Dr. Hossam Osman
Deputy Minister for Innovation, AI, and Scientific Research
www.linkedin.com/in/hossam-osman-37441116b/

BRIEF

- **Dr. Hossam Osman is the Deputy Minister of Higher Education and Scientific Research for Innovation, AI, and Scientific Research fostering innovation-driven impact of academia on Egypt's prosperity and economic growth. Dr. Osman's responsibilities include developing and supervising implementation of the National Policy for Sustainable Innovation 2030 through a set of initiatives and programs as the presidential Alliance and Development Initiative.**

- **Dr. Hossam Osman was the ICT Minister Advisor for Technology Innovation, Training, and Electronics, and VP of Innovation at the Information Technology Industry Development Agency (ITIDA) mandated by spearheading the development of the ICT industry in Egypt to increase its global competitiveness to make it a key contributor to economic growth. Dr. Osman's responsibilities included supervising the Digital Egypt Innovation Centers Initiative (CREATIVA), the Egypt Makes Electronics Initiative, the Egypt FWD Freelancing Initiative, the IT Academia Collaboration (ITAC) Program, and being member of the Technical Secretariat of the National Council for Artificial Intelligence developing and supervising the implementation of the National AI Strategy.**

- **Dr. Osman has over 38-year experience as director, consultant, researcher, instructor, and developer in IT and software engineering. His experience is divided between industry and academia, private and governmental organizations, small and national-level projects, and domestic and overseas companies.**

- **Dr. Osman received the B.Sc. and M.Sc. degrees in computer engineering from Ain Shams University, Egypt in 1985 and 1990, respectively, and the Ph.D. degree in computer engineering from Queen's University, Canada in 1996. His Ph.D. thesis was awarded the Engineering and Applied Science Outstanding Thesis Award by Queen's University in 1996 and he was selected as Ontario's best post-graduate student in Computing by the Canadian Advanced Technology Association (CATA) in 1996.**

- **Dr. Osman's industrial experience includes working in Lucent Technology in USA, Egypt's IT Industry Development Agency (ITIDA), and local Egyptian companies as Nile Online, Data Management Systems, and ASSET. His academic experience includes working in Canada in Queen's University and the Royal Military College, and in Egypt in Ain Shams University and in the Arab Academy for Science, Technology, and Maritime Transport.**

- **Dr. Osman received many international certificates from prestigious entities as MIT, Harvard, and Carnegie Mellon in technology innovation, entrepreneurship, ICT service management, and software development, and published as Principal Author in reputable journals as Neural Computation, IEEE Transactions on Pattern Analysis and Machine Intelligence, and IEEE Transactions on Systems, Man, and Cybernetics.**

OUTSTANDING ACHIEVEMENTS

- Deputy Minister of Higher Education and Scientific Research for Innovation, AI, and Scientific Research aiming at transforming Egypt to sustainable innovative knowledge society.
- ICT Minister Advisor for Technology Innovation, Training, and Electronics, ITIDA Acting CEO for two times, ITIDA VP, SECC Chairman, and TIEC Acting Manager aiming at maturing, enhancing competence, and growing of the software and IT industry through adopting industry's best practices, developing innovative products and services, establishing distinguished startups, and transferring state-of-the-art technologies.
- Designing and supervising implementation of nation-level initiatives as Egypt FWD, Next Technology Leaders, Egypt Makes Electronics, Next Coders, Digital Egypt Innovation Centers CREATIVA, Smart University Reference Architecture, and Digital Transformation for Software.
- Participation in developing many strategies in the field of information technology, software engineering, electronics industry, additive manufacturing, technology innovation and entrepreneurship, and the role of ICT in combating climate change.
- Responsible for the Artificial Intelligence file at the Ministry of Communications and Information Technology and member of the Technical Secretariat of the National Council for Artificial Intelligence.
- Member of the Sustainable Innovation Policy Development Committee at the Ministry of Higher Education and Scientific Research in 2023.
- Member of the Technical Secretariat of the Permanent Unit for Startups in the Cabinet in 2023.
- Member of the general assemblies of "Dar Al Hilal" and "Dar Al Maaref" foundations, and the Board of Directors of the Electronics Factory of the Arab Organization for Industrialization, and Member of the Board of Directors of the Digital Egypt for Investment Company for three years.
- Completed successfully MIT Regional Entrepreneurship Acceleration Program (MIT REAP) as the Champion of the Egyptian Team accelerating entrepreneurship in Greater Cairo in the period April 2021 – August 2023.
- Chairing the editions of the Africa and Middle East Conference on Software Engineering (AMECSE) organized in cooperation with the prestigious ACM SIGSOFT.
- Member of the State Committee for the Information and Computer Sector for two rounds since 2015, and faculty member of Faculty of Engineering, Ain Shams University.
- Participation and acting as a Coordinator in the prestigious Seventh Framework Program (FP7) of the European Union.
- Representing Ministry of Communications and Information Technology in public media.
- Received extensive 3-month training in Embedded Systems in South Korea in 2006 and received advanced training in software engineering by the prestigious Software Engineering Institute of Carnegie Mellon University in 2009.
- Awarded a certificate of completion for the Innovation for Economic Development program, June 2013, Harvard University, John F. Kennedy School of Government, Executive Education.
- ITIL Expert, COBIT 5 Foundation Certified, and ISTQB Certified Tester.
- Publishing as Principal Author in reputable journals as Neural Computation, IEEE Transactions on Pattern Analysis and Machine Intelligence, and IEEE Transactions on Systems, Man, and Cybernetics.
- Awarded a Postdoctoral Fellowship by the Natural Sciences and Engineering Research Council of Canada (NSERC) in 1997 and 1995.
- Awarded a Visiting Fellowship in Canadian Government Laboratory by NSERC in 1997.

