DR. ABDUL WAHEED KHAN

Date of Birth: 14th April 1982 Nationality: Pakistan Email: waheed.khan@fecid.paf-iast.edu.pk/awk_career@yahoo.co.uk Contact No: 00923339543021 Google Scholar Profile: <u>https://scholar.google.com/citations?user=o_QbSz4AAAAJ&hl=en&oi=ao</u>



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 of Technology Malaysia (UTM), MalaysiaThesis:"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 compromise 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 2008MSc Digital Communications Networks (Distinction)Department of Computing, Communications Technology and Mathematics,
London Metropolitan University, London UKModules 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 2005Bachelor 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

WORK EXPERIENCE

Jan. 2021 – to present
Associate Professor – Department of IT & Computer Science, Pak-Austria Fachhochschule - Institute of Applied Sciences and Technology, Haripur, KPK, Pakistan
(Public-Sector Institute)
Feb. 2020 – Jan. 2021
Associate Professor – Department of Computer Science, FAST School of
Computing, National University of Computer and Emerging Sciences,
Islamabad, Pakistan. (Private-Sector University)
June 2018 – Feb. 2020
Assistant Professor – Department of Computer Software Engineering, National
University of Sciences & Technology (NUST), Pakistan, (Public- Sector
University)
Oct. $2015 - June 2018$
Assistant Professor - Faculty of Computing & Information Technology, King
Abdul Aziz University , Saudi Arabia, (Public-Sector University)
Mar $2015 - \text{Sent} 2015$
Assistant Professor – Faculty of Computer Science Ourtuba University of
Science and Information Technology Peshawar Pakistan (Private-Sector
University)
Sept 2010 June 2012
Lecturer Ecoulty of Computing & Information Technology King Abdul Agia
Lecturer – Faculty of Computing & Information Technology, King Addul Aziz
University, Saudi Aradia. (Public-Sector University)
Nov. 2009 - Sept. 2010
Lecturer – College of Computer Sciences & Information Systems, Najran
University, Saudi Arabia. (Public-Sector University)
ADMINISTRATION AND CURRICULUM DEVELOPMENT EXPERIENCE
□ Coordinator of Outcome based Education (OBE) Committee at Department of Information
Technology and Computer Science, Pak-Austria Fachhochschule: Institute of Applied Sciences

- and Technology, Haripur, Pakistan
 Head of Continuous Quality Improvement (CQI) Committee at Department of Computer Software Engineering, NUST, Islamabad, Pakistan
- □ **Member** of **ABET** Accreditation Committee at Faculty of Computing and Information Technology, King Abdulaziz University, Saudi Arabia

- □ **Member** of Curriculum Development Committee at Faculty of Computing and Information Technology, King Abdulaziz University, Saudi Arabia
- □ **Member** of Disciplinary Committee at FAST School of Computing, NUCES, Islamabad, Pakistan

MSc SUPERVISION

- Successfully supervised 06 students in their MS thesis covering diverse computing areas including: ARP Broadcasts Mitigation using SDN, DDoS Detection and Mitigation using SDN, Trust Management and Clustering in WSN/VANETs
- Currently co-supervising two MS students on topics: Trust Management in IoT and False Traffic Identification in SDN

