EmadelDin Abbas Mazied Abdrabou

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Research Interests

Control plane design in software-defined cellular-based connected vehicles, vehicles-to-everything (C-V2X), and optimization theory

Education

Alexandria University, Alexandria, Egypt.

M.Sc., Electrical Engineering, July 2012

- Thesis Topic: *VoIP Capacity in IEEE 802.11 WLAN using different Traffic Models*
- Advisors:
  - Mohamed R. M. Rizk, Ph.D, Professor of Electrical Engineering
  - Ahmed M. AbdelNabi, Ph.D

Monoufeya University, Monoufeya, Egypt.

B.Sc., Electronics and Telecommunications Engineering, August 2003

- Thesis Topic: *Cellular network capacity and coverage enhancement using High Altitude platforms (HAPs)*
- Advisor:
  - Moustafa Nofel, Ph.D, Professor of Electronics Engineering

Research Experience

Visiting Research Assistant — Aug. 2015 to present

Department of Electrical and Computer Engineering,
Virginia Tech, USA

Host Professors:

- Scott F. Midkiff, Ph.D, VT VP of IT and CIO
- Hesham Rakha, Ph.D, Director of Center for Sustainable Mobility at VTTI

Examining cellular-based connected vehicles performance in terms of achieving public safety on smart roads. In this system, software-defined networking principles are incorporated into vehicular communication system to guarantee ultra-reliable and low latency communication among connected vehicles.

Full time Research Assistant — Jul. 2013 - Oct. 2014
Part time Research Assistant — Oct. 2014 - Jul. 2015

Networking and distributed systems lab
City for Scientific Research and Technological applications (CSRTA), Egypt
Supervisors: Mustafa Y. ElNainay, Ph.D, and Ahmed M. AbdelNabi, Ph.D

- Investigating the potential benefits of integrating the software-defined radio (SDR) paradigm with software-defined networks (SDN) for next generations of wireless networks.
- The problem of the SDR integration with the SDN is interpreted in terms of developing an effective SDN control plane design to handle the packet processing as well as signal processing functions of the SDR physical and MAC layers.

Part time Research Assistant Nov. 2012 - Jul. 2013
Wireless sensor networks research group
Egypt-Japan University for Science and Technology (EJUST), Egypt
Supervisors: Ahmed Allam, Ph.D and Maha ElSabrouty, Ph.D

- Formulated the placement problem of the underground sensors in optimal way to save the power consumption of these sensors that have been deployed to automate the irrigation in desert areas where the water resources are limited.
- Developing power consumption model for ZigBee sensor and implementing it using OPNET simulator.

Full time Research Assistant Aug. 2010 - Jul. 2012
Informatics Research Institute (IRI)
City for Scientific Research and Technological applications (CSRTA), Egypt
Supervisors: Mohamed R. M. Rizk, Ph.D, and Ahmed M. AbdelNabi, Ph.D

- Developed an effective Back-off mechanism of WLAN medium access control (MAC) to increase the number of simultaneous Voice over Internet protocols (VoIP).
- Implementing the developed MAC processing model using OPNET network simulator.

Refereed Journal Publications

1. **EmadelDin A. Mazied**, Mustafa ElNainay, Mohammad J. Abdel-Rahman, Scott F. Midkiff, Hesham Rakha, Mohamed Rizk, and Allen MacKenzie, "The Wireless Control Plane: An overview and Directions for Future Research,". To appear in *Elsevier Journal of Networks Computer and Applications*, 2018.
2. Ahmed M. Abdel Nabi, Mohamed R. M. Rizk, Mohamed S. Ibrahim, and **Emad Eldin A. Mazied**, "An Efficient Back-off Mechanism for Simulation Study of VoWLAN Capacity Improvement using OPNET," *International Journal of Electronics Communication and Computer Engineering*, vol. 5, no. 1, pp. 24-29, Jan. 2014.

