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Dr Shoab Ahmed Khan

Dr. Khan is a Ph.D. in Electrical and Computer Engineering from Georgia Institute of Technology, Atlanta, GA, USA. He is an inventor of 5 awarded US patents and has 260+ international publications. His book on Digital Design is published by John Wiley & Sons and is being followed in national and international universities. Dr Khan has more than 22 years of industrial experience in companies in USA and Pakistan. He has been awarded Tamgh-e-Imtiaz (Civil), National Education Award 2001 and NCR National Excellence Award in Engineering Education. He has also founded Center for Advanced Studies in Engineering (CASE) and Center for Advanced Research in Engineering (CARE). CASE is a premier engineering institution that runs one of the largest post graduate engineering programs in the country and has already graduated 50 PhDs and more than 1800 MS in different disciplines in Engineering, whereas CARE, under his leadership, has risen to be one of the most profound high technology engineering organizations in Pakistan developing critical technologies worth millions of dollars for organizations in Pakistan. CARE has made history by winning 13 PASHA ICT awards and 11 Asia Pacific ICT Alliance Silver and Gold Merit Awards while competing with the best products from advanced countries like Australia, Singapore, Hong Kong, Malaysia etc. Dr Khan has served as Chairman of Pakistan Association of Software Houses (P@SHA) and as member of Board of Governance of many entities in the Ministry of IT and Commerce. He has also served as member of National Computing Council and National Curriculum Review Committee. He is a Professor of Computer and Software Engineering at NUST College of EME.

Prof Dr. SHOAB AHMAD KHAN
NUST College of E&ME
Founding Member CARE/CASE
shoab@carepvtltd.com

Education

Georgia Institute of Technology, Atlanta, Georgia, USA
Doctor of Philosophy in Electrical & Computer Engineering.

Major Thesis: Logic and Algorithm Partitioning

December 1995

Georgia Institute of Technology, Atlanta, Georgia, USA
Master of Science in Electrical Engineering

March 1992

NED University, Karachi, Pakistan
Bachelor of Science in Avionics Engineering (Gold Medalist)

June 1989

Professional experience

NUST College of E&ME Jan
1997 till today

Professor of Computer & Software Engineering

1. Founding Member Center for Advanced Research In Engineering (CARE)

Has led CARE to become one of the most celebrated and established engineering organizations in Pakistan. In last four years CARE has made history by winning 12 P@SHA ICT Awards and 10 Asia Pacific ICT Alliance Awards. CARE has executed national and international projects worth millions of US \$.

2. Center for Advanced Studies In Engineering (CASE)

As Founding Member and member Board of Trustees has contributed CASE to become one of the largest post graduate engineering programs in the country. CASE has already graduated 50+ PhDs and 1800+ MS in Computer Engineering and Engineering Management.

Representative Projects

1. World's Highest Density Media Processor for Carrier Class VoIP Gateways, Avaz Networks, USA
April 1999 – Dec 2002
US \$: 17 million from Vantage Point USA

Dr Shoab was the chief architect and led a team who designed world's highest density media processor System on Chip:

- Voice processing @ 32 ms LEC
- VZM1004L, 2048 x G.711 or 1024 x G.726
- VAD, CNG & LPC (Lost Packet Compensation)
- Voice band signaling: CAS, DTMF, MF
- ~6 mw/channel in .18m Standard Cell



Media Gateway SoC AVAZ

2. Arrhythmia And Sudden, Death Syndrome Detection Hybrid Network Based Telemedicine System

10 April 2010 - April 2012

PKR: 13.55 million from ICT R&D Fund

P@ASHA ICT 2011 Gold Award

Asia Pacific ICT Alliance (APICTA 2011), Thailand **Gold Award**

A tele-medicine system with network enabled high resolution ECG machines capable of self-diagnosing different arrhythmic abnormalities as well as early detection of sudden cardiac condition.

