

# Tamer Mostafa Abdelkader

Vice Dean for Community Services and Environmental Development Affairs, Faculty of  
Computer and Information Sciences, Ain Shams University  
Associate Professor (since 2018), Information Systems Department  
Tel: +201060466368, Email: tammabde@cis.asu.edu.eg; tammabde@gmail.com

## Education

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

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

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

Thesis Title: QoS Routing in Wireless Mesh Networks

### **M.Sc. Computers & Information Sciences, Ain Shams University, Egypt, 2003**

Thesis Title: Supporting Information Access in a Mobile Environment

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

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## Research

### **Research Interest:**

Wireless and mobile networking, Mobile computing, Internet of Things, Cyber Security, Embedded Systems, Computer Architecture, Routing and Scheduling Protocols, Energy efficient protocols, Machine learning and soft computing.

**My current research focuses on cyber security using machine learning.**

### **Post-Doc Research:**

Visiting Scholar at University of Waterloo, Canada: Aug 2013, Aug 2014, Aug 2015, Aug-Dec 2016, Aug 2017, and Aug 2019

### **Detecting and treating Selfishness in Mobile Networks, Postdoc, University of Waterloo, Canada, Sept 2012-Dec 2012**

In this work, we designed and implemented a MANET simulator using JAVA and MATLAB to study the nodes behavior and the impact of having one or more selfish nodes in the network. We developed a protocol to detect selfish nodes and motivate them to cooperate with other nodes to achieve the network welfare.

### **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**

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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.

## Teaching Experience

Course Instructor for several courses including:

### **Ain Shams University, Faculty of Engineering (Fall 2014-Spring 2020)**

Wireless Networks (CSE 439), Embedded Systems Design (COMM 526), Network operation & management (CSE 338), Real time and Embedded Systems (CSE 345), Introduction to Engineering Computation (CSE 012), Introduction to Embedded Systems (CSE 341), Logic Design (CSE111), Computer Architecture (CSE112/CSE116), High Performance Computing (CSE415)

### **British University in Egypt (BUE), Cairo, Egypt (Spring 2016-Spring 2020)**

ELEC29H: Embedded Systems, COMP03H: Microprocessor design  
COMP10H: Mobile Computing, Elec14I: Computer Architecture

### **Arab Open University, Cairo, Egypt (Spring 2015)**

T215A, T215B: Communication and Information Technologies  
T324: Keeping ahead in ICT, T325: Technologies for digital media

### **Ain Shams University, Faculty of Computers and Information Sciences (2013-2020):**

Mobile Networks, Computer Architecture, Computer Interfacing and Peripherals, x86 Assembly language, Parallel Computer Architecture, Advanced Computer architecture, high performance computing, Geographic information systems.

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

Mobile Computing, and Information Systems.

### **Misr International University (2015-2016):**

Digital Logic design (CSC220), Computer Organization (CSC225)

### **Future Academy (Fall 2013 : Spring 2016):**

Digital Design, and Computer Networks.

### **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 and Administrative Experience

### **Vice-Dean for Community Services and Environmental Development Affairs, Faculty of Computer and Information Sciences, Ain Shams University, Dec 2018-current**

Activities include, but not limited to:

- Proposing and organizing training courses, seminars, workshops that serve either or both the inside or outside community
- Connecting graduates with the faculty staff and undergraduates.
- Proposing, managing the development, and marketing software products for the faculty, the university, and the public and private sectors
- Proposing and advising students projects related to community services and environmental development.
- Managing maintenance and gardening workers

### **Director of the Information Technology Research and Consultancy Center (ITRCC), Ain Shams University, Feb 2017-Dec 2018**

ITRCC aims at providing consultancy and technical services in the development and marketing of software programs and computing hardware to public and private organizations.

### **Network Consultant, Information & Communication Technology Project (ICTP), Supreme Council of Universities, Aug 2013-Aug 2015:**

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, The Ministry of Electricity and Renewable Energy, 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

### **Software Developer, Sakhr Software, June 1998 – Sept. 1998**

Machine Translation Department: Writing and testing functions using C++ to analyze and interpret Arabic text documents.

### **Software Developer, Horizon Interactive, Oct. 1998 – Feb. 2000**

Nasser Project: A documentary project rich with multimedia such as videos and audios about one of the ex-presidents of Egypt. A team of three, including me, was responsible for writing VC++ code to present the information and multimedia resources in a user friendly style.

