceedings of the IEEE Industry Applications Society Annual Meeting, 41st IEEE-IAS Annual Meeting, New Orleans, LA, Sep. 23-27, 2007, , pp. 2262-2268.
- **A. Sayed-Ahmed**, G. Y. Sizov, and N. A. O. Demerdash, “Diagnosis of Inter-Turn Short-Circuit for a Polyphase Induction Motor in Closed-Loop Vector-Controlled Drives,” Transaction on Industrial Applications, submitted for review.
- G. Y. Sizov, **A. Sayed-Ahmed**, and N. A. O. Demerdash “Analysis and Diagnostics of Adjacent and Nonadjacent Broken Rotor Bar Faults in Squirrel-Cage Induction Machines” Transaction on Industrial Electronics, Accepted with minor modifications.
- Chia-Chou Yeh, Gennadi Y.Sizov, **Ahmed Sayed-Ahmed**, Nabeel A.O Demerdash, Richard Povinelli, Edqin E.Yaz, Dan M Ionel “A Reconfigurable Motor for Experimental Emulation of Stator Winding Inter-Turn and Broken Bar Faults in Polyphase Induction Machines” Transaction on Industrial Electronics, in print.

Field Experience

Nov.1999 –Jan. 2005

Rashid Petroleum Company (Oil & Gas Industry)

Senior electrical engineer “authorized up to 3.3 KV”.

Rashid Petroleum Company is a joint Venture Company between EGPC, British Gas and Shell.

Project activities: commissioning and start up of several equipments such as Gas turbines, Switchgear and protection relays, Transformers, Electrical generators, Motor-drive systems in several expansion projects for the company both onshore and offshore.

Maintenance & Troubleshooting activities: Gas turbines, Electrical generators, Motor-drive systems, Switchgear, Transformers.

Special skills

Computer:

Technical Software Packages:

DSP programming: Code composer studio C2000 & C3000 DSP families

Modeling & Analysis: Matlab, simulink, control system design toolbox, filter design toolbox and simpowersystems

Finite element analysis: Magsoft (Flux 2D) - Ansoft (Maxwell-2Dstudent version).

Power system modeling: PSCAD, ETAP

Electronic system modeling: Ansoft (Simplorer)

Schematic Design & board layout: Design Capture and Expedition PCB (Mentor graphics).

Programming languages: Fortran- C/C++

Languages:

Arabic (Mother tongue).

English (Fluent in writing and speaking).

References & collaborators

Nabeel A.O Demerdash (Marquette University, WI, USA 414-288-3975, Professor)

Richard Lukaszewski (Rockwell Automation, WI, USA, 262-512-7155, Program Manager “Drive Business”)

Vijay Bhavaraju (Eaton Innovation Center, WI, USA, 414-449-6871, Senior specialist Engineer)

Ayman El-Rafie (GE, NY, USA, 518-387-6660, Electrical Engineer)

Other references are available upon request