3. Air Space Management System for Pakistan

Sep 2011 - Today

P@ASHA ICT 2011 Gold Award

Asia Pacific ICT Alliance (APICTA 2011) Thailand Silver Award

System level designer and architect of a multi-million contract that digitizes all the radars and networked them across the country to see the entire airspace at one place for better management.

4. Next Generation Software Defined Radio (SDR)

Sep 2010 - Nov 2012

P@ASHA ICT 2010 Gold Award

Asia Pacific ICT Alliance (APICTA 2010), Malaysia **Silver Award**

Developed the Frame Work and high data rate waveform for an advanced multi-mode multiband Software Defined Radio (SDR) that comes in different configurations and form factors. A multi-Million \$ contract under development.

5. Lawful Interception System (LI)
P@ASHA ICT 2010 Gold Award
Asia Pacific ICT Alliance (APICTA 2010), Malaysia **Silver Award**

LI system for Cyber and Next Generation Network, the product is also delivered to a Middle East country.

6. Establishing a Lab for Multi-agent Intelligent Electro-mechanical Systems (MIEMS) in NUST College of E&ME
PKR: 3.5 million from HEC Fund

A Lab of MIEMS for research, development and training human resource in this critical area of technology is in the development

7. Massively parallel fingerprint Recognition system

PKR: 14.5 million from ICT R&D Fund

This project is setting new technology trend in biometrics based identification and verification systems. It consists of state of the art fingerprint matching algorithms which transformed into a novel scalable fingerprint matching processor. Established a startup (allwebID.com) in NJ USA for commercializing this research.

8. Prestigious Cisco System University Research Funding of US \$ 40,000

Industrial experience in USA Jan 1992-Jan1997

1. Cisco System, USA
Developed algorithms for CISCO's V.90 and V.34 modem
2. Picture Tel Corporation, USA
Developed audio subsystem of Picture Tel's video conferencing system
3. Scientific Atlanta, USA
Developed algorithm for IRIDIUM system for global cellular communications
4. Ingersol Rand, Torrington Company, USA
Developed a real-time grindless controller
5. ADI Electronics Corporation, USA
Developed a computerized telephony switch
6. Georgia Tech Digital And Signal Processing Lab
Developed DSP applications for SHARC-based multiprocessor
7. Advanced Packaging Research Center
Developed an optimization tool for system level design of a MCM-based system

8. Lab of Identification and Control of Highly Uncertain Systems
Developed a real-time system for controlling the surge of a jet engine

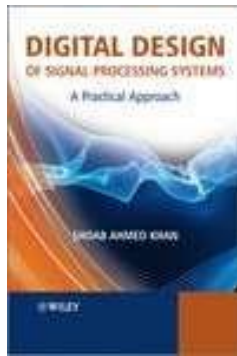
US Patents:

1. Shoab Khan et al, Cognitive hub for self-healing and self-forming network with hybrid communication technologies, United States Patent 8923333
2. Shoab A. Khan, Rehan Hameed, and Hassan Farooq, "Hardware function generator support in a DSP" United States Patent 07031992
3. Zaheer Ahmed, Shoab A. Khan, "Programmable and multiplierless Viterbi accelerator", United States Patent 6,883,021
4. Shoab A. Khan, Mohammad Mohsin Rahmatullah, "Distributed processing architecture with scalable processing layers", United States Patent 7516320
5. Jon Laurent Pang, Mohammad Usman, Shoab Ahmad Khan, Muhammad Mohsin Rahmatullah, "Methods and systems for managing variable delays in packet transmission", United States Patent 7835280
6. U.S. Pregrant Abstract US20140270421 A1, Shoab A. Khan, Javeria A. Khan, Rabia Anwar, Sheikh M. Farhan, Multi-layer biometric matching system
7. U.S. Pregrant Abstract 20030023960 Shoab A. Khan et al, "Microprocessor instruction format using combination opcodes and destination prefixes", (pending)
8. U.S. Pregrant Abstract 20020120915, Shoab A. Khan, Mohammed Sohail Sadiq, "Combined scheduling and mapping of digital signal processing algorithms on a VLIW processor", (pending)