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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

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## Publications

### Journal papers:

- 1- A. Abdelfattah, **T. Abdelkader**, and S. El-Horbaty, "RAMWS: Reliable approach using middleware and WebSockets in mobile cloud computing," in *Ain Shams Engineering Journal*, vol 11, Issue 4, 2020, pp 1083-1092,
- 2- W. Nazih, WS. Elkilani, H. Dhahri, **T. Abdelkader**, "Survey of Countering DoS/DDoS Attacks on SIP Based VoIP Networks," in *Electronics*, 2020; 9(11):1827. <https://doi.org/10.3390/electronics9111827>
- 3- J. Kar, K. Naik and **T. Abdelkader**, "A Secure and Lightweight Protocol for Message Authentication in Wireless Sensor Networks," in *IEEE Systems Journal*, doi: 10.1109/JSYST.2020.3015424.
- 4- W. Nazih, Y. Hifny, WS. Elkilani, H. Dhahri, **T. Abdelkader**, "Countering DDoS Attacks in SIP Based VoIP Networks Using Recurrent Neural Networks," in *Sensors*, 2020; 20(20):5875. <https://doi.org/10.3390/s20205875>
- 5- J. Kar, K. Naik and **T. Abdelkader**, "An Efficient and Lightweight Deniably Authenticated Encryption Scheme for e-Mail Security," in *IEEE Access*, vol. 7, pp. 184207-184220, 2019.
- 6- W.NAZIH, , Y. Hifny, W. Elkilani, **T. Abdelkader**, and Hossam Faheem, "Efficient Detection of Attacks in SIP Based VoIP Networks Using Linear l1-SVM Classifier", *International Journal of Computers Communications & Control*, [S.I.], v. 14, n. 4, p. 518-529, Aug. 2019. ISSN 1841-9844.
- 7- M. Yousef, **T. Abdelkader**, and K. El-Bahnasy, "Performance comparison of ab initio protein structure prediction methods", *Ain Shams Engineering Journal*, Available online 6 April 2019
- 8- M. Rady, **T. Abdelkader**, and Rasha Ismail, "Integrity and Confidentiality in Cloud Outsourced Data", *Ain Shams Engineering Journal*, Volume 10, Issue 2, June 2019, Pages 275-285
- 9- N. Magdy, **T. Abdelkader**, and K. El-Bahnasy. A comparative study of similarity evaluation methods among trajectories of moving objects, *Egyptian Informatics Journal*, Volume 19, Issue 3, 2018, Pages 165-177, ISSN 1110-8665, <https://doi.org/10.1016/j.eij.2018.03.001>.
- 10- A. Abdelfattah, **T. Abdelkader**, and S. El-Horbaty, Achieving web services reliability in mobile cloud computing, *International Journal of Mobile Network Design and Innovation (IJMNDI)*, Vol. 8, No. 4, 2018

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- 11- A. Abdelfattah, **T. Abdelkader**, and S. El-Horbaty, RSAM: An enhanced architecture for achieving web services reliability in mobile cloud computing, *Journal of King Saud University - Computer and Information Sciences*, ISSN 1319-1578, <https://doi.org/10.1016/j.jksuci.2017.03.002>.
- 12- **T. Abdelkader**, K. Naik, A. Nayak, N. Goel and V. Srivastava, "A performance comparison of delay-tolerant network routing protocols," in *IEEE Network*, vol. 30, no. 2, pp. 46-53, March-April 2016. doi: 10.1109/MNET.2016.7437024
- 13- P. Verma, R. Verma, A. Prakash, A. Agrawal, K. Naik, R. Tripathi, M. Alsabaan, T. Khalifa, **T. Abdelkader**, A. Abogharaf, "Machine-to-Machine (M2M) communications: A survey," *Journal of Network and Computer Applications*, Volume 66, May 2016, Pages 83-105, ISSN 1084-8045, <http://dx.doi.org/10.1016/j.jnca.2016.02.016>.
- 14- **T. Abdelkader** and K. Naik, "A Localized Adaptive Strategy to Calculate the Backoff Interval in Contention-Based Vehicular Networks," in *IEEE Access*, vol. 2, no. , pp. 215-226, 2014. doi: 10.1109/ACCESS.2014.2309856
- 15- **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