RESEARCH PUBLICATIONS

- Yawar Abbas Bangash, Waseem Iqbal, Saddaf Rubab, Abdul Waheed Khan, and Waqas Aman. (2023). BSLPSDN: Base Station Location Privacy via Software Defined Networking (SDN) in Wireless Sensor Networks. International Journal of Communication Systems. (Impact Factor: 2.1) (In Press)
- Javed Iqbal Bangash, Abdul Waheed Khan, Asfandyar Khan, Atif Khan, M. Irfan Uddin, and Qiaozhi Hua. (2021). Multiconstraint-Aware Routing Mechanism for Wireless Body Sensor Networks. Journal of Healthcare Engineering. (Impact Factor: 3.822).
- 3) Syed Wasif Abbas Hamdani, Haider Abbas, Abdul Rehman Janjua, Waleed Bin Shahid, Muhammad Faisal Amjad, Jahanzaib Malik, Malik Hamza Murtaza, Mohammed Atiquzzaman, and Abdul Waheed Khan. (2021). Cybersecurity Standards in the Context of Operating System: Practical Aspects, Analysis, and Comparisons. ACM Computing Surveys. (Impact Factor: 14.32)
- Bilal Rauf, Haider Abbas, Waseem Iqbal, Ahmed Muqeem, Abdul Waheed Khan. (2020). Enterprise Integration Patterns in SDN: A Reliable, Fault-tolerant Communication Framework. IEEE Internet of Things Journal. (Impact Factor: 10.238).
- 5) 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. (Impact Factor: 0.806)
- 6) Anwar Shah, Javed Iqbal Bangash, Abdul Waheed Khan, et al. (2021). Comparative Analysis of Median Filter and its Variants for Removal of Impulse Noise from Gray Scale Images. *Journal of KingSaud University-Computer and Information Sciences*. (Impact Factor: 8.839)
- 7) Tahira Khalil, Javed Iqbal Bangash, Abdul Waheed Khan, Saima Anwar Lashari, Abdullah Khan, Dzati Athiar Ramli. (2021) Detection of Violence in Cartoon Videos Using Visual Features. Procedia Computer Science. (Impact Factor: 0.883)
- 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. <u>https://doi.org/10.1002/ett.3724</u>. (Impact Factor: 3.310)
- 9) 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: 2.701)
- 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: 3.077)
- 11) **Abdul Waheed Khan**, Abdul Hanan Abdullah, Muhammad Abdur Razzaque, and Javed Iqbal Bangash. (2015). VGDRA: 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: 4.325)

- 12) 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: 1.938)
- 13) 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: 3.488)
- 14) 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: 4.920)
- 15) Adnan Ahmad, Kamalrulnizam Abu Bakar, Muhammad Ibrahim Channa, Khalid Haseeb, Abdul Waheed Khan. (2015). TERP: A Trust and Energy Aware Routing Protocol forWireless Sensor Networks. *IEEE Sensors Journal*. Vol. PP. No. 99. (Impact Factor: 4.325)
- 16) 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: 2.336)
- 17) 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: 3.847)
- 18) 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: 3.847)
- 19) 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: 1.938)
- 20) 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: 2.669)
- 21) 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. (Scopus Indexed)
- 22) 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.

- 23) 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.
- 24) 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)
- 25) 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.

EDITORIAL SERVICES

- Regular Reviewer of various internationally reputed journals including Wireless Networks, Ad Hoc Networks, IEEE Sensors Journal, Computer Networks, Computer Communications, Journal of Information Security and Application, Sensors (MDPI), International Journal of Distributed Sensor Networks, Journal of King Saud University - Computer and Information Sciences, Pervasive and Mobile Computing, Transactions on Emerging Telecommunications Technologies, etc.
- □ Member of Technical Program Committee ICTAPP-23, ComTech 2021 and ComTech 2019.

FUNDED RESEARCH PROJECTS

- □ Co-PI (07 million SAR): Applying Speech Enhancement Techniques in Modern Hearing Aids, sponsored by Deanship of Scientific Research, King Abdulaziz University, KSA (completed)
- □ Co-PI (10 million PKR): IoT Based Indoor Monitoring System to Reduce the Effects of Passive Smoking, funded by NRPU, Higher Education Commission of Pakistan (in progress)

PROFESSIONAL CERTIFICATIONS

- □ Cisco Certified Network Associate (CCNA)
- □ Learning to Teach Online (The University of New South Wales)

PROGRAMMING SKILLS

□ Programming in C, C++, Java, Matlab, Python and NS2

LANGUAGES

English, Urdu and Pashto