

CURRICULUM VITAE  
**TAREK KHALIFA, PHD**  
Computer Engineering, Antalya International University  
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## PERSONAL

- Languages (written and spoken): English and Arabic

## PROFILE

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Highly talented and skilled with substantial professional academic and industrial experiences; strong record in teaching, research and supervision; excellent knowledge in data communication and computer networking, mathematical modelling, digital design, stochastic processes, optimization, programming, and simulations; confidently able to teach a wide-range of undergrad and grad-level electrical and computer engineering courses; strong communication and interpersonal skills developed through studying and working with multinational companies in widely-varying cultures and atmospheres.

## AREAS OF RESEARCH INTEREST

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- Smart Power Grid Communication and Networking
- Cloud Computing
- Communication Networks
- Intelligent Transportation Systems
- Sensor Networks

## EDUCATION

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**PhD**, University of Waterloo, Electrical and Computer Engineering, Waterloo, Canada *May 2013*  
**M.Sc.**, University of Waterloo, Electrical and Computer Engineering, Waterloo, Canada *Oct 2007*  
**B.Sc.**, Tripoli University, Electrical and Computer Engineering, Tripoli, Libya (ranked 1<sup>st</sup>) *Dec 2000*

## WORK EXPERIENCE

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*Assistant Professor* *Jan 2017-Present*

- *Computer engineering Department, Antalya International University, Turkey*
- *Teaching the following courses*
  - *Microprocessors (CS422): developed the material for lectures and lab.*
  - *Computer Networks (CS461): delivered to undergrad and grad students*
- *Supervision of one master's student*

*Post-doctoral Researcher* *Jan 2014 – Dec 2016*

- *Computer Science and Engineering Department, Qatar University*
- *Conducted research on two projects:*
  - *Enabling Self-Healing for Smart Grids with Renewable Energy Resources*
  - *New Paradigms for Robust Cloud Networking Services*
- *In addition to research, responsibilities included reviewing submitted papers for publications and supervising master's and PhD students.*

*Teaching Assistant* *2006 -2013*

- *Electrical and Computer Engineering, University of Waterloo, Waterloo, Ontario*
- *Delivered tutorials to, and marked exams and assignments for, undergraduate students in a variety of courses:*
  - *Circuits, MTE120 (S2011)*
  - *Introduction to Computer Structures & Real-Time Systems, MTE241 (F2008, F2009)*
  - *Computer Networks and Security, ECE428, ECE358 (S2008, S2012)*
  - *Algorithms and Data Structures, ECE250 (W2011, F2011, W2013)*

- Real-time Operating Systems, ECE354 (F2006, W2009)
- Operating Systems, SE350 (W2010)
- Linear Algebra with Numerical Applications, NE112 (F2010)

#### *Research Assistant*

2008-2013

- Network Programming Lab (reporting to Cistech Limited in Ottawa), University of Waterloo, Canada
- Conducted research and experimental work on several communication and networking projects, including smart grids, intelligent transportation systems, and energy consumption of hand-held devices

#### *IT System Engineer*

2002 – 2004

- Schlumberger Overseas, Middle East region (Libya and Dubai)
- Designed, installed and provided maintenance for the company's large network, including connecting remote sites via VSAT links over VPN, and installing VOIP
- Designed and installed active directory infrastructure for different sites
- Proposed, designed, and deployed backup solution for hundreds of employees' machines and server machines for company's different offices in several countries
- Proposed, designed, and deployed Antivirus centralized solution
- Prepared and delivered training material of three levels: first-level support, on-site support, and users
- Developed web based inventory software using Microsoft Access and Visual Basic.
- Contributed as a team member to many projects such as mail servers, software distribution, and video conferencing

#### *Network Engineer*

1999 –2001

- Libya Telecom and Technology, Tripoli, Libya
- Designed and installed customer equipment cache server under Linux operating system
- Installed DSL and wireless leased lines to customers
- Provided maintenance and expansion of company's network

### **RESEARCH VISITS**

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| • University of Waterloo, Canada            | July - Aug. 2015 |
| • United Arab Emirates University, Emirates | Jan. 2015        |

