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Assoc. Prof in Control Systems Engineering and Applied Medical Sciences

Dr. Awad received the B.Sc. degree in Industrial Electronics, and the M.Sc. degree in Adaptive Control Systems from Faculty of Electronic Engineering, Menouf, Menoufia University, Egypt in 1988 and 1994 respectively. He received the Ph.D. degree in Artificial Intelligent Systems in 2001 from School of Engineering, Cardiff University, Cardiff-Wales, England. Since July 2001, he has been with the Faculty of Electronic Engineering, Menoufia University, where he is currently an Assoct. Prof. in King Saud University, Community College , Huraimla .

Dr. Awad interests in Electronics, medical engineering, mechatronics, intelligent control systems, machine learning, and their applications in control systems, fault diagnosis, and Discrete Event Systems (DES). He published more than 25 papers in Journals and International Conferences.

Best Wishes

Assoct. Prof. Hamdi Ali Awad

Personal Information

Name: Hamdy Ali Ahmed Awad

Date of Birth: 10-12-1964

Nationality: Egyptian

Address: Dept. of Industrial Electronics and Control Eng., Faculty of Electronic Eng., Menouf 32952, Egypt.

Sex: Male

Marital Status: Married + Three Children

Address in Egypt: 5 Shoman St., Shanawan, Shebin Elkom, Minufiya, Egypt.

Telephone: +2 048 2282892

Address in KSU : Community College, Huraimla, P. O. Box, 300, KSU, Riyadh, +966 505117488 (Mobile) or +966 15260001 (Home)

Present Employment: Associt. Prof. in Dept. of Applied Medical Sciences, Community College, Huraimla, King Saud University.

Previous Employment:

- (1) Administrator,
- (2) Lecturer
- (3) Asst. Prof.
- (4) Assoc. Prof.

Academic Qualifications

- (1) **B. Sc. Minufiya Unv., Egypt, May, 1988, in Industrial Electronics, Very good with honour degree.**
- (2) **M. Sc. Minufiya Unv., Egypt, Jan., 1994, in Adaptive Control Systems.**
- (3) **Ph. D. Cardiff Unv., Wales, England, July, 2001, in Intelligent Control Systems**
- (4) **Assoct. Prof. Minufiya Unv., Egypt, 22/8/ 2007, Computer and Control Systems.**

Title of Ph. D. Thesis: Fuzzy Neural Networks for Modelling and Controlling Dynamic Systems.

Major Specialization: Control Systems and Computers

Minor Specialization: Intelligent Control systems and Its Applications in Industrial and Medical Systems

Field of Study/Research: Medical Engineering, Intelligent Control Systems (Fuzzy logic, Neural networks, Machine Learning,DES, and their application in control and medical systems). The applications are:

- Blood pressure control
- Respirators
- Boilers
- Greenhouses
- Mobile robots
- Chemical reactors
- Discrete Event Systems (DES)

Published Paper

Papers were published in international and national journals, conferences and workshops. That are:

[1] Hamdi A. Awad and Mohamed A. Al-Zorkany "Mobile robot navigation using local model networks, "Proceedings of the International Journal of Information Technology, IJIT, ENFORMATIKA, vol. 1, pp. 5-10, ISSN: 1305-239X, 2004.

أيضا تم نشر هذا البحث في:

Proceedings of the international Conference on Computational Intelligence, ICCI'04, pp. 326-331, ISBN: 975-98458-1-4, Istanbul, Turkey, Dec. 2004.

Transactions On Engineering Computing and Technology, World Enformatika Society, ISSN: 1305-5313, ISBN: 975-98458-1-4, vol. 1, pp. 326-331, 2004. (Selected from the above ICCI'04)

[2] Hamdi A. Awad, "A new version of ELMAN neural networks for dynamic systems modeling, "The 1th IEEE International Workshop on Advanced Control Circuits and Systems, ACCS'05, IFAC, Cairo, Egypt, ISBN: 0-124-6310-7933-2, No. NFG-124, March, 2005.

[3] Hamdi A. Awad " A novel particle swarm-based fuzzy control scheme, " Proceedings of the IEEE International Conference on Fuzzy Systems, ISBN 0-7803-9489-5/06\$20.00, pp. 9071-9078, Canada, USA, July, 2006.