Publications

Publications in international journals and conferences are 260+, representative list of publications is:-

1. Shoab A Khan, *Digital Design of Signal Processing System: A Practical Approach*, John Wiley & Sons Feb 2011



2016-17

1. Naseem, Afshan, Syed Tasweer Hussain Shah, Shoab Ahmed Khan, and Asad Waqar Malik. "Decision support system for optimum decision making process in threat evaluation and weapon assignment: Current status, challenges and future directions." **Annual Reviews in Control** (2017).
2. Khawaja, Sajid Gul, Muhammad Usman Akram, Shoab A. Khan, and Ammar Ajmal. "A novel multiprocessor architecture for k-means clustering algorithm based on network-on-chip." In *Multi-Topic Conference (INMIC), 2016 19th International*, pp. 1-5. IEEE, 2016.
3. Naz, Samra, Aneeqa Ahmed, M. Usman Akram, and Shoab A. Khan. "Automated segmentation of RPE layer for the detection of age macular degeneration using OCT images." In *Image Processing Theory Tools and Applications (IPTA), 2016 6th International Conference on*, pp. 1-4. IEEE, 2016.
4. Mehboob, Fozia, Muhammad Abbas, Richard Jiang, Abdul Rauf, Shoab A. Khan, and Saad Rehman. "Trajectory based vehicle counting and anomalous event visualization in smart cities." **Cluster Computing** (2017): 1-10.
5. Ashraf, Muhammad Asrar, Habibullah Jamal, Shoab Ahmed Khan, Zaheer Ahmed, and Muhammad Iram Baig. "A Heterogeneous Service-Oriented Deep Packet Inspection and Analysis Framework for Traffic-Aware Network Management and Security Systems." **IEEE Access** 4 (2016): 5918-5936.
6. Farooq, Sumaiyya, Shoab Ahmed Khan, and M. Usman Akram. "1D Signal Processing for Improvement of People Counting Estimation Results." In *International Conference on Hybrid Intelligent Systems*, pp. 319-328. Springer, Cham, 2016.
7. Khan, Alishba Siab, and Shoab Ahmed Khan. "Using Information and Communications Technology as an Enabler for Designing an Efficient National Level Vaccination Planning and Dispensing System." In *CMBEBIH 2017*, pp. 637-643. Springer, Singapore, 2017.
8. Shaheen, Saima, M. Usman Akram, Aasia Khanum, Shoab A. Khan, and M. Younas Javed. "A cross layer error control scheme for efficient WLAN multimedia streaming." **Multimedia Tools and Applications** (2016): 1-20.

