

## C.V.

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### **Academic Status:**

1- ***BSc.*** in Civil Engineering - Structural Engineering - Ain Shams University  
Grade: Very Good (Honour) Project – Distinction - June 1986.(Top in all other years)

2- ***Diploma*** in Computer Science- Institute of Statistical Studies and Research (ISSR)- Cairo University.  
Grade: Excellent (Top) - June 1992.

3- ***MSc.*** in Computer Science - ISSR - Cairo University.  
***Title:*** "Assessment/ Control of Structures using Neural Networks Approach".  
***Date:*** 1995.  
***Descriptors:*** Artificial Intelligence- Soft Computing- Neural Networks- Genetic Algorithms- Simulated Annealing- Random Number Generators- Control Theory.

4- ***PhD*** in Computer Science - ISSR - Cairo University.  
***Title:*** "A Hybrid Framework for Optimal System Design".  
***Date:*** 1998.  
***Descriptors:*** Artificial Intelligence- Computational Intelligence- Soft Computing- Evolutionary Computation- Genetic Algorithms- Fuzzy Sets- Fuzzy Systems- Petri Nets- Finite State Machines- Symbolic Computing- Search- Component Automata- Exploration- Unperceived Systems Design.

<b>Prof. Amr Ahmed Badr</b>	
<b>Academic Degree</b>	Professor
<b>Research Field(s)</b>	Artificial Intelligence Computational Intelligence Bioinformatics Medical Imaging

	P-systems (Membrane Computing)
<b>Publications</b>	
<b>Patent</b>	
<b>AbdAlSlam Al-Romimah, AmrBadr, Ibrahim Farag.</b> <b>Image Understanding Based on Fuzzy Pulse Coupled Neural Networks</b> <i>published on 4<sup>th</sup> of October 2012.-WIPO.</i>	
<b>Books</b>	
Emad Nabil, AmrBadr.(2014). Membrane Computing in Optimization: From Biology to Algorithms. Lap Lambert Academic Publishing.	
Mahmoud AbdElaziz, AmrBadr, Ibrahim Farag.(2015).Towards Formalizing Transition Membrane systems to Turing Model. LAP LAMBERT Academic Publishing.	
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M.Abdo, A.Badr, and M. A. El-Azim, A Cognitive Computing Approach for Describing Immune System Response: A Comprehensive Investigation to Understand How immune System Response Works , Cairo, LAP LAMBERT Academic Publishing, 2016.	
Nabil, E., A. Badr, and M. A. Azim, Hybrid Artificial Immune System: Applications on Breast Cancer Diagnosis and Pattern Recognition, LAP LAMBERT Academic Publishing, 2015.	
H.ElSemellawy, A.Badr, and M. A. Azim, Immunological Bioinformatics: Predicting MHC Class II Epitopes, Cairo, LAP LAMBERT Academic Publishing, 2015.	
M.Nassef, A.Badr, and I.Farag, Exploring the Referentially-compressed Genomes: Advantages and Challenges, Cairo, LAP LAMBERT Academic Publishing, 2015.	
S.Zaher, and A.Badr, Membrane Computing and Cryptographic Systems, Cairo, LAP LAMBERT Academic Publishing, 2015.	
M.Omara, A.Badr, and E.Nabil, Immunoinformatics: A New Technique for MHC Class-II Epitope Prediction, Cairo, LAP LAMBERT Academic Publishing, 2015.	
A.Fathey, A.Badr, and E.Nabil, The Rough P System: Simulation of Logic Gate and Basic DB Tasks using Rough P System, , Cairo, LAP LAMBERT Academic Publishing, oct, 2015.	
K.Hassan, A.Badr, and E.Nabil, Computational Immunology: Prediction of Antigenic Conformational Epitope Patches and Residues on the Protein 3D Structures, Cairo, LAP LAMBERT Academic Publishing, 2015.	
<b>Research Papers</b>	
<b>1</b>	A. Badr, M. Abd-Azim (2005) "Computer Aided Diagnosis of Microcalcification Clusters", Egyptian Computer Science Journal.
<b>2</b>	A. Badr, Ahmed Fahmy (2004) "A Proof of Convergence for Ant Algorithms", Information Sciences: An International Journal, Elsevier Science.
<b>3</b>	<b>A. Badr</b> (1994) " <i>Hybrid Training of Feedforward Neural Networks: Genetic Algorithms plus Backpropagation.</i> "29th Annual Conference on Statistics, Computer Science, and Operations Research, Dec 17-19, 1994.
<b>4</b>	M. Geith; <b>A. Badr</b> (1995) " <i>Stochastic and Gradient Techniques for Optimal Supervised Learning.</i> " Third International Conference on Artificial Intelligence Applications, Jan 4-7, Cairo, 1995.
<b>5</b>	<b>A. Badr</b> ; I. Farag; S. Eid (1999) " <i>A Hybrid Evolutionary Approach to Intelligent System Design</i> " in Mathware& Soft Computing- European Society for Fuzzy Logic and Technology (EUSFLAT) - Member in International Fuzzy Logic Association (IFLA). 1999.
<b>6</b>	<b>A. Badr</b> (2001) " <i>A Framework for Analysis/ Representation and Modeling of</i>