[4] Hamdi A. Awad, "A modified reinforcement learning approach for controlling the mean arterial blood pressure, "Proceedings of the 7th IEEE international Conference on Intelligent Engineering Systems, INES'03, Assiut, Egypt, ISBN 977-246-048-3, ISSN 1562-5850, No. 102, March, 2003.

[5] Hamdi A. Awad and Tarek A. Mahmoud "A novel ARX-local model network for modeling and controlling dynamic systems, " Proceedings of Alexandria Engineering Journal AEJ'06, vol. 45, Alexandria University, Egypt, 2006.

[6] Magdi A. Koutb, Nabila M. El-Rabaie, Hamdi A. Awad and Saad M. Hewaidy "Multivariable fuzzy control for a non-linear drum boiler process, "Proceedings of the IEEE international Conference on Electrical, Electronic and Computer Engineering, ICEEC'04, Cairo, Egypt, ISBN 0-7803-8575-6, IEEE Catalog Number: 04EX893, pp. 3-9, Sept., 2004.

[7] Hamdi A. Awad, Magdi A. Koutb and Mohamed A. Al-Zorkany, "Multiple mobile robots navigation in a cluttered environment using neuro-fuzzy controller, "Proceedings of the 4th IEEE international Workshop on Soft Computing as

Transdisciplinary Science and Technology, WSTST'05, Muroran, Japan, ISBN-10 3-540-25055-7, ISSN 1615-3871, pp. 920-930, May, 2005.

[8] Magdi A. Koutb, Nabila M. El-Rabaie, **Hamdi A. Awad** and Ibrahim A. Abd El-Hamid, "Environmental control for plants using intelligent control systems, "The 5th International Workshop on Artificial Intelligence in Agriculture, AIA'04, IFAC, Cairo, Egypt, pp. 101-106, March, 2004.

[9] Nabila M. El-Rabaie, **Hamdi A. Awad** and Tarek A. Mahmoud "Wavelet fuzzy neural network-based predictive control systems, "Proceedings of the 12th IEEE Mediterranean Electrotechnical Conference, MELECON'04, Dubrovnik, Croatia, ISBN: 0-7803-8272-2, IEEE Catalog Number: 04CH37521C, pp. 307-310, May, 2004.

[10] Nabila M. El-Rabaie, **Hamdi A. Awad**, Tarek A. Mahmoud, "A fertilized neural network for controlling medical systems, "Proceedings of Minufiya Journal of Electronic Engineering Research, MJEER'04, July, Menouf, Egypt, 2004.

[11] Nabila M. El-Rabaie, **Hamdi A. Awad** and Tarek A. Mahmoud "Wavelet fuzzy neural network-based internal model control, "Proceedings of the 5th IEE International Conference on Computational Aspects and Their Applications in Electrical Engineering, CATAEE'04, Amman, Jordan, pp. 78-85, March, 2004.

[12] Nabila M. El-Rabaie, **Hamdi A. Awad**, and Tarek A. Mahmoud "A self-organizing scheme for controlling the muscle relaxation process, "Journal of Engineering Science, JES'06, Faculty of Engineering, Assuit Univ., Egypt, ISSN: 1687-0530, vol. 34, pp. 1591-1604, Sept. 2006.

[13] Nabila M. El-Rabaie, Hamdi A. Awad, Tarek A. Mahmoud, " A novel neural network-based control scheme for controlling the multivariable anaesthesia," Proceeding of Minufia Journal of Electronic Engineering Research, MJEER'04, Menouf, Egypt, January, 2007.

[14] Hamdi A. Awad and Saad M. Hewaidy " A SERIAL DISTRIBUTED MULTI-VARIABLE FUZZY CONTROLLER FOR BOILER SYSTEMS, " Al Azher University Engineering Journal, AUEJ'05, vol. 8, no. 1, Cairo, Egypt, ISSN: 1110-6409, pp. 45-59, Jan., 2005.

[15] D. T. Pham and **Hamdi A. Awad** "Function approximation using fuzzy Kohonen networks," Proc. of the 2th ICSC'02 Symp. on Neural Computation, Berlin, Germany, pp. 375-381, 2000.