9. Mehboob, Foza, Muhammad Abbas, Saad Rehman, Shoab A. Khan, Richard Jiang, and Ahmed Bouridane. "Glyph-based video visualization on Google Map for surveillance in smart cities." *EURASIP Journal on Image and Video Processing* 2017, no. 1 (2017): 28.
10. Pervez, Wasim, Vali Uddin, Shoab Ahmad Khan, and Junaid Aziz Khan. "Satellite-based land use mapping: comparative analysis of Landsat-8, Advanced Land Imager, and big data Hyperion imagery." *Journal of Applied Remote Sensing* 10, no. 2 (2016): 026004-026004.
11. Perwaiz, Aqib, and Shoab A. Khan. "FPGA fabric specific optimization for RTL design." *Pakistan Journal of Engineering and Applied Sciences* (2016).
12. Sajid, Muhamad, Ali Hassan, and Shoab A. Khan. "Crowd counting using adaptive segmentation in a congregation." In *Signal and Image Processing (ICSIP), IEEE International Conference on*, pp. 745-749. IEEE, 2016.
13. Basharat, Iqra, Ali Raza Anjum, Mamuna Fatima, Usman Qamar, and Shoab Ahmed Khan. "A Framework for Classifying Unstructured Data of Cardiac Patients: A Supervised Learning Approach." *framework 7*, no. 2 (2016).
Minhas, Sidra, Aasia Khanum, Farhan Riaz, Atif Alvi, and Shoab A. Khan. "A Non Parametric Approach for Mild Cognitive Impairment to AD Conversion Prediction: Results on Longitudinal Data." *IEEE Journal of Biomedical and Health Informatics* (2016).
14. Farooq, Sumaiyya, Shoab A. Khan, and M. Usman Akram. "Congestion analysis of pilgrims in Hajj and Umrah congregation using block matching and optical flow." In *Journal of Physics: Conference Series*, vol. 787, no. 1, p. 012003. IOP Publishing, 2017.
15. Tehreem, Amna, Sajid Gul Khawaja, Muhammad Usman Akram, and Shoab A. Khan. "A novel mean-shift architecture for scalable multiprocessor implementation." In *Future Technologies Conference (FTC)*, pp. 1107-1111. IEEE, 2016.
16. Shahzad, Faisal, Muazzam A. Khan, Shoab A. Khan, Saad Rehman, and Monis Akhlaq. "AutoDrop: Automatic DDoS Detection and Its Mitigation with Combination of OpenFlow and sFlow." In *International Conference on Future Intelligent Vehicular Technologies*, pp. 112-122. Springer, Cham, 2016.
17. Khan, Alishba Siab, and Shoab Ahmed Khan. "Software Architecture Design on National Level for Vaccination Planning and Dispensing System." *American Scientific Research Journal for Engineering, Technology, and Sciences (ASRJETS)* 26, no. 3 (2016): 304-316.
18. Khawaja, Sajid Gul, Amna Tehreem, M. Usman Akram, and Shoab Ahmed Khan. "Multicore Framework for Finding Frequent Item-Sets Using TDS." In *International Conference on Hybrid Intelligent Systems*, pp. 340-349. Springer, Cham, 2016.
19. Khawaja, Sajid Gul, M. Usman Akram, Shoab Ahmed Khan, Arslan Shaukat, and Saad Rehman. "Network-on-Chip based MPSoC architecture for k-mean clustering algorithm." *Microprocessors and Microsystems* 46 (2016): 1-10.
20. Sana, Sawaira, Fakhra Ahsan, and Shoab Khan. "Design and implementation of multimode CFAR processor." In *Multi-Topic Conference (INMIC), 2016 19th International*, pp. 1-6. IEEE, 2016.

21. Fatima, Anam, and Shoab A. Khan. "Smart sustainable power system for efficient energy utilization." In *Smart Solutions for Future Cities, 2016*, pp. 1-6. IEEE, 2016.
22. Malik, Asad Waqar, Shoab A. Khan, and S. Rauf ul Hassan. "An HLA based real time simulation engine for man-in-loop net centric system." *Pakistan Journal of Engineering and Applied Sciences* (2016).
23. Bokhari, Syed Mohtashim Abbas, and Shoab Ahmad Khan. "Applying Supervised and Unsupervised Learning Techniques on Dental Patients' Records." In *Emerging Trends and Advanced Technologies for Computational Intelligence*, pp. 83-102. Springer International Publishing, 2016.
24. Iftikhar, Sundas, Anum Tariq, and Shoab Ahmed Khan. "Optimal Task Allocation Algorithm for Cost Minimization and Load Balancing of GSD Teams." *Lecture Notes on Software Engineering 4*, no. 1 (2016):
25. Usman Akram, Shoab A. Khan, SangHyun Seo, and M. Younas Javed. "Evaluating the significance of error checksums for wireless video streaming." *Multimedia Tools and Applications* 75, no. 22 (2016): 14759-14781.
26. Khan, Shoab Ahmed. "Multicore Framework for Finding Frequent Item-Sets Using TDS." In *Proceedings of the 16th International Conference on Hybrid Intelligent Systems (HIS 2016)*, vol. 552, p. 340. Springer, 2017.
27. Buzdar, Abdul Rehman, Ligu Sun, Abdullah Buzdar, and Shoab Ahmed Khan. "Area efficient CORDIC Accelerator for Embedded Processor Datapaths." *Informacije MIDE M* 46, no. 4 (2017): 197-208.
28. Gulzar, Sumbul, Shoab A. Khan, and Muhammed Zeeshan. "Digital hopping of narrowband waveform using wideband frontend." In *Advanced Communication Technology (ICACT), 2017 19th International Conference on*, pp. 811-816. IEEE, 2017.
29. Buzdar, Abdul Rehman, Ligu Sun, Shoab Ahmed Khan, and Abdullah Buzdar. "Area and Energy efficient CORDIC Accelerator for Embedded Processor Datapaths." *Electronic Components and Materials* 46, no. 4 (2016): 197-208.
30. Rafiq, Wajid, Shoab Ahmed Khan, and Muhammad Sohail. "Sociology Study Using Email Data and Social Network Analysis." In *Information Technology: New Generations*, pp. 1053-1061. Springer International Publishing, 2016.
31. Cheema, Mudassar I., and Shoab A. Khan. "A Simple Carrier Frequency Offset Synchronization Strategy for Multiple Relay Cooperative Diversity OFDM System." *Pakistan Journal of Engineering and Applied Sciences* (2016).

