

Mina Elias

Engineering Mathematics and Physics Department, Cairo University
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EDUCATION

Cairo University, Egypt

M.Sc. in Physics, Department of Engineering Mathematics and Physics, Cairo University September 2015
Diploma in Physics, Department of Engineering Mathematics and Physics, Cairo University January 2013
B.Sc. Electrical Engineering, Communications and Electronics Engineering Department, Cairo University July 2011
Degree: Distinction with honors

TEACHING EXPERIENCE

Cairo University, Egypt

Teaching and Research Assistant at the Department of Engineering Mathematics and Physics 2012- Present
Duties: Prepare and conduct tutorials and laboratory experiments; grade quizzes, exams, assignments, or projects; hold weekly office hours.

Courses:

Physics1A: Electrostatics and Properties of Materials (fall 2012, 2013, 2014)
Physics1B: Electromagnetics and Thermodynamics (Spring 2013, 2014)
Physics2A: Light and Electromagnetics (fall 2014)
Embedded Systems and Microcontroller classes for undergraduate students (June 2011-August 2013)

RESEARCH EXPERIENCE

Cairo University, Egypt

- *Research Assistant at the Department of Engineering Mathematics and Physics* Sept. 2012 - Sept. 2015
Based on the speculations of Ramón y Cajal about how dendrites take their spatial representation by optimizing the total wiring length and the conduction time within the dendritic tree, his hypothesis was generalized by adding the geometric boundaries that surround neuron cells into account. This new parameter was able to boost the degree of matching between synthesized dendritic trees and their real reconstructions. By assessing the neuronal cells using quantitative metrics, the results confirmed the contribution of this parameter. Also, morphological metrics were built to measure the degree of similarity between different reconstructions.

- *Research Assistant in ITEA-2 "Web of Objects"* July 2012 – Dec. 2014

Duties:

-Research: Developed a novel approach that results in higher delivery ratios and longer ad-hoc network lifetimes for intermittently connected networks in WSNs
-Technical: Hardware leader; I work on prototyping, concept verification, and PCB designing and soldering of web-based interfaces for embedded systems actuators and sensors.

- *Undergraduate Projects* Sep. 2008 – July 2011
-Developed a clustering-protocol for Wireless sensor networks to minimize the power consumption of the network and increase its life time (Senior Year Graduation Project)
-Developed a Content Based Image Retrieval (CBIR) algorithm

PUBLICATIONS

Mina Elias, Manal M. Awad, Noha M. Salem and Medhat El-Messierey, "The Contribution of Branching Order in generating an optimal synthetic morphology of neuronal cell's dendritic reconstruction," *Journal of Neuroscience Methods* (*In review*).

Mina Elias, A. Khattab, and K. Elsayed, "CORB: Context-Aware Opportunistic Resource-Based Routing for Stationary Wireless Sensor Networks," in Proc. of IEEE ICNC, California, USA, Feb. 2015.

DEMONSTRATIONS

K. Elsayed, S. Khattab, **Mina Yousif**, M. Farag, K. Qorany, M. Selim, and B. Sharkawi, "The IoTified Platform for Constructing IPv6-based Embedded Web of Things Systems," The Internet of Things 4th Conference, MIT Media Lab, Boston, MA, USA, Oct. 2014.

CONFERENCE PRESENTATIONS

"The IoTified Platform for Constructing IPv6-based Embedded Web of Things Systems," The Internet of Things 4th Conference, MIT Media Lab, Boston, MA, USA, Oct. 2014.

PROFESSIONAL TRAININGS

The National Electric Company, Cairo, Egypt Summer Intern. at PLC programming Division	July 2009
ENPPI for Petroleum services, Cairo, Egypt Control Systems at petroleum fields	Aug. 2010

HONORS AND AWARDS

Fellowship award, Cairo University Undergraduate Student Award, awarded 2006-2011.

Fellowship award, Cairo University Graduate Student Award, awarded 2012-2015.

COMPUTER AND HARDWARE SKILLS

Packages: MATLAB; NEURON; Network simulator (Contiki, COOJA)	Microsoft Office Circuits simulators (Multisim, Proteus)
Programming Languages: C, C++, VB, C#, Perl	Zigbee/802.15.4 wireless modules
OS: Linux and Windows	PCB Prototyping

LANGUAGES

Arabic (native tongue)
English (Writing: Excellent; Speaking: Very Good)

PERSONAL DETAILS

Gender: Male
Born: 04-12-1988
Marital status: Single
Interests: Reading; Travelling; Studying Chess Theory

REFERENCES

Prof. Khaled Elsayed (khaled@ieee.org), Professor – Cairo University
Dr. Noha Salem (nmsalem@aucegypt.edu), Assistant Professor – Cairo University