SAHIBZADA ALI MAHMUD

(PhD, MIEEE, MISOC, MPEC, MWTC)
Date of Birth: 7-4-1980
No: 82, Street 4, Phase 2, Sector J-4,
Hayatabad, Peshawar.
Phone: 0323-955 6561
Email: sahibzada.mahmud@nwfpuet.edu.pk
ali.mahmud@hotmail.co.uk
Linkedin: http://www.linkedin.com/pub/dr-sahibzada-ali-mahmud/20/2b6/501

EDUCATION

- ❖ PhD in Wireless Networks and Communications, Brunel University, UK, 2010.
- ❖ B.Sc Electrical and Electronics engineering, University of Engineering and Technology Peshawar, Pakistan, 2003 (With Honours).

PROJECTS

- **EU PROJECTS**

❖ MAGNET BEYOND (IST-FP6-IP-027396) - Completed

- Funded by the European Commission with total funding of **16 million €**
- Worked as an activity leader in a Work Package to develop a framework to enable and enhance the interactions between Independent Piconet Clusters for High Data Rate Wireless Personal Area Networks based on IEEE 802.15.3
- Regularly report to the Task Leader and Work Package leader to exchange the progress reports and finalize the appropriate Internal Reports and Deliverables
- Present and discuss the quarterly progress and direction of research in regular Teleconferences, General Assembly Meetings and Cross Work Package Meetings

❖ CONTRIBUTION TO PROPOSALS FOR EU COMMISSION

- BeyOnd warning strategies: predictiVE waRning based on the intelligent deployment of V2I and V2V communication using hybrid sWARm intelligeNce and optimization algorithm (OVER-WARN) submitted to ICT Call 10 of the FP7 Framework (2013)
- Mobile Platform for Europe (MOPE) submitted to IP (2007)
- Towards Zero Accident Infrastructure (2-ZAIRE) submitted to IP (2007)
- Mesh topology and Optical Switching for highly efficient Wireless Networks (MONET) submitted to STREP (2009)
- Robust High-performance and Fast-deployable Communication Network Exploiting Optical and Radio Technologies (RHINO) submitted to STREP (2009)

- **OTHER PROJECTS**

❖ A SECURE AND INTELLIGENT TRANSPORTATION SYSTEM USING WIRELESS SENSORS FOR CONGESTION CONTROL (PRINCIPAL INVESTIGATOR)- IN PROGRESS

- Project approved with a budget of **11.7 Million Rs (130,000 $)** by ICT R & D Fund, Ministry of IT, Pakistan
- Investigate, develop and implement the most appropriate queuing theory algorithms to prioritize queues (traffic lanes) based on the gathered real time traffic data and alleviate congestion by autonomously controlling the traffic signals through an installed Decision/Control unit.
- Develop a feasible criteria to prioritize traffic lanes as well as certain vehicles e.g. ambulances, law enforcement vehicles in pursuit etc.

- Research a feasible multi-radio/multi-channel communication technique to allow multiple RFID readers to report to a central control/decision making unit that embeds the queuing theory algorithm for real time-on the spot decision making.
- Develop a cooperative communication algorithm i.e. network topology and dissemination algorithm that monitors the collective decision making by multiple Decision/Control units in a certain area to optimize congestion control.
- Compare the existing and most relevant solutions using a suitable simulation tool to develop appropriate benchmarking tests for the proposed solution.
- Test and implement the developed queuing theory algorithm, multichannel assignment algorithm, and the network topology formation and dissemination algorithm in the locally designed wireless modules.

❖ DESIGN AND IMPLEMENTATION OF A PROTOTYPE FOR A SECURE BILLING FRAMEWORK WITH REAL TIME DETECTION OF MALICIOUS END NODE CONNECTIONS USING WIRELESS SENSOR NETWORKS TO CURB ELECTRICITY THEFT (CO- PRINCIPAL INVESTIGATOR)- IN PROGRESS

- Project initiated in collaboration with Peshawar Electric Power Company (PEPCO) and Funded by the ICT R & D Fund, Ministry of IT, Pakistan for an amount of **13.8 Million Rs (152,000 $)** to reduce/eliminate electricity theft that accounts for a loss of an approximate 40 Billion Rs annually.
- Deployment of wireless sensor modules interfaced with compact current transformers to measure and compare readings at different locations for detection of any instances of meter bypassing is currently underway
- Obtain a low cost optimal design for meter reading and wireless transmission using Computational Intelligence techniques.
- Explore high processing capabilities of 32 bit Microcontrollers for processing of large chunks of data at the Access/Subscriber Modules (distribution point).
- Develop effective information dissemination algorithms to communicate the data efficiently and reliably between different modules
- Explore the possibility of achieving suitable data rates using the existing transmission lines keeping in view a higher value of line losses i.e. explore the feasibility of power line communication using the existing infrastructure.