2015

32. Sidra Minhas, Aasia Khanum, Farhan Riaz, Shoab A. Khan,. " Early Alzheimer's Disease Prediction in Machine Learning Setup: Empirical Analysis with Missing Value Computation." In *Intelligent Data Engineering and Automated Learning–IDEAL 2015*, pp. 424-432. Springer International Publishing, 2015.
33. Saima Shaheen, Aasia Khanum, Shoab A. Khan,. "Using MAC frame header for efficient multimedia streaming." *Computer, Communications, and Control Technology*

(I4CT), 2015 International Conference on, pp. 570-574. IEEE, 2015.

34. Saima Shaheen, M. Younus Javed, Muid Mufti, Shoab A. Khan, M. Usman Akram. “, ” A Novel Compression Technique for Multi-Camera Nodes through Directional Correlation ” *International Journal of Distributed Sensor Networks* 501 (2015): 539838.
35. Syed Mohtashim Bokhari, Iqra Basharat, Shoab A. Khan, Ali Waqar Qureshi. “, ” A framework for clustering dental patients' records using unsupervised learning techniques ” *Science and Information Conference (SAI)*, 2015, pp. 386-394. IEEE, 2015.
36. Saima Shaheen, Aasia Khanum, M. Usman Akram, Shoab A. Khan,. “, ” Evaluating the significance of error checksums for wireless video streaming. ” *Multimedia Tools and Applications*(2015): 1-23.
37. Mavera Mazhar Butt, M. Usman Akram, Shoab A. Khan,. “, ” Denoising practices for electrocardiographic (ECG) signals: A survey. ” *Computer, Communications, and Control Technology (I4CT)*, 2015 International Conference on, pp. 264-268. IEEE, 2015. Muhammad Zeeshan, Shoab A. Khan,. “, ” A novel algorithm for link adaptation using fuzzy rule based system for wideband networking waveform of SDR. ” *AEU-International Journal of Electronics and Communications* 69, no. 9 (2015): 1366-1373.
38. Sundus Iftikhar, Anum Tariq, Shoab A. Khan,. “, ” Optimal Task Allocation Algorithm for Cost Minimization and Load Balancing of GSD Teams. ” *Lecture Notes on Software Engineering* 4, no. 1 (2016).
39. Sajid Gul Khawaja, Mian Hamza Mushtaq, Shoab A. Khan,. “, ” Designing Area Optimized Application-Specific Network-On-Chip Architectures while Providing Hard QoS Guarantees. ” Published: April 21, 2015.
40. Abdul Qavi, Shoab A. Khan, Kashif Bashir. “, ” Voice Morphing Based on Spectral Features and Prosodic Modification. ”
41. Sidra Rashid, Usman Akram, Shoab A. Khan,. “, ” WML: Wireless Sensor Network based Machine Learning for Leakage Detection and Size Estimation. ” *Procedia Computer Science* 63 (2015): 171-176.
42. Muhammad Zeeshan, Shoab A. Khan,. “, ” A Novel Algorithm for Burst Detection in Wideband Networking Waveform of Software Defined Radio. ” *IEICE TRANSACTIONS on Fundamentals of Electronics, Communications and Computer Sciences* 98, no. 6 (2015): 1225-1233.

