

DR. ABDUL WAHEED KHAN

Date of Birth: 14th April 1982

Nationality: Pakistan

Email: awk_career@yahoo.co.uk

Contact No: 00923339543021

Google Scholar Profile: https://scholar.google.com/citations?user=o_QbSz4AAAAJ&hl=en&oi=ao



RESEARCH INTERESTS

- Wireless Sensor Networks (WSNs)
- Software Defined Networks (SDNs)
- Internet of Things (IoT)

EDUCATION

June 2012 – Apr 2015 **Doctor of Philosophy (PhD) - Computer Science**

Faculty of Computing, University Technology Malaysia (UTM), Malaysia

- **Thesis:** *“Enhanced Virtual Structure based Data Dissemination for Wireless Sensor Network using Single Mobile Sink”*

This research work deals with data dissemination to a mobile sink in wireless sensor networks. The sink due to its mobility causes a dynamic network's topology which makes the subsequent data dissemination a challenging task for resource constrained sensor nodes. Frequent network-wide advertisements of sink's topological updates compromises network's lifetime whereas infrequent dissemination results in poor data delivery performance due to the use of non-optimal routes. To further optimize trade-off between network's lifetime and data delivery performance, virtual grid based data dissemination schemes are proposed for both event-driven and query-driven scenarios. The proposed schemes incur least network control overheads caused by sink mobility while maintaining nearly optimal data delivery routes. Supported by simulation results in NS-2, the proposed schemes achieve improved performance in terms of energy efficiency, data delivery latency, and packets delivery ratio compared to existing solutions.

Feb 2006-Mar 2008 **MSc Digital Communications Networks (Distinction)**

**Department of Computing, Communications Technology and Mathematics,
London Metropolitan University, London UK**

Modules Covered: Advanced Communications Systems, Broadband Networks, Signal Processing, Real-Time Data Processing, Mobile & Digital Broadcasting

- **Dissertation:** *“Role of Digital Signal Processing (DSP) in Hearing Aids”*

In this work, a variety of speech processing algorithms (fixed-filters, spectral-subtraction techniques and adaptive noise cancellation techniques) were incorporated in Matlab to filter out the speech from background noise and make it available for the hearing impaired. Having filtered out the speech, frequency-selective amplification was carried out to compensate for the frequency-dependent hearing loss of the hearing impaired. Finally, amplitude-compression was incorporated to control overall gain of the amplified speech according to the listening convenience of the hearing impaired.

Jan 2001- May 2005 **Bachelor of Computer Science (Overall GPA 3.7/4.0)**

Department of Computer Science, University of Peshawar, Pakistan.

Modules Covered: Programming Languages (C, C++), Software Engineering, Computer Hardware (A+, Digital Logic & Design, Computer Architecture), 8051 Microcontroller, Data Communication, LAN & WAN Concepts & Technologies, Operating Systems (Linux, Windows), Database Development System, Digital Signal Processing.

- **Dissertation: 'Design and Implementation of Home-Security System using 89c51 Microcontroller'.**

In this work, a security system was developed in 'C' language, having the features such as, trespass detection and consequently calling on a recorded telephone number, smoke detection and alarming, gas leakage detection and room temperature maintenance system.

AWARDS and ACHIEVEMENTS

- Best Postgraduate Student Award at University Technology Malaysia (UTM), Malaysia
- Merit Thesis Award at University Technology Malaysia (UTM), Malaysia
- Excellent Thesis Award at University Technology Malaysia (UTM), Malaysia
- International Doctoral Scholarship (IDF) Award at University Technology Malaysia (UTM), Malaysia
- Master in Science with Distinction at London Metropolitan University, UK
- Maintained Excellent Grade throughout Academic Career

WORK EXPERIENCE

Jan. 2021 – to present

Assistant Professor – Department of IT & CS, Pak-Austria Fachhochschule Institute of Applied Sciences and Technology, Haripur, KPK, Pakistan

Feb. 2020 – Jan. 2021

Associate Professor – Department of Computer Science, FAST School of Computing, National University of Computer and Emerging Sciences, Islamabad, Pakistan

June 2018 – Feb. 2020

Assistant Professor – Department of Computer Software Engineering, National University of Sciences & Technology (NUST), Pakistan