❖ MICROSCOPIC AND MESOSCOPIC ANALYSIS OF TRAFFIC PATTERNS IN PAKISTAN (PRINCIPAL INVESTIGATOR)

- Funded by the Directorate of Science and Technology, Khyber Pukhtoonkhwa.
- Overlaid the map of Khyber Pukhtoonkhwa as a test case in a Hybrid Traffic Simulator i.e. AIMSUN to analyse the effects of various traffic patterns and the resultant congestion.
- Implemented various scheduling algorithms to check the effect on traffic congestion at various traffic intersections.
- Used Inductive loops at traffic intersections to count the number of vehicles passing through to generate actual statistics.

❖ AUTONOMOUS SITUATION BASED ALERTS USING WIRELESS SENSOR NETWORKS (PRINCIPAL INVESTIGATOR) - Completed

- Funded by Directorate of Science and Technology, Khyber Pukhtoonkhwa (DOST)
- Managed and worked in the project as the Principle Investigator (PI)

- Implemented and evaluated routing and information dissemination algorithms in wireless sensor networks using ATMEL and Jennic Zigbee sensors
- Investigated the autonomous acquisition of incident management and transportation traffic related data

❖ POPULATION PROFILING, VERIFICATION AND RESPONSE (UNHCR/EBDM) - Completed

- Worked in the capacity of a Technology Solutions Consultant to develop specifications for Database Design to accommodate the survey and a subsequent census of approximately 3 Million Afghan Refugees in Pakistan
- Provided details for the appropriate equipment selection procedures, equipment benchmarking tests and comparison methodologies
- Suggested and acquired software tools to provide secure Authentication, Authorization and Access to the Database as well as protect it from any foreseen security threats
- Developed a framework and suggested the required SOPs to efficiently synchronize and update gathered data in the field by field enumerators with their supervisors and evaluators

RESEARCH INTERESTS

Data Centre Architectures, Wireless Mesh Networks, Wireless Personal Area Networks (WPANs), Wireless Sensor Networks, Mobile Ad-Hoc Networks (MANETs), Routing, Network Traffic Estimation, Linear and Non Linear Optimization Algorithms, Operational Research (OR), Smart Grids, Machine 2 Machine Communications, Femtocells, Intelligent Transportation Systems.

PROFESSIONAL ACTIVITIES

- Guest Editor for Special Issue on "Communication Networks, Protocols and Smart Algorithms for Smart Grids" for the Transactions on Emerging Telecommunication Technologies journal (Impact Factor: 0.448) October 2012
- External Evaluator for National ICT R & D Fund, Ministry of IT, Pakistan
- HEC Approved Supervisor
- Reviewer for IET Networks Journal, 2012 - Present
- Reviewer for IET Communications Journal, 2007-Present
- Reviewer for IEEE Communication Letters, 2007-Present
- Reviewer for Journal of Communications (John Wiley), 2009-Present
- Reviewer for Journal of Engineering and Applied Sciences (JEAS), 2013- Present
- Reviewer for Sindh University Research Journal (Science Series), 2013 - Present

Technical Programme Committee (TPC) member for the following major IEEE Communication Society (IEEE ComSoc) Conferences:

- Session Chair at 14th IEEE International Conference on High Performance Computing and Communications (IEEE HPCC)
- IEEE Global Communication Conference 2013 (IEEE Globecom 2013)
- IEEE Symposium on Wireless Technology & Applications (ISWTA 2013)
- IEEE Personal, Indoor and Mobile Communications Symposium (IEEE PIMRC), 2008, 2012, and 2013
- IEEE International Conference on Communications (IEEE ICC), 2009
- IEEE Wireless Communications and Networking Conference (IEEE WCNC), 2010, 2011, 2012 and 2013
- IEEE International Conference on Communications (IEEE ICC), 2010
- ICFCN'12 (The first International Conference on Communication Networks), 2012
- First IEEE International Conference on Communications in China (IEEE ICCC), 2012
- 4th International Conference on Intelligent and Advanced Systems (ICIAS), 2012
- 2012 IEEE Symposium on Wireless Technology & Applications (ISWTA 2012)
- 2012 IEEE Symposium on Industrial Electronics & Applications (ISIEA 2012)