2014

43. Butt, Wasi H., Usman Qamar, and Shoab A. Khan. "Hidden Members and Key Players Detection in Covert Networks Using Multiple Heterogeneous Layers." *Journal of Industrial and Intelligent Information Vol 2.2* (2014).
44. Akram, M. Usman, Anam Tariq, and Shoab A. Khan. "Automated Detection of Exudates and Macula for Grading of Diabetic Macular Edema." *Computer Methods and Programs in Biomedicine* (2014).
45. Usman Akram, M., Khalid, S., Tariq, A., Khan, S. A., & Azam, F. (2014). Detection and classification of retinal lesions for grading of diabetic retinopathy. *Computers in Biology*

and Medicine, 45, 161-171.

46. Butt, W. H., Akram, M. U., Khan, S. A., & Javed, M. Y. (2014). Covert Network Analysis for Key Player Detection and Event Prediction Using a Hybrid Classifier. *The Scientific World Journal*, 2014.
47. Alvi, Abu Bakar N., Shoab A. Khan, and Ali Hassan. "Network on Hybrid Processors based High End Embedded System." *The Second International Conference on Technological Advances in Electrical, Electronics and Computer Engineering (TAECE2014)*. The Society of Digital Information and Wireless Communication, 2014.
48. Rasheed, Nida, Shoab A. Khan, and Adnan Khalid. "Tracking and Abnormal Behavior Detection in Video Surveillance Using Optical Flow and Neural Networks." *Advanced Information Networking and Applications Workshops (WAINA), 2014 28th International Conference on*. IEEE, 2014.
49. Akram, M. U., Tariq, A., Khan, S. A., & Javed, M. Y. (2014). Automated detection of exudates and macula for grading of diabetic macular edema. *Computer methods and programs in biomedicine*, 114(2), 141-152.
50. Fatima, M., Basharat, I., Khan, S. A., & Anjum, A. R. (2014, May). Biomedical (cardiac) data mining: Extraction of significant patterns for predicting heart condition. In *Computational Intelligence in Bioinformatics and Computational Biology, 2014 IEEE Conference on* (pp. 1-7). IEEE.
51. Younis, Noman, and Shoab Ahmed Khan. "Optimization of Location Aware Routing Protocol for Wireless Adhoc Tactical Networks." *Lecture Notes on Information Theory Vol 2.2* (2014).
52. Iqbal, Adeel, and Shoab Ahmad Khan. "News Sentiments Grading Using Multiple Dictionaries Based Lexical Approach." *Bio-Inspired Computing-Theories and Applications*. Springer Berlin Heidelberg, 2014. 198-203.

2013

53. M. Usman Akrama, Shehzad Khalidb, Shoab A. Khan, "Identification and classification of microaneurysms for early detection of diabetic retinopathy", Elsevier J. of Pattern Recognition, Volume 46, Issue 1, January 2013, Pages 107– 116.
54. Usman Akram, M., Shehzad Khalid, Anam Tariq, and Shoab A. Khan. "Detection and classification of retinal lesions for grading of diabetic retinopathy." *Computers in Biology and Medicine* (2013).
55. Anam Tariq, M. Usman Akram, Arslan Shaukat, Shoab A. Khan, "Automated Detection and Grading of Diabetic Maculopathy in Digital Retinal Images", *Journal of Digital Imaging*, January 2013.
56. Durdana Habib, Habibullah Jamal, Shoab Khan, "Employing Multiple Unmanned Aerial Vehicles for co-operative Path Planning" *International Journal of Advanced Robotic Systems*, March 2013.
57. Iqbal, M. Aqeel, and Shoab A. Khan. "Performance Oriented Design Perspectives of RunTime Reconfigurable Computing Systems." *Middle-East Journal of Scientific Research* 17.10 (2013): 1386-1395.