	<i>Uncertainty and On-Line Learning with Emphasis on Robotic Systems"</i> , International Journal of Intelligent Computing and Information Science, v1, n1.
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8	M. Rasmy, <b>A. Badr</b> , F. Zayed. (2002) " <i>A Mathematical Model for Solving Fuzzy Resource Constrained Multiple Scheduling Problem</i> ", International Journal of Intelligent Computing & Information Science, v2, n1.
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11	<b>A. Badr</b> (2002) " <i>An Alternative Cellular Automata Cryptogram</i> ", Studies in Informatics and Control, v11, n4.
12	M. Osman, M. Rasmy, <b>A. Badr</b> , O. Soliman. (2002) " <i>An Approach for Solving Non-linear Goal Programming with Fuzzy Goals Based on Genetic Algorithms with Parametric Analysis</i> ", INFOS 2002.
13	M. Osman, M. Rasmy, <b>A. Badr</b> , O. Soliman. (2002) " <i>A Co-Evolutionary Genetic Algorithm with Elitist Strategy for Non-linear Programming Problems</i> ", INFOS 2002.
14	Farag, S. El-Gamal, <b>A. Badr</b> , N. Sabry. (2002) " <i>Evolution of Data Structures Using Genetic Programming</i> ", INFOS 2002.
15	Khorshid M., Amr A. Badr, Heba A. Hassan (2004) " <i>Constructing Fuzzy If-then Rules for Interpreting Results of Computable General Equilibrium Models</i> ", Proceedings of The Sixteen Annual Conference on Statistics and computer Modeling in Human and Social Science, CairoUniversity, March.
16	Aboul Ella Hassanien, <b>A. Badr</b> (2003) " <i>A Comparative Study on Digital Mammography Enhancement Algorithms Based on Fuzzy Theory</i> ", Studies in Informatics and Control, v12, n1.
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22	waleed abo hamad, mohamedkorayem, AmrBadr, Kahledmoustafa "A Hybrid Genetic Algorithm and Artificial Immune System for Informative Gene Selection", Revised and under processing in Applied Soft Computing Journal ,

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24	Amr Badr, A. El-Kahki. " Solving the QSAR Problem using Genetic Algorithms and Artificial Immune Systems", To appear in International Journal of Soft Computing Applications, in December 2007.
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65	H Sharaf; A Badr; I Farag (2010) "Using P-systems with Innate Immunity to Solve NP-complete Problems", Computing and Information Systems Journal, May.
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70	Abdel-Fattah Hegazy, AmrBadr, Mohammed Kassab "Agent Based Cloud Storage System", WSEAS International Conference on APPLIED INFORMATICS AND COMMUNICATIONS (AIC '10),Taipei,Taiwan, 2010-BEST PAPER
71	A Adl; A Badr; I Farag.(2010). Towards a Spiking Neural P-systems OS. Computing and Information Systems Journal. Vol.14 no.3 .Oct.
72	Adel Omar; A Hegazy; A Badr.(2010)"Solving Protein Folding Problem using Hybrid Genetic Clonal Selection Algorithm." International Journal of Computer Science and Network Security, Dec.
73	M. Abdel Latif, S. Abdel Rahman, A. Badr and I. Farag. "An Intelligent Tutoring System Architecture that supports Cover Copy Compare teaching strategy", (International Journal of Intelligent Computing and Information Science (IJICIS) ), no. 11 (January 2011).