- ❑ Selected as Ontario's best post-graduate student in Computing by the Canadian Advanced Technology Association (CATA) in 1996.
- ❑ Awarded the Engineering and Applied Science Outstanding Thesis Award by Queen's University in 1996.
- ❑ Selected as Queen's University's candidate for the NSERC Doctoral Prize in 1996.
- ❑ Selected as Division III's candidate for the Governor General's Academic Gold Medal by Queen's University in 1996.

EDUCATION

Queen's University, Ph.D., 1996, Electrical and Computer Engineering
                              (Engineering and Applied Science Outstanding Thesis Award)
Ain-Shams University, M.Sc., 1990, Electronics and Computer Engineering
Ain-Shams University, B.Sc., 1985, Electronics and Computer Engineering
                              (Distinction with Honor)

WORK EXPERIENCE

Ministry of Higher Education and Scientific Research (MoHESR), Egypt

07/24-Present Deputy Minister for Innovation, AI, and Scientific Research

- Participating in developing policies and strategic plans for higher education and scientific research institutions to maximize the development value of innovation that supports competitive productivity and entrepreneurship in Egypt based upon the outcomes of scientific research and emerging technologies, most notably AI technology, within the framework of the Government's work program to achieve sustainable development, reducing the import bill and increasing exports.

Ministry of Communications and Information Technology (MCIT), Egypt

05/16-06/24   Minister Advisor for Technology Innovation, Training, and Electronics

- Developing and supervising execution of nationwide initiatives for IT-enabled economic growth as the Digital Egypt Innovation Centers Initiative, the Egypt Makes Electronics Initiative, the Egypt FWD Freelancing Initiative, and being member of the Technical Secretariat of the National Council for Artificial Intelligence developing and supervising the implementation of the National AI Strategy.

IT Industry Development Agency (ITIDA), Egypt

09/05-06/24   Innovation Sector Supervisor/VP/SECC Chairman/R&D Department Manager

- Strategy development and business planning to mature and promote the software and IT service industry in Egypt.
- Governing and supervising execution of national industry development initiatives as the Next Technology Leaders, iCluster, MSE Program, INAR Tablet, …
- Developing and managing provision of services to ICT companies in the fields of software testing, embedded systems, and mobile applications.

- **Developing and managing capacity building and technology transfer initiatives that involve multinationals and international and domestic partners.**
- **Supervising R&D in the areas of embedded systems and software engineering**
- **Managing projects that aim at boosting the industries for embedded systems, IT service, and software development in Egypt.**
- **Authored "*Project Management Process*," based on CMM/CMMI, as part of SECC's Software Process Implementation Guide for Small and Medium Enterprises.**
- **Instructing a wide variety of courses for ITIL, software engineering, and embedded systems.**