58. Haq, Anam, Fouwad Jamil Mir, Ubaid Ullah Yasin, and Shoab A. Khan. "Classification of wet aged related macular degeneration using optical coherence tomographic images." In *Sixth International Conference on Machine Vision (ICMV 13)*, pp. 90671B-90671B. International Society for Optics and Photonics, 2013.
59. Waris, Madiha, Shoab Ahmad Khan, and Muhammad Zaman Fakhar. "Factors effecting service oriented architecture implementation." *Science and Information Conference (SAI), 2013*. IEEE, 2013.
60. Zeeshan, Muhammad, and Shoab Ahmed Khan. "Robust Sampling Clock Recovery Algorithm for Wideband Networking Waveform of SDR." *International Journal of Communication Networks and Information Security (IJCNIS)* 5.1 (2013).
61. Zeeshan, Muhammad, Shoab Ahmed Khan, and Muhammad Yasir Malik. "A Secure DSCDMA Technique with Capacity Enhancement for Ad Hoc Wireless Networks." *IT Convergence and Security 2012*. Springer Netherlands, 2013. 159-167.
62. Fakhar, Muhammad Zaman, Shoab Ahmad Khan, and Madiha Waris. "Position Based Sentence Search for Encrypted Unstructured Data in Cloud Environment." *Proceedings of the International Conference on Cloud Computing and eGovernance*. 2013.
63. Nafees, Tayyaba, and Shoab Ahmad Khan. "POSIX. 1 conformance for Android Applications." *International Journal of Advanced Computer Science & Applications* 4.7 (2013).
64. Kamboh, Hamid Mehmood Allah Ditta, and Shoab Ahmed Khan. "IS-CORDIC: a fixed-point inverse recoded single iteration CORDIC architecture." *International Journal of Electronics* ahead-of-print (2013): 1-19.
65. Iqbal, M. Aqeel, and Shoab A. Khan. "High Speed Computational Unit Design for Reconfigurable Instruction Set Processors." *Middle East Journal of Scientific Research* 15.8 (2013).
66. Kamboh, Hamid M., and Shoab A. Khan. "HIGH THROUGHPUT FILTER ARCHITECTURE FOR OPTIMAL FPGA-BASED IMPLEMENTATIONS." *Journal of Circuits, Systems, and Computers* (2013).
67. Iqbal, M. Aqeel, and Shoab Ahmed Khan. "Performance Enhancements in Reconfigurable Instruction Set Processors Using Tightly Coupled Configuration Units." *Middle East Journal of Scientific Research* 15.7 (2013).
68. Jattala, Imran, Junaid Farooqi, O. Bin Zakria, and S. A. Khan. "Ballistic Fire Control Computer (FCC) For Main Battle Tank (MBT)." In *Electronics, Communications and Photonics Conference (SIEPCPC), 2013 Saudi International*, pp. 1-6. IEEE, 2013.
69. Riaz, Amina, and Shoab A. Khan. "Traffic congestion classification using motion vector statistical features." *Sixth International Conference on Machine Vision (ICMV 13)*. International Society for Optics and Photonics, 2013.
70. Mansoor, A B; Anwar, A; Khan, S, "Subjective evaluation of image quality measures for white noise and Gaussian blur-distorted images", *Imaging Science Journal*, The, Volume 61, Number 1, January 2013 , pp. 13-21(9).
71. Akram, M. Usman, and Shoab A. Khan. "Multilayered thresholding-based blood vessel segmentation for screening of diabetic retinopathy." *Engineering with Computers* (2013): 1-9. **2012**.
72. UM Akram, SA Khan, "Automated detection of dark and bright lesions in retinal images

