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Bassem Mahmoud Mohamed Ali Mokhtar

Personal Information

- Job Title: Assistant Professor at the Electrical Engineering Department, Communications and Electronics Section, Faculty of Engineering, Alexandria University
- Marital status : Married
- Children: Two
- Nationality : Egyptian
- Date of Birth : December, 19, 1981
- Place of Birth : Alexandria, Egypt

Education

- **Secondary Education:**   Mobarak Toppers School,   Alexandria   1997-1999
    - Grade: 95.5 %

- **Post-Secondary Education:** Faculty of Engineering, Alexandria University   1999-2004
    - B.Sc. in Electrical Engineering, Communication & Electronics Section
    - Grade: Distinction with Degree of Honor (GPA: 3.9/4, Percentage: 91.53%)
    - Ranking: 3rd over a class of 421 students
    - Graduation Project:
        - Title: Wireless Local Area Network (WLAN) Design and Implementation
        - Project Subjects:
            - Computer Networks
            - Studying the physical and MAC layers of the IEEE 802.11 protocol
            - Network and WLAN security
            - Applications of WLAN

- **Master of Science (M.Sc.):**
    - Degree Accomplishment Date: 12 February 2008
        - University: Alexandria, Egypt
        - Department: Electrical Engineering
    - Core Courses:
        - Satellite Communication Systems
        - Digital Communication Theory
        - Digital Signal Processing Architecture & Circuits
        - Computer Networks
        - Teletraffic Engineering
        - Coding Theory
    - GPA of the Core Courses: 4/4
    - Thesis: Performance Optimization of Wireless Sensor Networks
    - Scope of the thesis:

Achieving good understanding of the following:
- Data aggregation in wireless sensor networks.
- Routing protocols in wireless sensor networks.
- Designing an efficient MAC layer for wireless sensor networks.
- The wireless sensor networks with limited energy and constraints.
- Flow rate and lifetime of limited energy constrained wireless sensor networks.
- Simulation of wireless sensor networks using the network simulator ns-2.
- Designing a wireless sensor network for a small application with high quality of service.

- Contributions:
  - New constraints were added to improve the optimization performance of wireless sensor networks.
  - Building a combined optimization problem which is used to improve the flow rate and the lifetime for a limited constrained wireless sensor networks.
  - Improving the results of the optimization processes using the particle swarm optimization.

- **Doctor of Philosophy (Ph.D.):**
  - Degree Accomplishment Date: January 2014
    - University: Virginia Tech, USA
    - Department: Electrical and Computer Engineering
  - The Major Area: Computer Engineering
  - The Specific Area: Network Intelligence and Network-Semantics Management
  - Core Courses:
    - Network Architecture and Protocols
    - Stochastic Signals And Systems
    - Trustworthy Wireless Networks
    - Optical WDM Networks
    - Introduction to Statistical Communication & Information Theory
    - Systems Modeling And Optimization
  - GPA of the Core Courses: 3.825/4
  - Dissertation: Biologically-inspired Network Memory System for Smarter Networking.
  - Contribution:
    - Biologically-inspired customizable application-agnostic distributed network memory management system with efficient processes for extracting and classifying high-level features and reasoning about rich semantics in order to resolve the ISG and target Internet intelligence.
    - Systematic methodology using monolithic and hybrid intelligence techniques for efficiently managing data semantics and building runtime-accessible dynamic ontology of correlated concept classes related to various Internet elements and at different levels of abstraction and granularity that would facilitate:
      - Predicting future events and learning about new services;
      - Recognizing and detecting of normal/abnormal and dynamic/emergent behavior of various Internet elements;
      - Satisfying QoS requirements with better utilization of resources.