Technology Innovation and Entrepreneurship Center (TIEC), Egypt

01/13-06/24   TIEC National Project Director

- **Establishing the foundation of innovation and entrepreneurship: includes initiatives as policy acceleration and advocacy; developing Egypt's ICT innovation and entrepreneurship platform; capacity building through education and training; innovation assessment and certification.**
- **Empowering businesses: includes initiatives as start-up support; innovation support; public-private funding; technology-specific clusters; intellectual property exchange; multinational corporation attraction and collaboration.**
- **Recognizing innovation and entrepreneurship: includes initiatives as awareness and celebration of innovation and entrepreneurship; branding Egypt as an ICT innovation and entrepreneurship hub.**

Asset Technology

09/04-08/05   Project Manager

- **Management of e-Tender project for General Authority of Government Services.**

Nile Online (Egyptian leader in Internet and Digital Infrastructure)

01/01-09/04   Executive Manager of Student Online (SOL) Project

- **Preparation of the project business, action, and marketing plans. The project aims at promoting computer literacy and Internet utilization among students of all governmental and private universities across Egypt.**
- **Supervising and monitoring project teams.**
- **Reporting project progress and highlighting achievements and obstacles.**
- **Significantly participating in the design, development, and testing of the student portal. The portal fulfils important needs for students and university professors.**
- **Providing the technical content and designing the multimedia for a computer introductory e-learning course.**

Misr Pharmaceutical (Egyptian leader in Pharmaceutical Industries)

10/00-10/09   ICT Consultant

Planning ICT activities and providing technical specifications for requirements, evaluating offers, and inspecting deliverables.

Ain Shams University-Department of Computer and System Engineering, Egypt

07/00-09/05   Associate Professor/Assistant Professor

- **Instructing the following courses:** *signal analysis*, *numerical analysis*, *computer introduction*, *computer networks*, *computer peripherals*, **and** *computer organization*.
- **Supervising student projects and M.Sc theses. Sample thesis titles are** "*Multimedia Communication over Packet Networks*," "*Network Design Issues*," **and** "*Devising a Very Low Bit Rate VoIP System Using an Arabic Segmental Vocoder*."
- **Conducting research on neural networks, image processing, and computer networks.**
- **Participation in academic programs enhancement, labs preparation, exams administration, offers evaluation, and equipments inspection.**

Ministry of Higher Education

12/04-05/05   ICT Consultant

Developing an integrated ICT training program for staff, staff assistants, and employees of all governmental universities in Egypt.

Arab Academy for Science, Technology, and Maritime Transport, Computer Department

09/00-09/05   Adjunct Professor

Instructing the following courses: *computer introduction*, *structured programming*, *advanced programming*, *programming application*, *system programming*, **and** *structure of programming languages*, *data structure*, *web programming*.

Lucent Technologies, New Jersey-USA

10/98-06/00   Member of Technical Staff

Designing and developing (i) software for an ISDN communication switch at the level of Layer 2 and above, (ii) software drivers for the Intel 28F160S5 Flash Memory and the Intel PCMCIA Series 2 memory cards, (iii) low-level tests for MC680XX/MC6830X/MC688XX processor boards, and (iv) software for cross mapping between the Motorola 68EC020 processor, the Motorola PPC850 processor, the Solaris-based platform, and the Windows NT-based platform.

Queen's University, Canada, Department of Electrical and Computer Engineering

07/95-09/98   Research Scientist

- **Detecting ships in images acquired by airborne Synthetic Aperture Radar (SAR) sensors mounted on CP-140 aircrafts. This work was collaboration between Queen's University and Lockheed Martin Electronic Systems Canada.**
- **Instructing a** *digital signal processing* **course for senior undergraduates.**

Royal Military College of Canada, Department of Electrical and Computer Engineering

11/94-06/95   Research Associate

Conducting research on using fuzzy logic techniques to track targets maneuvering in heavily cluttered environments.

Queen's University, Canada, Department of Electrical and Computer Engineering

09/90-10/94   Research and Teaching Assistant

- **Conducting research on artificial neural networks, pattern classification, and image compression.**
- **Tutoring the following courses: *electronics*, *automatic control*, and *digital signal processing*.**

Data Management Systems (Egyptian leader in business software development)
09/85-08/90   Software Engineer

Developing the following systems: *personnel*, *budget*, *fixed assets*, *quality control*, and *production*.

