

# Tamer Abdelkader

Assistant Professor at the Department of Information Systems, Faculty of Computer and Information Sciences, Ain Shams University, Email: tammabde@cis.asu.edu.eg

## Education

### **Ph.D. Computer Engineering, University of Waterloo, Canada, August 2012**

Dissertation Title: Design and Performance Analysis of Opportunistic Routing Protocols for Delay Tolerant Networks

### **M.Sc. Computer Engineering, University of Waterloo, Canada, 2008**

Thesis Title: QoS Routing in Wireless Mesh Networks

### **M.Sc. Computer Engineering, Ain Shams University, Egypt, 2003**

Thesis Title: Supporting Information Access in a Mobile Environment

### **B.Sc. Computer Engineering, Ain Shams University, Egypt, 1998**

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## Research

Google scholar: <http://scholar.google.com.eg/citations?user=V4FRuiMAAAAJ&hl=en>

### **Research Interest:**

**Major fields:** Mobile Computing, Mobile Networking, Internet of things, Cloud Computing

**Minor fields:** Routing and Scheduling in Mobile Networks, Selfishness detection and solution in mobile networks, Data Mining and Information Management in Mobile Networks.

### **Research Experience:**

#### **Routing in Delay Tolerant Networks (DTN), Doctoral Study, University of Waterloo, Canada, Jan 2008 – Aug 2012**

In this work, we designed and implemented a DTN simulator using JAVA and MATLAB to test and compare various routing protocols. We formulated and solved the optimal routing mathematically. In addition, we utilized social relations among the network users to develop an efficient heuristic routing protocol. In the simulator, we implemented several data structures such as queues, stacks and hash tables, and we used several sorting algorithms such as bubble sort.

#### **Routing in Wireless Mesh Networks (WMN), Master Study, University of Waterloo, Canada, Jan 2006 – Dec 2008**

In this work, we designed and implemented a WMN simulator using MATLAB to test and compare various routing protocols. We formulated the optimal routing mathematically and used Genetic algorithms to solve the formulation heuristically.

#### **Fuzzy Backoff Interval, University of Waterloo, Canada, June 2008 – May 2009**

In this work, we designed and implemented a backoff protocol using fuzzy logic. We implemented other protocols and compared the proposed protocol with them to prove its outperformance. We used MATLAB and VC++ to build the protocols.

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## Teaching Experience

Course Instructor for several courses including:

**Ain Shams University, Faculty of Computers and Information Sciences (2013-2014):**

Computer Architecture, Computer Peripherals, Assembly language, Parallel Computer Architecture, Advanced Computer architecture and Data Structure.

**Assiut University, Faculty of Computers and Information (Winter 2013):**

Mobile Computing and Information Systems.

**Future Academy (Fall 2013, Winter 2014):**

Logic Design and Network Systems.

**Teaching Assistant and Lab Instructor, University of Waterloo, Jan. 2006 – Aug. 2012**

Courses include Digital Computers, Computer Architecture, MOTOROLA 68k Assembly and Computer Networks.

**Teaching Assistant, Ain shams University, Sept. 1998 – Dec. 2005**

Courses include Electronics, Digital Circuits, Computer Architecture, C++ Programming, Data structure, Data Mining and Computer Networks.

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## Industrial Experience

**Network Consultant, Information & Communication Technology Project (ICTP), Aug 2013-Current:**

ICTP aims at supporting the Egyptian Universities in establishing a robust, standards-based infrastructure, including hardware, software, associated applications, intra-, inter-university connectivity, and global connectivity through the Internet, as well as integrating all aspects of these components into coherent and sustainable structure.

**Network Consultant, Egyptian Electric Utility and consumer Protection Regulatory Agency, Jan 2013-July 2013:**

Information technology Dept.: Redesign and Management of the building network. Securing the communication inside the building and among the different IT units in the electric companies

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## Publications

*Journal papers:*

- 1- **T. Abdelkader**, K. Naik, "A Localized Adaptive Strategy to Calculate the Backoff Interval in Contention-based Vehicular Networks," *IEEE Access*, vol.PP, no.99, pp.1,1, March. 2014.
- 2- **T. Abdelkader**, K. Naik, A. Nayak, N. Goel, V. Srivastava, "SGBR: A Routing Protocol for Delay Tolerant Networks Using Social Grouping," *IEEE Transactions on Parallel and Distributed Systems*, vol.24, no.12, pp.2472-2481, Dec. 2013

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- 3- M. Alsabaan, K. Naik, **T. Abdelkader**, T. Khalifa and A. Nayak, "Economical and Environmentally Friendly Geocast Routing in Vehicular Networks", submitted to the IEEE Systems, 2012.
- 4- **T. Abdelkader**, K. Naik and A. Nayak, N. Goel, V. Srivastava, "Performance Comparison of Routing Protocol in Delay Tolerant Networks," accepted in the IEEE Network, 2012.