74	AbdallahGomah, Samir Abdel Rahman, AmrBadr, and Ibrahim Farag. "An Auto-Recommendder Based Intelligent E-Learning System." IJCSNS International Journal of Computer Science and Network Security, January 30, .2011
75	Y.Awad, A.Badr. A.Dawood, 2011, An Evolutionary Immune Approach for University Course Timetabling, International Journal of Computer Science and .Network Security (IJCSNS), Vol.11, issue 1
76	L Hassan; A Badr; I Farag (2011)."A P-Simulator with Carriers of Cellular Respiration and Mitochondrial Oxidative Metabolism", International Journal of Computer Theory and Engineering (IJCTE), Feb.
77	A Tealab; A Badr; W Fakhr. (2011). "FOREX Market Prediction". Computing and Information Systems Journal. To appear in Feb issue.
78	A Badr; M AbdWahab; A Thabet; A Sadek (2011) "Automatic Number Plate Recognition System" in"Annals of the University of Craiova, Mathematics and ComputerScience Series" Journal. Accepted March.
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80	M Ali; A Hegazy; A Badr (2011)."evolutionary fuzzy artmap approach for breast cancer diagnosis", International Journal of Computer Science and Network Security (IJCSNS), April.
81	W Fouad; A Badr; I Farag (2011). "AIFSA: A New Approach for Feature Selection and Weighting", International Conference on Informatics Engineering & Information Science (ICIEIS2011).
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### **Editorial Boards Membership of International Journals**

1. "The Open Information Systems Journal", Bentham Publishing, USA
2. "International Journal of Software Reuse" USA
3. Reviewer at Elsevier (ScienceDirect) Publishing since 2006.
4. WARSE journal of biomedical applications and e-health. India
5. Reviewer at Wiley Publishing. 2013.

### **Research Interests:**

Compilers Design, Expert Systems, Computational Intelligence- Soft Computing- Genetic Algorithms- Evolutionary Algorithms- Neural Networks- Fuzzy Logic- Expert Systems- Petri Nets- Cellular Automata- Bioinformatics- Immune Systems- Mathematics of Soft Computing. Medical Imaging, P-systems, Artificial Intelligence.

### **Special Programming Skills**

Excellent programming experience in development of Compilers and interpreters, Computational intelligence and Expert Systems tools and Medical Imaging, especially in C++ and Java.

### **Employment Status:**

Jun 1986 - Feb 1988: Work in Private Sector in Software Development.

Feb 1988 - Apr 1994: Information Centre - Ministry of Reconstruction & Housing

+Work in Private Sector in Software Development.

Apr 1994 - Jun 1995: Demonstrator- Dept. of Computer Science- ISSR

+Work in Private Sector in Software Development.

Jun 1995 - Feb 1999: Assist. Lecturer- Dept. of Computer Science- ISSR

+Work in Private Sector in Software Development.

Feb 1999 –Jun 2004: Assistant Professor- Dept. of Computer Science- Faculty of Computers and Information - Cairo Univ.

+Work in Private Sector in Software Development.

{El-Rowad Company as head of Software Development Dept.

Oct 2001 – Oct 2002}

*Jun 2004 – oct 2009:* Associate Professor – Dept. Of Computer Science – Faculty of Computers and Information – Cairo University.

*Oct2009 – now :* Professor

### **Courses that I taught or assisted in teaching:**

- 1- Programming: Pascal- C/C++- Java- Prolog (Structured Programming - Object-Oriented Programming - Logic Programming)
- 2- Data/ File Structures (in Pascal or C/C++)
- 3- Compiler Design
- 4- Concepts of Programming Languages
- 5- Discrete Mathematics
- 6- Database Systems
- 7- Systems Analysis
- 8- Software Engineering
- 9- Artificial Intelligence
- 10- Expert Systems
- 11- Neural Networks
- 12- Genetic Algorithms
- 13- Fuzzy Logic
- 14- Artificial Intelligence in Operations Research and Decision Support.
- 15- Digital Logic.
- 17- Management Information Systems (MIS).
- 18- Algorithms Analysis and Design.
- 19- Knowledge-based Systems.
- 20- Data Structures and Internet.
- 21- Bioinformatics and Machine Learning.

### **Software Packages that I Master:**

- 1- All C++ development tools:
  - a- Borland C++ (OWL, STL)
  - b- CBuilder
  - c- Visual C++(MFC, ATL, Standalone/ Distributed Applications)
- 2- Delphi
- 3- Microsoft SQL Server (DBMS)
- 4- Microsoft Office
- 5- AutoCad - (Design and Programming)
- 6- MatLab
- 7- Visualization Toolkit (vtkKitware).
- 8- Multimedia Software- Macromedia Tools. {Authorware 6, Flash...}
- 9- Insight Toolkit (ITK).
- 10- Java.