Ain Shams University, Department of Electronics and Computer Engineering

09/85-08/90   Research and Teaching Assistant

- **Conducting research on applying syntactic and statistical pattern recognition techniques to the processing of electrocardiographic (ECG) signals.**
- **Tutoring the following courses: *computer organization*, *operating system*, *logic circuits*, and *database*.**

AWARDS

Natural Sciences and Engineering Research Council of Canada	Postdoctoral Fellowship	1997
Natural Sciences and Engineering Research Council of Canada	Visiting Fellowship in Canadian Government Laboratory	1997
Canadian Advanced Technology Association	Ontario's best post-graduate student in Computing	1996
Natural Sciences and Engineering Research Council of Canada	Postdoctoral Fellowship	1995
Queen's University	Engineering and Applied Science Outstanding Thesis Award	1993-94
Queen's University	Graduate Award	1993-94
Queen's University	McLaughlin Fellowship	1992-93
Queen's University	McLaughlin Fellowship	1991-92
Queen's University	Graduate Award	1991-92

Queen's University	Dean's Award	1990-91
Ain-Shams University	Award of Excellence	1980-85

SAMPLE PUBLICATIONS

Azza Nabih, Hossam Osman, Mostafa Gomaa, Gamal Aly, "New Fuzzy-Based Indoor Positioning Scheme Using ZigBee Wireless Protocol," *IEEE International Conference on Computer Engineering & Systems ICCES12*, Cairo, Egypt, 2012.

Waseim Mahjoub, Hossam Osman, and Gamal M. Aly, "H.264 Deblocking Filter Enhancement," *IEEE International Conference on Computer Engineering & Systems ICCES11*, Cairo, Egypt, pp. 219-224, 2011.

Azza Nabih, Mostafa Gomaa, Hossam Osman, Gamal Aly, "Modeling, Simulation, and Control of Smart Homes Using Petri Nets," *International Journal of Smart Home*, vol. 5, no. 3, pp. 1-14, 2011.

Waseim Mahjoub, Hossam Osman, and Gamal M. Aly, "Video Player Parallelization and Optimization for Embedded Asymmetric Dual-Core Architecture," *IEEE International Conference on Computer Engineering & Systems ICCES10*, Cairo, Egypt, pp. 146-151, 2010.

Hossam Osman, "SVM-Based Binary Decision Tree for Pattern Classification", *Scientific Bulletin of Faculty of Engineering-Ain Shams University*, vol. 42, no. 3, 2007, pp. 471-481.

Seif El-Dawlatly, Hossam Osman, and Hussein I. Shahein, "SVM Enhancement with Application to SAR Imagery Classification," in *Proceedings of the 8th International Conference on Signal Processing*, Beijing, China, 2006, vol. 3.

M. S. Seleem, H. M. A. Fahmy, Hossam Osman, and H. I. Shahein, "Enhanced Bandwidth Reconfiguration for On-Demand QoS Path Framework," in *Proceedings of the 2006 International Conference on Computer Engineering and Systems*, Cairo, Egypt, 2006, pp. 300-305.

Hossam Osman and Steven D. Blostein, "Probabilistic Winner-Take-All Segmentation of Images with Application to Ship Detection," *IEEE Transactions on Systems, Man and Cybernetics*, vol. 30, no. 3, pp. 485-490, 2000.

Hossam Osman and Steven D. Blostein, "Backpropagation Algorithm for Multiresolution Image Classification," in *Proceedings of the IEEE International Conference on Image Processing*, Kobe, Japan, 1999, vol. I, pp. 519-523.

Hossam Osman and M. M. Fahmy,"Neural Classifiers and Statistical Pattern Recognition: Applications for Currently Established Links," *IEEE Transactions on Systems, Man, and Cybernetics*, vol. 27, Part B, no. 3, pp. 488-497, 1997.

Hossam Osman, M. Farooq, and T. Quach, "Fuzzy Logic Approach to Data Association ," in *Proceedings of the SPIE Conference on Signal Processing, Sensor Fusion, and Target Recognition V*, USA, 1996, vol. 2755, pp. 313-322.

Hossam Osman and Steven D. Blostein, "SAR Image Processing Using Probabilistic Winner-Take-All Learning and Artificial Neural Networks," in *Proceedings of the IEEE International Conference on Image Processing*, Lausanne, Switzerland, September 1996, vol. II, pp. 613-616.

Hossam Osman and M. M. Fahmy, "On the Discriminatory Power of Adaptive Feed-Forward Layered Networks," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, **vol. 16, no. 8, pp. 837-842, 1994.**

Hossam Osman and M. M. Fahmy, "Probabilistic Winner-Take-All Learning Algorithms for Radial-Basis-Function Neural Classifiers," *Neural Computation*, **vol. 6, no. 5, pp. 925-941, 1994.**