Maha Medhat Hassan

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Dynamic lecturer with +10 years of experience teaching computer engineering and computer science courses in different roles (demonstrator, assistant lecturer and lecturer) at Al-Azhar University. Known for engaging lectures with careful selection and generation of supporting materials, practical projects and detail-oriented classroom management. Dedicated to individual student success and comprehensive understanding. Excels in remote teaching, engaging students, student supervision and mentorship.

EDUCATION

Department of Computers and Systems Engineering, Faculty of Engineering, Al-Azhar University

B.Sc. (2004-2009)	**Excellent with honor degree, ranked 2nd.**
M.Sc. (2012-2015)	Thesis title: “Bit stuffing techniques in Controller Area Network (CAN)”.
Ph.D. (2016-2021)	Thesis title: “Security for Industrial Internet of Things (IIoT)"

EXPERIENCE

Lecturer (2021- Current)
Department of Computers and Systems, Faculty of Engineering, Al-Azhar University

- Offered courses: Internet of Things (IoT); Computer-Aided Design (CAD)
- Supervised laboratories: Electrical and electronics labs; Software labs
- Designed syllabus, study plans, and course materials, tailored for student-centered experience
- Supported theoretical explanations with practical applications and projects
- Utilized instructional technologies in course delivery for both in-class and online teaching (using ZOOM and YouTube channel)
- Inspired discussions through the presentation of thought-provoking material
- Mentored undergraduate and graduate students in effective next-steps for education and career preparedness
- Supervised graduate students and advised on focus, methodology and report generation

Lecturer Assistant (2015- 2021)
Department of Computers and Systems, Faculty of Engineering, Al-Azhar University

- Offered courses: Interface system; ARM programming; Control systems; Electronics; Digital systems; Microcontrollers
- Laboratories: Hardware labs; Electrical and electronics labs; Software labs
- Applied fair grading practices consistently to evaluate students' work
- Tracked student attendance and studied its impact on performance
- Supported advanced field research by assisting with experimental design, execution and result tracking
- Assisted in solving exercises, simulation programs and supervising practical projects and midterm exam.

Demonstrator (2012- 2015)
Department of Computers and Systems, Faculty of Engineering, Al-Azhar University

- Courses: Electrical engineering; Digital systems; control systems; Sequential Circuits; Programming Languages
- Laboratories: Hardware labs; Electrical and electronics labs; Software labs
- Supervised class projects focused on: Raspberry Pi, Arduino, and ARM Microprocessor

RESEARCH

Interests: Internet of Things (IoT); Embedded System; Controller Area Network (CAN); Electronics; Computer Architecture; Computer logic & Computer Design

Master-level thesis supervision

- IoT Based Approach for Load Monitoring in Smart Homes
- Artificial Intelligence and Internet of Things for Autonomous Vehicles
- An IoMT-based Smart Health Care Model to Monitor Elderly people using Machine Learning

Undergrad graduation project supervision

- Night vision patrolling robot
- IoT based anti-theft system
- IoT based health monitoring system
- Smart charger for electric vehicles
- IoT based Biometric attendance system using Arduino and things board

PUBLICATIONS

[1] **Hassan, M.M.**, El-Shafey, K. & Rashed, A. (2020). IoT-Fog based Smart-Building Security System Design and Performance Evaluation. *Journal of Computer Science*, *16*(9), 1325-1333. https://doi.org/10.3844/jcssp.2020.1325.1333. DOI: https://doi.org/10.3844/jcssp.2020.1325.1333

[2] **Hassan, M.M.**, K. El-Shafey and A. Rashed, "Performance Analysis of Random Access Channel Periodicity in the NB-IoT System," *2019 International Conference on Smart Applications, Communications and Networking (SmartNets)*, 2019, pp. 1-6, doi: 10.1109/SmartNets48225.2019.9069787.

[3] **Hassan, M.M.**, Elshafey, K., & Rashed, A. (2019). Evaluation of optimum NPRACH performance in NB- IoT systems. International Journal of Computer Networks and Applications, 6(4), 55–64. DOI: 10.22247/ijcna/2019/49702.

[4] **Hassan, M.M.**, Third Bit Complement (TBC) Mechanism to Reduce Bit Stuffing Jitter in Controller Area Network (CAN). International Journal of Advanced Research in Electrical, Electronics and Instrumentation Engineering (An ISO 3297: 2007 Certified Organization), 2015. 4(5). DOI: 10.15662/ijareeie.2015.0405001.

[5] **Hassan, M.M.**, Bit stuffing techniques Analysis and a Novel bit stuffing algorithm for Controller Area Network (CAN). International Journal of Computer System, 2015. 2(03).