Technical Reviewer for:

- International Conference on Computer Networks and Information Technology, ICCNIT 2011

PROFESSIONAL ASSOCIATIONS

- Member IEEE
- Member IEEE Communications Society
- Member IEEE Vehicular Technology Society
- Member Internet Society (ISOC)
- Member IEEE Communication Society Wireless Communications Technical Committee (WTC)
- Member IEEE Communication Society Ad Hoc and Sensor Networks Technical Committee (AHSNTC)
- Member IEEE Communication Society Power Line Communications Technical Committee (PLC-TC)
- Member IEEE Communication Society Sub Technical Committee on Vehicular Networks and Telematics Applications (sub TC-VNTA)

PUBLICATIONS

Journal Publications:

1. Faheem, S. A. Mahmud, G.M Khan, M. Rahman, and H. Zafar, "A Survey of Intelligent Car Parking System", *Accepted at Journal of Applied Research and Technology*

2. S. A. Mahmud, G.M Khan, H. Zafar, K. Ahmad, and N. Behttani, "A Survey on Femtocells: Benefits, Deployment Models and Proposed Solutions", *Accepted at Journal of Applied Research and Technology*

3. Khattak, A. R.; Mahmud, S.A.; Khan, G.M.;,"The Power to Deliver: Trends in Smart Grid Solutions," *Power and Energy Magazine, IEEE* , vol.10, no.4, pp.56-64, July 2012. **Impact Factor: 2.408**

4. Mahmud, S.A, Khan, S., Al-Raweshidy, H.S, "A Resource Allocation Strategy for Meshed High Data Rate WPANs," *Communication Letters, IEEE,* vol. 14, Issue: 6, pp.524-526, 2010. **Impact Factor: 1.059**

5. Mahmud, S.A, Khan, S., Al-Raweshidy, H.S, "Centralized Resource Allocation Policies for Meshed High Data Rate WPANs*," IET Communications, 24 September 2010, Volume 4, Issue 14, p.1651–1664.* **Impact Factor: 0.963**

6. S. Mahmud, S. Khan, H. Al-Raweshidy, and K. Sivarajah, "Meshed high data rate personal area networks," *Communications Surveys & Tutorials, IEEE*, vol. 10, no. 1, pp. 58-69, 2008. **Impact Factor: 3.692**

7. S. Khan, S.A. Mahmud, K.K. Loo, H.S. Al-Raweshidy, A cross layer rate adaptation solution for IEEE 802.11 networks, *Elsevier Computer Communications,* Vol. 31, Issue 8, Special Issue: Modelling, Testbeds, and Applications in Wireless Mesh Networks, 25 May 2008, Pages 1638-1652, ISSN 0140-3664. **Impact Factor: 0.815**

Conference Proceedings:

1. Latifullah Khan, S. A. Mahmud, Z Sabir, G. M. Khan, "Comparison of Three Interpolation Techniques In Comb-Type Pilot-Assisted Channel Coded OFDM System" Accepted for publication at the 27th IEEE International Conference on Advanced Information Networking and Applications (IEEE AINA 2013) at Barcelona Spain from 25th – 28th March 2013

2. Nagina Zarin, Sahibzada Ali Mahmud, and Imran Khan, "Relay Based Spectrum Sensing in Cognitive Radio Networks over Rayleigh Fading Channels with Path Loss Effects" Accepted for publication at the 15th IEEE International Multi-topic Conference 2012 (IEEE INMIC 2012) at Islamabad, Pakistan from 13th-15th December, 2012

3. Muhammad Adeel, Aamir Latif, Muhammad Muaz and Sahibzada Ali Mahmud, "Energy Gain Enhancement by ECC Coded Data in Wireless Sensor Networks" *10th International Conference on Frontiers of Information Technology 2012 (IEEE FIT 2012)* , pp. 13-17, 17th-19th December, 2012

4. Muhammad Adeel, Aamir Latif, Muhammad Muaz and Sahibzada Ali Mahmud, "Sensitivity Level Enhancement in Vehicular DGPS Receivers to Provide Exact Location Tracking On Sub-Lane of A Highway" *10th International Conference on Frontiers of Information Technology 2012 (IEEE FIT 2012)*, pp. 292-297, 17th-19th December, 2012