## **Selected Conference papers:**

- 1 A. Mostafa, W. Gad, T. Abdelkader and N. Badr, "Predicting the Tweet Location Based on KNN-Sentimental Analysis," 2020 15th International Conference on Computer Engineering and Systems (ICCES), 2020, pp. 1-6, doi: 10.1109/ICCES51560.2020.9334566.
- 2 H. H. Ibrahim, **T. Abdelkader** and R. El Gohary, "Performance Comparison of Multicast Protocols in Mobile Social Networks," 2018 14th International Computer Engineering Conference (ICENCO), Cairo, Egypt, 2018, pp. 73-78, doi: 10.1109/ICENCO.2018.8636132
- 3 M. Rady, **T. Abdelkader** and R. Ismail, "SCIQ-CD: A Secure Scheme to Provide Confidentiality and Integrity of Query results for Cloud Databases," 2018 14th International Computer Engineering Conference (ICENCO), Cairo, Egypt, 2018, pp. 225-230, doi: 10.1109/ICENCO.2018.8636118
- 4 H. H. Ibrahim, **T. Abdelkader** and R. E. Gohary, "Enhancing Recommendations in Mobile Social Network," 2018 13th International Conference on Computer Engineering and Systems (ICCES), Cairo, Egypt, 2018, pp. 581-586. doi: 10.1109/ICCES.2018.8639289
- 5 M. Yousef, **T. Abdelkader** and K. ElBahasy, "A hybrid model to predict proteins tertiary structure," 2017 12th International Conference on Computer Engineering and Systems (ICCES), Cairo, 2017, pp. 85-91. doi: 10.1109/ICCES.2017.8275282

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- 6 N. Magdy, M. A. Sakr, **T. Mostafa** and K. El-Bahnasy, "Review on trajectory similarity measures," 2015 IEEE Seventh International Conference on Intelligent Computing and Information Systems (ICICIS), Cairo, 2015, pp. 613-619, doi: 10.1109/IntelCIS.2015.7397286
- 7 D. AbdelMohsen and **T. Abdelkader**, "Detecting selfish nodes and motivating cooperation in Mobile Ad-hoc Networks," 2015 Tenth International Conference on Computer Engineering & Systems (ICCES), Cairo, 2015, pp. 301-306. doi: 10.1109/ICCES.2015.7393064
- 8 A. S. Abdelfattah, **T. Abdelkader** and E. S. M. El-Horbaty, "Reliable web services approaches of Mobile Cloud Computing: A comparative study," 2015 IEEE Seventh International Conference on Intelligent Computing and Information Systems (ICICIS), Cairo, 2015, pp. 217-223. doi: 10.1109/IntelCIS.2015.7397224
- 9 N. Magdy, M. A. Sakr, **T. Mostafa** and K. El-Bahnasy, "Review on trajectory similarity measures," 2015 IEEE Seventh International Conference on Intelligent Computing and Information Systems (ICICIS), Cairo, 2015, pp. 613-619. doi: 10.1109/IntelCIS.2015.7397286
- 10 **T. Abdelkader**, K. Naik, and W. Gad, "A Game-Theoretic Approach to Supporting Fair Cooperation in Delay Tolerant Networks," in Vehicular Technology Conference (VTC Spring), 2015 IEEE 81st , vol., no., pp.1-7, 11-14 May 2015
- 11 W. Gad and **T. Abdelkader**, "A Fuzzy-based Routing Protocol For Metropolitan-Area Mobile Adhoc Networks," in The 10<sup>th</sup> IEEE International Computer Engineering Conference, Cairo, Egypt, December 2014.
- 12 **T. Abdelkader**, K. Naik, A. Nayak, "Using fuzzy logic to calculate the Backoff Interval for contention-based vehicular networks," Wireless Communications and Mobile Computing Conference (IWCMC), 2011 7th International, vol., no., pp.783-788, 4-8 July 2011
- 13 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.
- 14 **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.
- 15 **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.

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- 16 **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.
- 17 **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>.
- 18 **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.
- 19 **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.

## ***Books and Book chapters:***

- M. Yousef, **T. Abdelkader** and K. ElBahnsy (2020). 'An Efficient Protein Structure Prediction Using Genetic Algorithm', in Salem, A.B. (Ed.) Innovative Smart Healthcare and Bio-Medical Systems. Boca Raton – Florida : CRC Press-Taylor & Francis Group
- A. Abdelfattah, **T. Abdelkader**, and S. El-Horbaty. Reliable Web Service Consumption Through Mobile Cloud Computing. Intechopen, 2018, DOI: 10.5772/intechopen.74461
- **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**

International Publishing Award, Ain Shams University, 2016, 2018, 2019  
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.

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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.

## Web Pages

Google scholar: <http://scholar.google.com.eg/citations?user=V4FRuiMAAAJ&hl=en>

ResearchGate: [https://www.researchgate.net/profile/Tamer\\_Abelkader](https://www.researchgate.net/profile/Tamer_Abelkader)

Linkedin: <https://www.linkedin.com/in/tamer-mostafa-abdelkader-102b8516/>

Faculty of Computer and Information Sciences, at Ainshams website: <http://cis.asu.edu.eg/>