## **Conference papers:**

- 5- **T. Abdelkader**, K. Naik, A. Nayak, "Using fuzzy logic to calculate the Backoff Interval contention-based vehicular networks," Wireless Communications and Mobile Computing Conference (IWCMC), 2011 7th International, vol., no., pp.783-788, 4-8 July 2011
- 6 M. Alsabaan, K. Naik, **T. Abdelkader**, T. Khalifa and A. Nayak, "Geocast Routing in Vehicular Networks for Reduction of CO2 Emissions", 1st International Conference on ICT as Key Technology for the Fight against Global Warming (ICT-GLOW'11 ), 2011.
- 7 **T. Abdelkader**, K. Naik, A. Nayak, and N. Goel, "A socially-based routing protocol for delay tolerant networks," in 2010 IEEE Global Telecommunications Conference (GLOBECOM 2010), Miami, Florida, USA, 2010.
- 8 **T. Abdelkader**, K. Naik, and A. Nayak, "An eco-friendly routing protocol for delay tolerant networks," in The 6th IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob 2010), Niagara Falls, Canada, October 2010.
- 9 **T. Abdelkader**, K. Naik, and A. Nayak, "Choosing the objective of optimal routing protocols in delay tolerant networks," in The 6<sup>th</sup> IEEE International Computer Engineering Conference, Cairo, Egypt, December 2010.
- 10 **T. Abdelkader**, K. Naik, A. Nayak and F. Karray (2009) Adaptive Backoff Scheme for Contention-Based Vehicular Networks Using Fuzzy Logic. The IEEE international conference on fuzzy systems, FUZZ-IEEE2009, Aug. 20<sup>th</sup>-24<sup>th</sup>.
- 11 **T. Abdelkader**, K. Naik, and A. Nayak (2008) Optimal Link Scheduling for Multimedia QoS Support in Wireless Mesh Network. IMSAA'08 - 2nd International Conference on Internet Multimedia Services Architecture and Application, Oct. 10<sup>th</sup>, 2008.
- 12 **T. AbdelKader**, A. Abdrabou, and W. Zhuang (2008) QoS routing and link scheduling in wireless mesh backbone. 3rd International Conference on Communications and Networking in China, ChinaCom 2008, pp. 612-617.

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- 13 A. El-Nahas, **T. Mostafa**, and A. Hamad (2002) Memory-based Compensation Model for Wireless Fair Scheduling Protocols. Proceeding of the 14th IASTED International Conference, Parallel and Distributed Computing and Systems (PDCS 2002). 314-319.
- 14 **T. Mostafa**, A. El-Nahas, and S. Ghoniemy (2002) Wireless Fair Scheduling Protocol for Real-time Traffic. Proceeding of the First International Conference on Informatics and Systems (INFOS 2002). ITI-2: 1-8.

## **Books:**

- **T. Abdelkader** (2009). Routing and Scheduling in Wireless Mesh Networks: Introduction, Survey, and New Approaches. Germany: VDM Verlag Dr. Müller, 2009. ISBN:978-3-639-19579-8.

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## **Awards**

Ontario Graduate Scholarship in Science and Technology (OGSST), University of Waterloo, Winter 2011, Fall 2010.

OGSST-E&CE Alumni Award, University of Waterloo, Winter 2011, Fall 2010.

Univ. of Waterloo Research Studentship, University of Waterloo, Winter 2009 - Fall 2010.

Univ. of Waterloo Grad. Scholarship, University of Waterloo, Winter 2009, Fall 2008, Winter 2007.

Grad Talk Award, University of Waterloo, Winter 2011, Spring 2006.

Ontario Research & Development Challenge Fund Bell Award, University of Waterloo, Spring 2006 - Winter 2007.

International Student Award University of Waterloo, Winter 2006 - Winter 2008.

Dale Carnegie Effective Comm. Award, Egypt, 2003.

Future Generation Foundation (FGF) , Egypt, 09/2003-09/2004.

Academic distinction award, faculty of Engineering, Ain Shams University, Egypt, 09/1994 -06/1998.

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## **Certifications**

### **Microsoft Certifications:**

- Microsoft Certified Application Developer for Microsoft.NET
- MCPD: Designing and Implementing Databases with Microsoft SQL Server
- MCPD: Developing XML Web Services and Server Components with Microsoft Visual C#.Net and the Microsoft.NET Framework.
- MCPD: Developing and implementing applications with Microsoft Visual C#.NET and Visual Studio.NET

### **Other Certifications:**

- Berlitz Integrated Business Skills
- Dale Carnegie Effective Communications