

Ahmed Bedewy

CONTACT INFORMATION

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RESEARCH INTERESTS

- Wireless Communications, Cognitive Radios, Information Theory, Signal Processing.
- Also interested in exploring new topics.

EDUCATION

M.Sc. in Electrical Engineering

September 2011 - Present

Alexandria University, Egypt

- **Cumulative GPA:** 4.00
- **Thesis:** Cognitive MAC Design with Cooperation and Energy Harvesting

B.Sc. in Electrical Engineering

September 2006 - July 2011

Alexandria University, Egypt

- **Overall grade:** Distinction with Degree of Honor (grade: 93.59%, GPA:3.96).
- **Rank (out of 443): 1st.**
- **Thesis:** Baseband Implementation of LTE Advanced Downlink Physical Layer.
- **Graduation project fund** winner, National Telecommunications Regulatory Authority - NTRA, 2011.

HONORS AND AWARDS

- Ranked **1st** over Electrical Engineering Class of 2011, Alexandria University.
- Awarded the Prof. Abdelsamie Mustafa prize for the **1st** student over Electrical Engineering Class of the Faculty of Engineering, Alexandria University in 2011.
- Awarded Certificate of Merit, First Class Honors, for being one of the top ten students (**1st** at last three years) in Electrical Engineering during my undergraduate studies (2006-2011).
- Ranked **1st** on El Abassia Secondary School (Maths Dep.) upon high school graduation (99.02%).

RESEARCH EXPERIENCE

The American University in Cairo (AUC), Cairo, Egypt

Advisor: Dr. Ayman Y. Elezabi, Dr. Karim G. Seddik

Research Assistant

August 2012 – August 2013

- Studying a cognitive radio network in which a secondary user (SU) exploits the primary user (PU) feedback from a queuing theory point of view where the secondary user accesses the channel with different access probabilities.
- Determining the access probabilities so that the SU throughput is maximized under two PU's QoS (Quality of Service) constraints: the PU queue stability and a limit on the average PU packet delay, considering interference-based communication model.
- As a result of this work, we published an academic paper in **IEEE WiOpt 2013**.

Faculty of Engineering Alexandria University, Alexandria, Egypt

Advisor: Dr. Karim G. Seddik, Dr. Amr A. El-Sherif, Dr. Tamer Elbatt

Research Assistant

September 2011 - Present

- Studying the queues stability in a random access network in which the nodes have finite energy sources. The nodes leverage the feedback information for collision resolution.
- Identifying the loss occurred in the stability region of the proposed system due to the energy limitation.
- Studying the queues stability and delay in cooperative multiple access for cognitive radio systems in which the SU has finite energy sources.

- A PU packet is admitted to the relay queue with an admission probability. Moreover, the SU serves either the queue of its own data or the queue of the PU relayed data with certain service probabilities.
- Comparing obtained stability region and the average packet delay with the stability region and the average packet delay of the system without energy constraints, and the losses due to finite energy are identified.
- As a result of this work, we published an academic paper in **IEEE GLOBECOM 2014** and a submitted paper in **IEEE ICC 2015**.

UNDER PREPARATION JOURNALS

“Cooperative MAC for Cognitive Radio Network with Energy Harvesting and Randomized Service Policy”, in preparation

CONFERENCE PAPERS

Ahmed M. Bedewy, Karim G. Seddik and Ayman Y. Elezabi, “A Feedback-based Access Scheme for Cognitive Radio Networks Over Interference Channels with Primary Queue Guarantees”, In *IEEE WiOpt*, 2013.

Ahmed M. Bedewy, Karim G. Seddik and Amr A. El-Sherif, “On the Stability of Random Access with Energy Harvesting and Collision Resolution”, In *IEEE GLOBECOM*, 2014.

Ahmed M. Bedewy, Amr A. El-Sherif, Karim G. Seddik and Tamer ElBatt, “Cooperative MAC for Cognitive Radio Network with Energy Harvesting and Randomized Service Policy”, submitted to IEEE ICC 2015.

TEACHING EXPERIENCE

Alexandria University, Alexandria, Egypt

Teaching Assistant/Demonstrator

Fall 2011 – present

Courses:

- Digital Communications
- Analog Communications
- Communications Systems
- Signals and systems
- Microprocessor 8086
- Optical Devices
- Very-large-scale integration (VLSI)

Responsibilities:

- Tutoring
- Lab supervision
- Preparing and Discussing Matlab, Assembly and C programming assignments
- Marking exams and quizzes
- Monitoring examiners

SKILLS & BACKGROUND

Software Languages: 8086 Assembly, Matlab and $LaTeX$.

Course Related: Probability, Random processes, Signal processing, Estimation and Detection Theory, Queuing Theory and Convex Optimization.

Wireless Standards: GSM, GPRS, UMTS, LTE and LTE-A.

WORKING EXPERIENCE

The Academy of Air Defense, Alexandria, Egypt

Lab Supervision

Sep 2014

Supervision of the establishment of a Microwave Measurements Lab

EXTRA CURRICULUM ACTIVITIES

Attended WiOpt2013 conference in Tsukuba City, Japan as an author and presenter.

Won the **Bronze medal** in the Egyptian Olympic Fencing Championship (Individuals), 2004

Won the **Gold medal** in the Egyptian Olympic Fencing Championship (Teams), 2004

REFERENCES

Prof. Ness B. Shroff

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The Ohio State University
Ohio, USA
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Dr. Yin Sun

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Prof. Karim G. Seddik

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