Refereed Conference Publications

1. Mohammad J. Abdel-Rahman, **EmadelDin A. Mazied**, Allen B. MacKenzie, and Scott F. Midkiff, "Robust Controller Placement and Assignment in Software-defined Cellular Networks," *Proc. of the ICCCN 2017*, Vancouver, Canada, July 31 - August 3, 2017, pp. -.
2. Mohammad J. Abdel-Rahman, **EmadelDin A. Mazied**, Allen B. MacKenzie, Scott F. Midkiff, Mohamed Rizk, and Mustafa ElNainay, "On Stochastic Controller Placement in Software-defined Wireless Networks," *Proc. of the IEEE WCNC 2017*, San Francisco, CA, USA, March 19-22, 2017, pp. 1–6.

Papers in Preparation

1. **EmadelDin A. Mazied**, Mohammad J. Abdel-Rahman, Hesham Rakha, Scott F. Midkiff, Mustafa ElNainay, Mohamed Rizk, and Magdy AbdelAzim, "Software-defined MAC design for Cellular-based vehicle to everything (C-V2X)."

Awards

- Scholarship for Visiting Virginia Tech, USA (JS2990/2014) Aug. 2015 - Aug. 2018
- Best student achievement award from Monoufeya university (Top 5) Dec. 2003

Teaching Experience

Full time Teaching Assistant Oct. 2014 - Jul. 2015
Electrical Engineering department, Engineering college
Sohag University, Egypt

- Technical writing. Instructor: Atef ElNakib, Ph.D
- Computer programming with C++. Instructor: Khairy Elsayed, Ph.D
- Introduction to computer networks. Instructor: Safwat Ramzy, Ph.D
- Principles of artificial intelligence and its applications in wireless networks. Instructor: Ayman Khamis, Ph.D

Part time Teaching Assistant Sept. 2003 - Jul. 2005
Physics and Mathematical Engineering department, Electronic Engineering college
Monoufeya University, Egypt

- Introduction to mathematical engineering. Instructor: Emeil Shakrallah, Ph.D
- Electronics workshop. Instructor: Mohamed ElHalawany, Ph.D
- Advanced calculus. Instructor: Saied ElSerafy, Ph.D

Part time Teaching Assistant Sept. 2003 - Dec. 2005
Electrical Engineering department, Industrial Education college
Helwan University, Egypt

- AutoCAD. Instructor: Mostafa ElToukhy, Ph.D
- Power electronics lab. Instructor: Mohamed M. Ramadan, Ph.D
- Introduction to mathematical modeling using MATLAB. Instructor: Mohamed M. Ramadan, Ph.D

Work Experience

Research Lab Engineer Jun. 2005 - Jul. 2010
Computer graphics and networking lab, Informatics Research Institute (IRI)
City for Scientific Research and Technological applications (CSRTA), Egypt
Supervisors: Bayumi E. Youssef, Ph.D, and Walaa M. Sheta, Ph.D

- Setting up and maintenance of VoIP exchange system.
- Prototyping a VoIP system using GL communication equipments for real time traffic analysis with different communication scenarios.
- Participating in documenting the ancient monuments and heritages by collecting the images using laser scanning techniques. Then, the collected data of images have been processed using image processing tools. Wireless visual sensors have been deployed to subdue the difficulty of survey scanning in wild-life areas.

Part time Research Lab Engineer Aug. 2010 - Jul. 2012
Electronics and Communication Engineering (ECE) Lab, Engineering school
Egypt-Japan University for Science and Technology (EJUST), Egypt
Supervisors: Mohamed Elsharkawy, Ph.D and Moustafa S. ElKhamy, Ph.D

- Responsible for setting up and maintenance of laboratory equipments and educational software.
- Training on mastering network simulators using OPNET.

Skills

- Programming: C++, Python.
- Simulators:
  Computational: Matlab, and Cplex.
  Network: Opnet, and ns3.

Professional Organizations

- Association of Computing Machinery (ACM) student member.