[16] D. T. Pham and **Hamdi A. Awad** "Backward modelling using local-model-based fuzzy Kohonen network," Proc. of the 6th UK Workshop on Fuzzy Systems, Brunel University, Uxbridge, pp. 167-172, 1999.

[17] Ahmed El-Sheakh, Nabila M. El-Rabaie, and **Hamdi A. Awad** "The dynamic

[behavior of electrical furnace temperature using self-tuning techniques,"](#)
[Electronic Engineering Bulletin, Faculty of Electronic Engineering, Menoufia](#)
[University, Menouf, Egypt, pp. 291-312, January, 1994.](#)

[18] Ahmed El-Sheakh, Nabila M. El-Rabaie, Said M. El-Rabaie and **Hamdi A. Awad** "Applying self-tuning and neural networks techniques for regulating the temperature of electrical furnace systems," *Proceedings of the 2nd International Conference on Artificial Intelligence Applications*, , pp. 481-502, Cairo, Egypt, January, 1994.

[19] Ahmed El-Sheakh, Nabila M. El-Rabaie, Said M. El-Rabaie, **Hamdi A. Awad**, and Ahmed A. Montasser "A practical application of feed-back neural networks with back-propagation algorithm on a heat control problem," *Proceedings of the 18th International Conference for Statistics, Computer Science, Scientific and Social Applications*, , pp. 185-196, Cairo, Egypt, April, 1994.

[20] Nabila M. El-Rabaie, **Hamdi A. Awad** and K. T. Abo-Alam "Arterial oxygen control using the enhanced fuzzy neural scheme, " *Al Azher University Engineering Journal, AUEJ'04*, vol. 7, no. 1, Cairo, Egypt, ISSN: 1110-6409, pp. 45-59, Jan., 2004.

[21] **Hamdi A. Awad**, Mostafa M. Gomaa, Ahmed R. Anwar, and Mohammed M. Sharaf, "Coordination, Resource allocation, and deadlock avoidance of hybrid processes using discrete event supervisors, " *Electronic Engineering Bulletin, Faculty of Electronic Engineering, Menoufia University, Menouf, Egypt*, vol. 18, pp. 1-18, January, 2008.

[22] M. Gomaa, **Hamdi A. Awad**, and Ahmed R. Anwar "Design and implementation of supervisory control schemes in industrial automation systems, " *International Conference on Computer Engineering and Systems, ICCES'08*, Egypt, vol. 7, pp. 398-404, Egypt, Oct. 2008.

[23] **Hamdi A. Awad** "A novel version of ELMAN neural networks for modeling and controlling medical systems, " *Dynamic of Continuous, Discrete and Impulsive Systems, Series B: Theory and Applications, Special Volume: Advanced in Neural Networks, Theory and applications*, No. 95, In press, 2009.

Participant of the following international conferences and events:

- *The 6th UK Workshop on Fuzzy Systems, Brunel University, Uxbridge, England, 1999.*
- *The 2th International Computer Science Conventions, ICSC, Symposium*

on Neural Computation, Berlin, Germany, 2000.

- *The 7th IEEE international Conference on Intelligent Engineering Systems, INES'03, Assiut, Egypt, 2003.*
- *The 1th IEEE International Workshop on Advanced Control Circuits and Systems, ACCS'05, IFAC, Cairo, Egypt, 2005.*
- *The international Conference on Computational Intelligence, ICCI'04, Istanbul, Turkey, 2004.*
- *The IEEE international Conference on Electrical, Electronic and Computer Engineering, ICEEC'04, Cairo, Egypt, 2004.*
- *The 12th IEEE Mediterranean Electrotechnical Conference, MELECON'04, Dubrovnik, Croatia, 2004.*
- *The 5th IEE International Conference on Computational Aspects and Their Applications in Electrical Engineering, CATAEE'04, Amman, Jordan, 2004.*
- *The 4th IEEE international Workshop on Soft Computing as Transdisciplinary Science and Technology, WSTST'05, Muroran, Japan, 2005.*
- *The 5th International Workshop on Artificial Intelligence in Agriculture, AIA'04, IFAC, Cairo, Egypt, 2004.*
- * *International Conference on Computer Engineering and Systems, ICCES'08, Egypt, vol. 7, pp. 398-404, Egypt, Oct. 2008*

Awards:

· *The Minufiya University award for the excellent staff (Obtained)*

Reviewer for IEEE Periodical: Systems, Man, and Cybernetics, Part B

For Examples

- 1- **Weighting Goals and Constrains in Fuzzy Predictive Control**
- 2- **FCMAC-BYY: Fuzzy CMAC Using Bayesian Ying-Yang Learning.**
- 3- **Modeling Anatomical Joint Constraints: A neural network approach.**
- 4- **Inferential Estimation of Polymer Melt Index using Sequentially Trained**

Bootstrap Aggregated Neural Networks

5- Single-input CMAC control system for unknown plant

6- Journal of Zhejiang University, China

Supervisor for 7 post graduate students (M. Sc. and Ph. D.)

1- Supervisor for M. Sc. students: *The main topics are:*

Navigation of multiple mobile robots using intelligent control systems

Multivariable fuzzy control of boiler systems

Environmental control for plants using intelligent control systems

Fuzzy neural control for hypoxemia

Discrete Event Systems (DES)

2- Supervisor for Ph. D. students: *The main topics are:*

f) Fuzzy Neural Networks: Fertilization and development with modeling and control of medical systems

g) Fault detection and isolation in dynamical systems using artificial intelligence approaches (Channel with Prof. Ding - Germany)

Teaching a set of Subjects for under and postgraduate students

Teaching a set of Subjects for undergraduate students

١. Electronics (1-2)
٢. Electrical Circuits (DC and AC)
٣. Electrical Skills
٤. Electrical Measurements
٥. Mechanical Skills
٦. Medical Equipments
٧. Electrical Power and Machines.
٨. Neural Networks.
٩. Expert systems

- ١٠. Control Systems
- ١١. Fuzzy systems and Neural Networks
- ١٢. Laboratory Tests
- ١٣. Industrial Electronics and its Applications
- ١٤. Introduction to Computer
- ١٥. Graduation Projects.
- ١٦. Introduction to computers
- ١٧. Laboratory Testings

Teaching a set of Subjects for postgraduate students

- 1- Fault detection
2. Neural Networks
3. Intelligent Control Systems
4. Graduation Projects

Partner in training cycles, Menoufia university, Egypt

- 1- Effective communications skills (19/10/2004 – 28/10/2004)
- 2- Effective show skills (18/12/2004 – 20/12/2004)
- 3- Making decision and Solving problems skills (9/7/2005 – 12/7/2005)
- 4- Management skills (25/1/2005 – 27/1/2005)

Partner in general projects

- Enhancement the web site of the Faculty of Electronic Eng., Minufiya Unv.
- Development laboratories of Dept. of Industrial Electronics and Control Eng.
- Development an electronic traffic testing system
- Development an industrial water treatment project using PLC.
- Development mobile robot
- Development studying plans for under and post graduate students.

Academic Activities

١- Faculty of Electronic Engineering, Menoufia University, Egypt.

- A member on Industrial Electronic and Control Eng. Board, from 2001-2007.
- A member of Electronic Workshop Committee , 2003.
- A member of Information and Computers Committee , 2004.
- A member of the Faculty Configuration and Inspection Committees.
- A member of the section committee to set up the medical engineering branch.
- Authors of my own academic publications
- Monitoring the section 4th grade Lab (maintenance, systems provision and equipment, experimentation and renovation)
- Supervising the section industrial graduation projects.
- Contributing to the academic data incorporated in the regulations for the different grades and postgraduate studies (Credit hours)
- Participating in the Faculty examination and control duties
- Partaking in the development of the Faculty network and making sure that all the sections are connected.

٢- Huraimla Community College .

- A member of Applied Medical Sciences Board, 2007
- Supervision of the College General program, 2007
- A member of the College Board, 2007/2008.

Referees

Prof. D. T. Pham. (School of Eng., Cardiff University, Cardiff-Wales-England)

E-mail: PhamDT@Cardiff.ac.uk

Prof. Mostafa A. Nofal (El-Taef University – Kingdom of Saudi Arabia)

E-mail: Nofal_58@Yahoo.com

Prof. Mohamed M. Sharaf (The Dean of Faculty of Electronic Eng. – Egypt)

E-mail: mmsharaf46@Yahoo.com

Prof. Mohamad A. Fkirin (Head of Dept. of Industrial Electronics and Control Eng.)

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