### **CERTIFICATES**

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- CCNA (Cisco Certified Network Associate)
- MCP Windows2000 Professional
- MCP Windows2000 Server
- MCP Windows Directory Services
- Atempo Certified Professional Diploma (backup and recovery solution)
- Vision64 certificate (distribution software)

### **PROFESSIONAL COURSES ATTENDED**

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- Teaching methods (series of workshops and courses at University of Waterloo), 2012-2013.
- Building Cisco Multi-layer Switched Networks (BCMSN) (Fast lane, Dubai) Mar,2004
- Building Cisco Remote Access Networks (BCRAN) (Fast lane, Dubai) Mar,2004
- Backup software: Time Navigator Design and Administration (Atempo, France) Jan,2004
- Interconnecting Cisco Network Devices (ICND) (Fast lane, Dubai) Oct 2003
- Building Scalable Cisco Internet works (BSCI) (Fast lane, Dubai) Oct 2003
- Software Distribution: Vision64 (Metrix systems, Dubai) Sep,2003
- Windows2000 Network Infrastructure (Informatics group, UK) Aug 2002
- Windows2000 Professional and Server (Informatics group, UK) Aug,2002
- Windows2000 Directory Services (Informatics group, UK) Aug 2002

### **AWARDS**

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- Two-year scholarship award (2005-2007) from Tripoli University to pursue the M.Sc. degree in Canada in recognition of being top student of year 2000

- Three-year scholarship award (2008-2011) from the Ministry of Higher Education of Libya to pursue the Ph.D. degree
- Three times the University of Waterloo Graduate-Scholarship award (2007, 2009, 2011)
- One-year University of Waterloo Graduate Research Studentship (2012-2013)

## SERVICE ACTIVITIES

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- Coordinator for Graduate Research Seminars at University of Waterloo (2008-2010)
- Tutoring Arabic as a second language (2012)
- Leading tours for visitors of Waterloo masjid (Canada, 2012-2013).

## PUBLICATIONS

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### *Journal articles*

- J1. Tarek Khalifa, Atef Abdrabou, Khaled Shaban, and A. M. Gaouda, Multipath TCP for Smart Grid Distribution Systems, under review at IEEE Trans. on Industrial Informatics
- J2. T Khalifa, Khaled Shaban, A Abdrabou, Abdoulmenim Bilh, and K Naik, Modelling and Performance Analysis of TCP Variants for Data Collection in Smart Power Grids, Elsevier Computer Communications, Volume 103, 1 May 2017.
- J3. Abdulaziz M. Ghaleb Tarek Khalifa, Khaled Shaban, and Chadi Assi, Surviving Multiple Failures in Multicast Virtual Networks with Virtual Nodes Migrations, Accepted at IEEE Transaction on Network and Services Management, 2016
- J4. Pawan Kumar Verma, Rajesh Verma, Arun Prakash, Ashish Agrawal, Kshirasagar Naik, Rajeev Tripathi, Tarek Khalifa, Maazen Alsabaan, Tamer Abdelkader, Abdulhakim Abogharaf, Machine-to-Machine (M2M) communications: A survey, Journal of Network and Computer Applications, March 2016
- J5. Sara Ayoubi, Yiheng Chen, Chadi Assi, Tarek Khalifa, and Khaled Shaban, Migration-Aware Post-Failure Restoration for Multicast Services in Data Center Networks, under review at Transactions on Services Computing
- J6. A. Zidan, M. Khairalla, Ahmed Abdrabou, T. Khalifa, K. Shaban, A. Abdrabou, R. El Shatshat and A. Gaouda, Fault Detection, Isolation and Service Restoration in Distribution Systems: State-of-the-art and Future Trends, accepted at IEEE Transactions on Smart Grid, Jan 2016.
- J7. T Khalifa, A Abdrabou, Khaled Shaban, M Alsabaan, and K Naik, "Transport Layer Performance Analysis and Optimization for Smart Metering Infrastructure", Journal of Network and Computer Applications, Vol 46, Nov 2014
- J8. T Khalifa, A Abdrabou, K Naik, M Alsabaan, A Nayak and N Goel, "Split-and Aggregated-transport control protocol (SA-TCP) for Smart Metering Infrastructure", IEEE Transactions on Smart Grid, Vol. 5, No. 1, Jan 2014
- J9. Maazen Alsabaan, K. Naik, Tarek Khalifa, Saad Alaboodi, Performance Study of Economical and Environmentally Friendly Geocast Routing in Vehicular Networks, IEEE Transactions on Vehicular Technology, Sep 2014
- J10. T Khalifa, K Naik and A Nayak, "A survey of communication protocols for automatic meter reading applications", IEEE Communications Surveys & Tutorials, IEEE 13 (2), 168-182, 2011