Oct. 2015 – June 2018

Assistant Professor - Faculty of Computing & Information Technology, King Abdul Aziz University, Saudi Arabia

Mar. 2015 – Sept. 2015

Assistant Professor – Faculty of Computer Science, Qurtuba University of Science and Information Technology, Peshawar, Pakistan

Sept. 2010 - June 2012

Lecturer – Faculty of Computing & Information Technology, King Abdul Aziz University, Saudi Arabia

Nov. 2009 - Sept. 2010

Lecturer – College of Computer Sciences & Information Systems, Najran University, Saudi Arabia

Mar. 2009 - June. 2009

Lecturer – Department of Computer Science, Abdul Wali Khan University, Mardan, Pakistan

RESEARCH PUBLICATIONS

- 1) Bilal Rauf, Haider Abbas, Waseem Iqbal, Ahmed Muqem, **Abdul Waheed Khan**. (2020). Enterprise Integration Patterns in SDN: A Reliable, Fault-tolerant Communication Framework. **IEEE Internet of Things Journal**. (Accepted – in press). (**Impact Factor: 9.936**).
- 2) Syed Wasif Abbas Hamdani, **Abdul Waheed Khan**, et al. (2020). Dynamic distributed trust management scheme for the Internet of Things. **Turkish Journal of Electrical Engineering**

and Computer Sciences. DOI: 10.3906/elk-2003-5. (Accepted – in press. <https://journals.tubitak.gov.tr/elektrik/accepted.htm>). (**Impact Factor: 0.68**)

- 3) Anwar Shah, Javed Iqbal Bangash, Abdul Waheed Khan, et al. (2020). Comparative Analysis of Median Filter and its Variants for Removal of Impulse Noise from Gray Scale Images. *Journal of King Saud University-Computer and Information Sciences*. (Impact Factor: 0.433)
- 4) Adil Sheraz, Javed Iqbal Bangash, **Abdul Waheed Khan**, et al. (2019). A Dynamic Swift Association Scheme for Wireless Body Area Networks. *Transactions on Emerging Telecommunications Technologies*. e3724. <https://doi.org/10.1002/ett.3724>. (**Impact Factor: 1.258**)
- 5) **Abdul Waheed Khan**, Javed Iqbal Bangash, Adnan Ahmed, Abdul Hanan Abdullah. (2017). QDVGDD: Query-Driven Virtual Grid based Data Dissemination for Wireless Sensor Networks using Single Mobile Sink. *Wireless Networks*. (**Impact Factor: 2.405**)
- 6) Adnan Ahmed, Kamalrulnizam Abu Bakar, Muhammad Ibrahim Channa, and **Abdul Waheed Khan**. (2016). A Secure Routing Protocol with Trust and Energy Awareness for Wireless Sensor Network. *Mobile Networks and Applications*. Vol. 21. No. 2. pp. 272-285. (**Impact Factor: 2.39**)
- 7) **Abdul Waheed Khan**, Abdul Hanan Abdullah, Muhammad Abdur Razzaque, and Javed Iqbal Bangash. (2015). VGDR: A Virtual Grid based Dynamic Routes Adjustment Scheme for Mobile Sink based Wireless Sensor Networks. *IEEE Sensors Journal*. Vol. 15. No. 1. pp. 526-534. (**Impact Factor: 3.076**)
- 8) **Abdul Waheed Khan**, Abdul Hanan Abdullah, Muhammad Abdur Razzaque, Javed Iqbal Bangash, and Ayman Altameem. (2015). VGDD: A Virtual Grid based Data Dissemination Scheme for Wireless Sensor Networks with Mobile Sink. *International Journal of Distributed Sensor Networks*. Vol. 2015. No. 890348. pp. 1-17. (**Impact Factor: 1.614**)
- 9) Adnan Ahmed, Kamalrulnizam Abu Bakar, Muhammad Ibrahim Channa, **Abdul Waheed Khan**, Khalid Haseeb. (2015). Energy-aware and Secure Routing with Trust for Disaster Response Wireless Sensor Network. *Peer-to-Peer Networking and Applications*. Vol. 10. No. 1. pp. 216-237. (**Impact Factor: 1.51**)
- 10) Javed Iqbal Bangash, **Abdul Waheed Khan**, Abdul Hanan Abdullah. (2015). Data Centric Routing for Intra Wireless Body Sensor Networks. *Journal of Medical Systems*. Vol. 39. No. 9. pp. 1-13. (**Impact Factor: 2.415**)
- 11) Adnan Ahmad, Kamalrulnizam Abu Bakar, Muhammad Ibrahim Channa, Khalid Haseeb, **Abdul Waheed Khan**. (2015). TERP: A Trust and Energy Aware Routing Protocol for Wireless Sensor Networks. *IEEE Sensors Journal*. Vol. PP. No. 99. (**Impact Factor: 3.076**)
- 12) Adnan Ahmed, Kamarulnizam Abu Bakar, Muhammad Ibrahim Channa, Khalid Haseeb, and **Abdul Waheed Khan**. (2015). A Trust Aware Routing Protocol for Energy Constrained Wireless Sensor Network. *Telecommunication Systems*. pp. 1-18. (**Impact Factor: 1.54**)
- 13) **Abdul Waheed Khan**, Abdul Hanan Abdullah, Muhammad Hossein Anisi, and Javed Iqbal Bangash. (2014). A Comprehensive Study of Data Collection Schemes using Mobile Sink in Wireless Sensor Networks. *Sensors*. Vol.14. No. 2. pp. 2510-2548. (**Impact Factor: 3.031**)