Publications and Awards

- **Publications:**
  1. M. Azab, B. Mokhtar and M. M. Farag, "CyNetPhy: Towards Pervasive Defense in Depth for Smart Grid Security", 9th International Conference on Critical Information Infrastructures Security, Limassol, Cyprus, October 13-15, 2014.
  2. M. M. Farag, M. Azab and B. Mokhtar, "Cross-Layer Security Framework for Smart Grid: Physical Security Layer", The 5th IEEE PES Innovative Smart Grid Technologies (ISGT) European 2014 Conference, Istanbul, Turkey, October 12-15, 2014.
  3. B. Mokhtar and M. Eltoweissy, "Semantics Management for Big Networks", *15th IEEE International Conference on Information Reuse and Integration*, San Francisco, California, USA, August 2014.
  4. B. Mokhtar and M. Eltoweissy, "Hybrid Intelligence for Semantics-enhanced Networking Operations", *the 27th International Conference of the Florida Artificial Intelligence Research Society (FLAIRS-27)*, Florida, USA, May 2014.
  5. B. Mokhtar and M. Eltoweissy, "Towards a Data Semantics Management System for Internet Traffic", *the 6th IEEE-IFIP International Conference on New Technologies, Mobility and Security (NTMS)*, Dubai, UAE, March 2014. (**Best Paper Award**).
  6. B. Mokhtar, M. Eltoweissy, and H. Elsayed, "Network memory system for enhanced network services," in *9th International Conference on Innovations in Information Technology*, Al Ain, UAE, March 17-19, 2013.
  7. B. Mokhtar and M. Eltoweissy, "Biologically-inspired network "memory" for smarter networking," in *Collaborative Computing: Networking, Applications and Worksharing (CollaborateCom), 2012 8th International Conference on*, 2012, pp. 583-590.
  8. B. Mokhtar and M. Eltoweissy, "Memory-enabled autonomic resilient networking," in *Collaborative Computing: Networking, Applications and Worksharing (CollaborateCom), 2011 7th International Conference on*, 2011, pp. 132-141.
  9. M. R. M. Rizk and B. M. Mokhtar, "Improvement of the design and analysis of flow rate in limited energy constrained wireless sensor networks using evolutionary optimization algorithms," in *Radio Science Conference, 2008. NRSC 2008. National*, 2008, pp. 1-9.

- **Awards:**
  1- My paper of title "Improvement of the analysis of flow rate in limited energy constrained wireless sensor networks using the genetic algorithm" has got the first place in the graduation papers in the papers' contest of the IEEE Alexandria student branch in Egypt, December 2007.
  2- My paper of title "Towards a Data Semantics Management System for Internet Traffic" has been selected as one of the best papers in the NTMS 2014 conference in Dubai, UAE 2014.

Research Interests

- Network Management
- Semantic-driven Networking Operations
- Information management and knowledge-based Management
- Network Intelligence
- Wireless Networks

- Sensor Networks
- System Modeling

Professional and Work Experience

- **2014-Present:** Assistant Professor, Faculty of Engineering, Alexandria University, Alexandria, Egypt.
- **2008-2014:** Assistant Lecturer, Faculty of Engineering, Alexandria University, Alexandria, Egypt.
- **2005-2008:** Teaching Assistant, Faculty of Engineering, Alexandria University, Alexandria, Egypt.

  - **Teaching:**
    - Modern Physics
    - Communication Systems
    - Optical Devices and Engineering
    - Optical Communication Networks
    - Introduction to Microprocessors
    - Microprocessor Interfacing and Applications
    - Electronic Devices and Circuits

  - **Labs:**
    - Communication Systems
    - Semiconductor Devices
    - Optical Devices and Engineering
    - Microprocessor Interfacing and Applications
    - Digital Fundamentals
    - Electronic Circuits

Language and Programming Skills

- Native Language: Arabic
- Foreign Languages:

Language	Speaking	Understanding	Reading	Writing
English	V. Good	Excellent	Excellent	V. Good

- Programming:
  - Java
  - MATLAB

Additions

- **Reviewer for various conference papers and journals including:**

  - IEEE Transactions on Computers
  - Elsevier Journal of Network and Computer Applications (JNCA)

- INFOCOM 2011
- ICC 2011
- WCNC 2011
- GC 2011 – AHSN
- LCN 2011
- iCOST2011
- WD 2012

- **Courses Taken:**

  - Television & RADIO Hardware.
  - Computer Networks: Local and Wireless Area Networks.
  - Thinking Skills.
  - Effective Teaching Skills.
  - Effective Communication Skills.
  - Research Methodology.
  - CCNA (Cisco Certified Network Associate).

- **Training Experience:**

  - Arab Contractors Company (Electric Section) – Alexandria, Egypt. (July first 2001 - July 31th 2001)
  - Alexandria Oil Field Engineering & Services –Alexandria, Egypt. (August first 2002 - August 31th 2002)
  - Schlumberger Oilfield Company – Wireline Segment –Marsa Matrouh, Egypt. (July 24 – August 14, 2003)