### *Conferences and book chapters*

- C1. Abdulaziz M. Ghaleb Tarek Khalifa, Khaled Shaban, Enhancing the Performance of Post-Failure Restoration Schemes in Multi-Tenant Networks, Int. Conf. on Network and Service Management (CNSM 2016)
- C2. Ayoubi, S.; YiHeng Chen; Assi, C.; Khalifa, T.; Shaban, K.B., "Multicast Tree Repair and Maintenance in the Cloud," in Cloud Computing (CLOUD), 2015, vol., no., pp.829-835, June 2015
- C3. Abdulaziz M. Ghaleb, Tarek Khalifa, Sara Ayoubi and Khaled Bashir Shaban, Surviving Link Failures in Multicast VN Embedded Applications, IEEE Network Operations and Management Symposium (NOMS 2016)
- C4. M Alsabaan, K Naik, T Khalifa and A Nayak, "Vehicular networks for reduction of fuel consumption and CO<sub>2</sub> emission", IEEE International Conference on Industrial Informatics (INDIN), 2010
- C5. T Khalifa, K Naik, M Alsabaan, A Nayak and N Goel, "Transport protocol for smart grid infrastructure", Ubiquitous and Future Networks (ICUFN), 2010
- C6. M. Alsabaan, K. Naik, T. Khalifa, and A. Nayak, "Applying Vehicular Networks for Reduced Vehicle Fuel Consumption and CO<sub>2</sub> Emissions," invited book chapter in Intelligent Transportation Systems, pp. 1-20, Editor A. Abdel-Rahim, InTech Publisher, 2011 (ISBN 978-953-51-0347-9).
- C7. T Khalifa, K Naik, M Alsabaan and A Nayak, "A transport control protocol suite for smart metering infrastructure", Electronic Devices, Systems and Applications (ICEDSA), 2011
- C8. M Alsabaan, K Naik, T Abdelkader, T Khalifa and A Nayak, "Geocast routing in vehicular networks for reduction of CO<sub>2</sub> emissions", Information and Communication Technology for the Fight against Global Warming, 2011

- C9. M Alsabaan, K Naik, T Khalifa and A Nayak, "Applying Vehicular Networks for Reduced Vehicle Fuel Consumption and CO2 Emissions", Wireless & Mobile Networks (WiMo), 2010
- C10. T Khalifa, A Abdrabou, K Naik, M Alsabaan, A Nayak and N Goel, "Design and analysis of Split-and Aggregated-transport control protocol (SA-TCP) for Smart Metering Infrastructure", IEEE Third International conference on Smart Grid Communications (SmartGridComm), 2012
- C11. M Alsabaan, K Naik, T Khalifa, A Nayak, "Optimization of fuel cost and emissions with vehicular networks at traffic intersections", IEEE Intelligent Transportation Systems (ITSC), 2012

*Theses*

- T1. Tarek Khalifa, Design and Analysis of a Novel Split and Aggregated Transmission Control Protocol for Smart Metering Infrastructure, PhD thesis, University of Waterloo, Canada, 2013
- T2. Tarek Khalifa, Secure Data Aggregation Protocol with Byzantine Robustness for Wireless Sensor Networks, MSc thesis, University of Waterloo, Canada, 2007
- T3. Tarek Khalifa, EPROM Programmer and Emulator Full Kit: Design and HW and SW Implementation, B.Sc., Tripoli University, Libya, 2000.