### **Software Packages that I developed:**

- 1- Expert System Shell (in Prolog DOS)
- 2- A GIS System (in C++ Windows)

- 3- A Neural Network System for Experimenting & Structural Control (in C++ Windows)
- 4- A Compiler for Systems Design (in C++ Windows)
- 5- An Investment Forecasting System (for *Dallah El Barakah Company*)
- 6- An Intelligent Tutoring System (for *Cabinet Information Centre*)
- 7- A Quality Control System (for *Port Said Detergents Company 'Persil'*)
- 8- A Bi-directional System for Mute-Deaf Gestures.
- 9- A Fuzzy-based Compiler for Control Applications.
- 10- An Immune System for Molecular and Drug Design.
- 11- An Immune System for Feature Extraction in QSAR.
- 12- An Immune System for Training FeedForward Neural Networks.
- 13- An Immune System for Training Hidden Markov Models.
- 14- A Genetic System for Evolving Fuzzy Cellular Automata.
- 15- A Reversible Cellular Automaton Cryptogram.
- 16- Other Commercial Applications (Various)

Note: Excellent experience in reliable programming of Compilers , Expert Systems and Soft Computing Paradigms { Neural Networks: in *forecasting, classification, approximation, control, quality control, business, finance*; Evolutionary Computation: in *optimization, design*; Fuzzy Systems: in *control, quality control, modeling*; Cellular Automata: in *dynamical systems modeling*; Petri Nets: in *modeling, industrial systems, production lines*}

### **Foreign Languages:**

English: Excellent (Graduate of a British Medium High School)

French: Very Good

German: Fair

### **BSc and MSc Projects Supervised:**

- 1- Signature Verification Using Neural Networks.
- 2- Development of a Package for 3-D Modeling.
- 3- A Visualization System for Fluid Dynamics.
- 4- Development of COM Objects for e-Commerce.
- 5- Development of a Windows Device Driver.
- 6- A C++ Library for Windows Programming.
- 7- A Genetic Programming Toolkit for Experimenting and Verification.
- 8- A Genetic Programming Ants System.
- 10- A Distributed Library Information System Using XML.
- 11- A Bioinformatics Rule Induction System.
- 13- Bioinformatics Protein Structure Prediction.
- 14- Bioinformatics DNA Sequence Analysis.
- 15- Determination of Governing Rules in Breast Cancer Digital Images.
- 16- A Fuzzy Programming Language/ Compiler.
- 18- Time Series Prediction using Neural Networks.
- 19- Medical Imaging.
- 20- Real-time face recognition using computer vision and fuzzy moments
- 21- Quality control with computer vision

- 22- computer vision motion tracking
- 23- Bioinformatics feature selection
- 24- Fuzzy classifier systems
- 25- Dynamic Tri-phase hepatic cancer detection

### **Some MSc Theses Supervised:**

- 1- A Fuzzy Expert System for Geological Information.(Ceased)
- 2- A Methodology for Applying Computational Intelligence Techniques in Digital Image Processing.
- 3- Development of Data Structures Using Genetic Programming.
- 4- A Data Visualization and Integration Tool.
- 5- An Evolutionary Data Mining System.
- 6- Evolutionary Analysis of Ant Colony Optimization.
- 7- Privacy, Authentication and Key Management of IPsec Protocol.
- 8- Evolving Fuzzy Cellular Automata.
- 9- A Fuzzy Lisp Programming Language.
- 10- Using Soft Computing Techniques in Market Forecasting.
- 11- Soft Computing Techniques in Network Routing.
- 12- Design of Parallel Genetic Algorithms Towards Solving Multiobjective Optimization Problems.
- 13- Accurate Estimation of Driving Parameters of Stochastic Iterative Methods in Intelligent Optimization.
- 14- Towards the Development of Intelligent Decision Support Tools Based on Corporate Strategic Planning Models.
- 15- Optimizing Discrete Stochastic Systems Using Simulation and a Heuristic Technique.
- 16- An Evolutionary Simulation Corporate Financial Model for Banks.
- 17- An Immunological Approach to Peer-to-Peer Systems.
- 18- An Immunological Approach to Spam Detection.
- 19- An Immuno-Wavelet Multiresolution Pattern Recognition System.
- 20- Autocatalytic Processes in Membrane Computing.
- 21- Communicating Processes in Membrane Computing.
- 22- Other- Various

### **Some PhD Theses Supervised:**

- 1- An Intelligent Goal Programming Model for Multi-Objective Decision System Under Uncertainty.(Ceased).
- 2- Heuristic Approaches for the Resource-Constrained Project Scheduling with Different Cash Flows.(ceased)
- 3- (5 theses on membrane computing) (running)

### **Hobbies**

Chess playing- holder of the IM (International Master) degree in Chess.