5. M. Muaz, Abdur Rehman, M. A. Shah, M. U. Khan, M. Adeel, G. M. Khan, S. A. Mahmud, "Power Efficient Dynamic Topology In 3G Cellular Networks" *IEEE International Conference on ICT Convergence (IEEE ICTC 2012)*, pp.205-210, 15-17th October, 2012 at Jeju Island, Korea

6. Z. Shafiq, S. A. Mahmud, G. M. Khan, A Sayyed, H. S. Al-Raweshidy, "Zone Routing Protocol: How does it Perform the Other way Round?" *IEEE International Conference on ICT Convergence (IEEE ICTC 2012)*, pp.71-77, 15-17th October, 2012 at Jeju Island, Korea

7. M. Adeel, S. A. Mahmud, G.M. Khan, "Condition of Constant Frequency of RICIAN Channel Variation Achieved During Inter-Vehicular Communication" *75th IEEE Vehicular Technology Conference 2012 (IEEE VTC 2012 Fall)*, pp.1-5, 3-6th September, 2012 at Quebec City, Canada

8. M. Adeel, S. A. Mahmud, G.M. Khan, "Adjacent Vehicle Collision Avoidance Protocol in Mitigating the Probability of Adjacent Vehicle Collision" *75th IEEE Vehicular Technology Conference 2012 (IEEE VTC 2012 Fall)*, pp.1-5, 3-6th September, 2012 at Quebec City, Canada

9. FahadULLAH, Khan, G.M, Mahmud, S.A.; "Intelligent Bandwidth Management Using Fast Learning Neural Networks" *Third International Workshop on Wireless Networks and Multimedia (WNM-2012) held in conjunction with the 14th IEEE International Conference on High Performance Computing and Communications (HPCC-2012)*, pp.867-872, June, 2012.

10. J. Iqbal, S. A. Mahmud, FahadULLAH, G. M. Khan, "Deployment of Femtocells in Pakistan: A Consumer's Perspective" *Third International Conference on Access Networks (ACCESS 2012),* pp.41-46, June 2012

11. M. Ahmad, G.M. Khan, S. A. Mahmud, J. F. Miller, "Breast Cancer Detection Using Cartesian Genetic Programming evolved Artificial Neural Network" *Proceedings of the fourteenth international conference on Genetic and evolutionary computation conference (GECCO 2012)*, pp.1031-1038, July 2012

12. FahadULLAH, Khan, G.M, Mahmud, S.A.; "Exploiting Developmental Plasticity in Cartesian Genetic Programming" *Computers & Informatics (ISCI), 2012 IEEE Symposium on*, pp.180-184, March 2012.

13. Mahmud, S.A.; Khan, S.; Zafar, H.; Al-Raweshidy, H,S., "Traffic Estimation for Centralized Resource Allocation in Meshed High Data Rate WPANs" *Wireless Telecommunication Symposium (WTS), 2012 IEEE*, vol., no., pp.1-5, 18-20th April 2012 at London, UK

14. Abdul Salam, S.; Mahmud, S.A.; Khan, G.M.; Al-Raweshidy, H. S.;, "M2M communication in Smart Grids: Implementation scenarios and performance analysis," *Wireless Communications and Networking Conference Workshops (WCNCW), 2012 IEEE* , vol., no., pp.142-147, 1-4th April 2012

15. Mohammad Haseeb Zafar, Sahibzada Ali Mahmud, David A Harle, Ivan Andonovic, "QoS-Aware Routing Based on Capacity Estimation for Mobile Ad Hoc Networks" *Wireless Advanced (WiAd), 2011*, 20-22 June 2011

16. Khan, S.; Mahmud, S.A.; Al-Raweshidy, H.S., "Rate-adaptation for multi-rate IEEE 802.11 WLANs using mutual feedback between transmitter and receiver*," Personal Indoor and Mobile Radio Communications (PIMRC), 2010 IEEE 21st International Symposium on,* pp.1372-1377, 26-30 September 2010

17. Shah, I.A.; Jan, S.; Mahmud, S.A.; Al-Raweshidy, H.S., "Optimal Path Discovery with Mobility Management in Heterogeneous Mesh Networks," *Future Computer and Communication, 2009 International Conference on* , vol., no., pp.57-61, 3-5 April 2009

18. Mahmud, S.A.; Khan, S.; Qiang Ni; Al-Raweshidy, H.S., "Capacity Issues in Meshed High Data Rate WPANs," *Advanced Information Networking and Applications - Workshops, 2008. AINAW 2008. 22nd International Conference on*, vol., no., pp.1285-1290, 25-28 March 2008