- 14) Javed Iqbal Bangash, Abdul Hanan Abdullah, Muhammad Hossein Anisi, and **Abdul Waheed Khan**. (2014). A Survey of Routing Protocols in Wireless Body Sensor Networks. *Sensors*. Vol. 14. No. 1. pp.1322-1357. **(Impact Factor: 3.031)**
- 15) Javed Iqbal Bangash, Abdul Hanan Abdullah, Muhammad Abdur Razzaque, and **Abdul Waheed Khan**. (2014). Reliability-Aware Routing for Intra-Wireless Body Sensor Networks. *International Journal of Distributed Sensor Networks*. Vol. 2014, No. 786537. pp. 1–10. **(Impact Factor: 1.614)**
- 16) Adnan Ahmed, Kamalrulnizam Abu Bakar, Muhammad Ibrahim Channa, Khalid Haseeb, and **Abdul Waheed Khan**. (2014). A Survey on Trust based Detection and Isolation of Malicious Nodes in Ad-Hoc and Sensor Networks. *Frontiers of Computer Science*. pp. 1-17. **(Impact Factor: 1.12)**
- 17) Javed Iqbal Bangash, Abdul Hanan Abdullah, **Abdul Waheed Khan**, Muhammad Abdur Razzaque, and Rohana Yusof. (2014). CDR: Critical Data Routing for Intra Wireless Body Sensor Networks. *TELKOMNIKA Telecommunication Computing Electronics and Control*. Vol. 13. No. 1.
- 18) **Abdul Waheed Khan**, Abdul Hanan Abdullah, and Javed Iqbal Bangash. (2014). Issues towards Efficient Time Synchronization in Wireless Sensor Networks. *TELKOMNIKA Indonesian Journal of Electrical Engineering*. Vol. 12. No. 10. pp. 7509-7522.
- 19) Javed Iqbal Bangash, Abdul Hanan Abdullah, and **Abdul Waheed Khan**. (2014). Issues and Challenges in Localization of Wireless Sensor Networks. *Science International*. Vol. 26. No. 2.
- 20) Sami Muhammad Halawani, Abdul Rahman Al-Talhi, and **Abdul Waheed Khan**. (2013). Speech Enhancement Techniques for Hearing Impaired People – Digital Signal Processing based Approach. *Life Science Journal*. Vol. 10. No. 4. pp. 3467-3476. **(Impact Factor: 0.16)**
- 21) Sami Halawani and **Abdul Waheed Khan**. (2010). Sensors Lifetime Enhancement Techniques in Wireless Sensor Networks – A Survey. *Journal of Computing*. Vol. 2. No. 5. pp. 34-47.

PROFESSIONAL CERTIFICATIONS

- Cisco Certified Network Associate (CCNA)

PROGRAMMING SKILLS

- Programming in C, C++, Java, Matlab, and NS2

LANGUAGES

English, Urdu and Pashto