19. Khan, S.; Mahmud, S.A.; Al-Raweshidy, H.S., "A Rate-Adaptive MAC for IEEE 802.11 Networks," *Communication Networks and Services Research Conference, 2008. CNSR 2008. 6th Annual ,* vol., no., pp.463-469, 5-8 May 2008

20. Mahmud, S.A.; Khan, S.; Al-Raweshidy, H.S., "Capacity Analysis of High Data Rate Wireless Personal Area Networks," *Communication Networks and Services Research Conference, 2008. CNSR 2008. 6th Annual ,* vol., no., pp.125-131, 5-8 May 2008

21. Khan, S.; Mahmud, S.A.; Al-Raweshidy, H.S., "A Cross-Layer Solution for Dynamic Selection of Data-Rate in WLAN using Traffic Differentiation," *Mobile and Wireless Communications Summit, 2007. 16th IST* , vol., no., pp.1-5, 1-5 July 2007

22. Mahmud, S.A, Khan, S., Al-Raweshidy, H.S, "Analyzing Capacity of High Data Rate WPANs Using different Physical Layer Specifications," *ICT-Mobile Summit 2008 Conference Proceedings, 2008.* ISBN: 978-1-905824-08-3

23. Khan, S., Mahmud, S.A, Al-Raweshidy, H.S, "Rate Adaptation for Multi-Rate Wireless Stations: A Cognitive Approach," *ICT-Mobile Summit 2008 Conference Proceedings, 2008.* ISBN: 978-1-905824-08-3

24. Khan, Shahbaz; Khan, Shoaib; Ali Mahmud, Sahibzada; Al-Raweshidy, Hamed, "Supplementary Interworking Architecture for Hybrid Data Networks (UMTS-WiMAX)," *Computing in the Global Information Technology, 2006. ICCGI '06. International Multi-Conference on ,* vol., no., pp.57-57, Aug. 2006

25. Javaid, U.; Meddour, D.-E.; Mahmud, S.A.; Ahmed, T., "Hybrid Wireless Networks - Towards an Efficient Gateway Discovery Scheme," *Global Information Infrastructure Symposium, 2007. GIIS 2007. First International ,* vol., no., pp.46-51, 2-6 July 2007

26. S. A. Mahmud, S. Khan, S. Khan, and H. Al-Raweshidy, "A comparison of manets and wmns: commercial feasibility of community wireless networks and manets," in *Proceedings of the 1st International Conference on Access Networks (AcessNets '06).* New York, NY, USA: ACM, 2006.

27. Shoaib Khan, Sahibzada Ali Mahmud, Shahbaz Khan, Wenbing Yeo, Franjo Cecelja; Generalized Architecture for Converged Heterogeneous Networks, *Wireless World Research Forum - proceedings, The 16th WWRF Meeting*, 26 – 28 April 2006, Shanghai, China

White Papers:

1. S. A. Mahmud et al. "Optical Fibre Technologies and Radio over Fibre Strategic Research for Future Networks", *emobility technology platform, Expert Working Group 4 (EWG-4),* Feb 2010.
Available at http://ist-emobility.org/SRA/Documents/WP-RoF_Feb2010_final.pdf
2. S. A. Mahmud et al. "Cognitive Radio Systems", *emobility technology platform, Expert Working Group 7 (EWG-7),* Nov 2009.
Avaiable at http://www.emobility.eu.org/research_agenda.html

Books and Book Chapters:

1. Haseeb Zafar, Ivan Andonovic, Inayatullah Babar and Sahibzada Ali Mahmud, "Single path and Multipath Routing in Mobile Ad-Hoc Networks", Institution of Engineering and Technology (IET) (In Press)
2. Khan, S. and Mahmud, S.A, "Cross Layer Optimization Techniques for Wireless Networks: Rate-adaptation schemes and routing protocols for IEEE 802.11 based multi-hop, multi-rate MANETs", LAP LAMBERT Academic Publishing, Aug. 2011 (**ISBN-13:** 978-3845432298)
3. Mahmud, S.A and Khan, S, "Process Modelling and Simulation using OPNET Modeller", Springer US (In Progress)

Invited Talks

- Invited lecture on "Communication in Smart Grids" delivered at Brunel University London on 29th of June, 2012 to Wireless Networks and Communication Centre.
- Keynote speech on "M2M Communications: Standardization and Applications" at Symposium on Emerging Technologies in Information Technology 2012 (ETIT 2012) organized by Computer Science Department, University of Peshawar at the Bara Gali Summer Campus from 26-28th of August, 2012.

Conferences/ Workshops/ Seminars Attended by Invitation:

- 10th International Conference on Frontiers of Information Technology (FIT), 17th-19th Dec, 2012
  Invited to attend the Discussion Panel on Smart Grids
- Workshop on the "I Dare Business Plan Competition" at SEECS, NUST, 20th Jan, 2012 by MIT Enterprise Forum of Pakistan
- Workshop on "Pakistan Integrated Energy Model" at Planning Commission Islamabad", 24th Jan, 2012

- Workshop on "Research Funding Opportunities and Project Proposal Write-Up", 16th Feb, 2012 by Board of Advanced Studies and Research, UET Peshawar
  Invited as a Guest Speaker to present the experiences of a personal success story
- iEnergy Symposium (International Multi-topic Symposium on Energy)
  Invited as a Guest by CECOS University Peshawar on 6th October, 2012

WORK EXPERIENCE

❖ University of Engineering and Technology, Peshawar (Assistant Professor) (Jan 2010 - Present)

Academic Duties Performed:

- Established the Centre for Intelligent Systems and Networks Research (CISNR), the first research centre at UET Peshawar
- Evaluation of Post Graduate Project Proposals (ICT Islamabad, Feb 2010, June 2011, December 2012)
- Member of Post Graduate Research Evaluation Committee at Electrical Department, UET Peshawar (PREC)
- Member of Research Evaluation Committee (REC) for two PhD students

Subjects Taught:

- Wireless Communications (Undergraduate)
- Mobile Networks (Undergraduate)
- Computer Programming (Undergraduate)
- Modelling and Simulation of Communication Networks (Graduate)
- Probability, Random Variables and Stochastic Processes (Graduate)
- Computer Networks (Graduate)
- Wireless Communications (Graduate)
- Research Methodology (Graduate)

Administrative Duties:

- Project Director of Centre for Intelligent Systems and Networks Research (CISNR)
- Incharge Computer Labs (Electrical Department) March 2010 - Present

❖ NESCOM (Jan 2004 – Oct 2005)

- Lead a team of technicians as a Quality Assurance Engineer
- Testing of different Electronic Assemblies (PCBs) and Components (Active and Passive) according to industrial and military specifications
- Development of SOPs for HASS tests using Environment Chambers
- Develop and Purchase Equipment to setup an Electronics Screening Lab to carry out various quality assurance and screening tests
- Programming and Configuration of DSP Processor Boards

❖ PAKNET (Trainee) (Jul 2001 – Aug 2001)

- Introduction to basics of system administration of Solaris 2.6 on SPARC platform
- Network Management and Troubleshooting
- Operating and Managing RADIUS (Remote Authentication Dial In User Interface)

❖ Exotech (Systems Engineer) (1998-2000)

- Plan, design and implement IT solutions for the clients
- Supervise and inspect installation, modification and testing of computers and related equipment
- Implemented a Windows 2000 Network at 2 reputable NGO's, AFGHAN AID and CARE INTERNATIONAL
- Installation and Configuration of Microsoft ISA Server and Microsoft Exchange Server

SKILLS

❖ Programming Skills

C/ C++, PHP, MySQL, HTML, XHTML, CSS, XML, JavaScript, AJAX, TCL/TK, Assembly Language Programming, Visual Studio 2003-2008 (Visual C++, VB, VB.NET)

❖ Reference Tools

Refworks, Mendeley Desktop

❖ General IT Skills

Microsoft Office 2003, 2007, 2010, Windows XP, 2000, Vista, Windows 7, Solaris, Linux, LaTEX (MikTEX)

❖ Technical Skills

8051 microcontrollers, PIC microcontrollers, Dynamic Signal Analyzers and Spectrum Analyzers, Transistor Curve Tracers, Impedance Analysers, LCR meters, ATMEL AVR MCUs and development platforms, Jennic 5148 series Wireless MCUs

❖ Simulation Platforms

OPNET Modeller 11.x, 12.x, 14.x, MATLAB, NS-2, NS-3, SPSS, WinQsb (Optimization), Proteus

❖ Web Development Platforms

Microsoft Expression Studio, phpBB, Joomla, phpmyadmin, Kompozer, Dojo Toolkit

❖ Databases

Hadoop, MySQL, Oracle XE, SQL Server

❖ Certifications

Microsoft Certified Professional (MCP), Microsoft Certified Systems Engineer (MCSE)

LANGUAGES

Pashto, Urdu, English, Arabic (Basic)

References can be provided if requested