- for early detection of diabetic retinopathy”, *Journal of medical systems*, 2012 – Springer.
73. Tariq, Anam, Arslan Shaukat, and Shoab A. Khan. "A Gaussian mixture model based system for detection of macula in fundus images." *Neural Information Processing*. Springer Berlin Heidelberg, 2012.
 74. Shahid Mehmood, Stefano Cagnoni, Monica Mordonini, Shoab Ahmad Khan, "An embedded architecture for real-time object detection in digital images based on niching particle swarm optimization", *Journal of Real-Time Image Processing*, June 2012.
 75. Akram, M. Usman, Anam Tariq, and Shoab A. Khan. "Detection of neovascularization for screening of proliferative diabetic retinopathy." *Image Analysis and Recognition*. Springer Berlin Heidelberg, 2012. 372-379.
 76. Muhammad Umer Munir, Muhammad Younus Javed, Shoab Ahmad Khan, "A hierarchical k-means clustering based fingerprint quality classification”, *Elsevier J of Neurocomputing* Volume 85, 15 May 2012, Pages 62–67.
 77. Bushra Sharif, Dr. Shoab A. Khan, Muhammad Wasim Bhatti, "Measuring the Impact of Changing Requirements on Software Project Cost: An Empirical Investigation", *International Journal of Computer Science Issues (IJCSI)*, Vol. 9, Issue 3, May 2012.
 78. Kamboh, Hamid M., and Shoab A. Khan. "FPGA Implementation of Fast Adder.", 7th *International Conference on Computing and Convergence Technology (ICCT)*, 2012.
 79. Iqbal, Muhammad Aqeel, and Shoab Ahmed Khan. "Run-Time Reconfigurable Instruction Set Processor (RT-RISP): Design and Simulation Using VerilogHDL." (2012).
 80. Zeeshan, Muhammad, and Shoab Ahmed Khan. "A Robust Carrier Frequency Offset Estimation Algorithm in Burst Mode Multicarrier CDMA based Ad Hoc Networks." *International Journal of Communication Networks and Information Security (IJCNIS)* 4.3 (2012).
 81. Safdar, Saria, Shoab Ahmad Khan, and Fahim Arif. "Analysis of ECGs Survey Data Using Threshold Inference Engine.", ISSN (Online) : 2091 - 1610 | Pages : 76 - 83 | Publication Date : July / August 2012.
 82. Sharif, Bushra, Shoab A. Khan, and Muhammad Wasim Bhatti. "Measuring the Impact of Changing Requirements on Schedule Variance: An Empirical Investigation." *International Proceedings of Computer Science & Information Technology* 41 (2012).
 83. Zeeshan, Muhammad, and Shoab Ahmed Khan. "A modified FFT and biquadratic interpolation based algorithm for carrier frequency offset estimation in MC-CDMA based ad hoc networks." *Emerging Technologies (ICET), 2012 International Conference on*. IEEE, 2012.
 84. Atif Bin Mansoor, Zohaib Khan, Shoab Ahmed Khan, " CRYPTO-STEG: A Hybrid Cryptology – Steganography Approach for Improved Data Security", *Mehran University Research Journal of Engineering & Technology*, Volume 31, No. 2, April, 2012 [ISSN 0254-7821], pp. 219-226.
 85. Zeeshan, Muhammad, et al. "An efficient capacity improvement technique for multiuser DSCDMA-based fixed wireless applications." *Open Source Systems and Technologies (ICOSST), 2012 International Conference on*. IEEE, 2012.

86. Iqbal, M. Aqeel, and Shoab Ahmed Khan. "Exploring High Performance Processing Through Reconfigurable Computing Systems.", *J. Basic Appl. Sci. Res.* **2012** 2(10) 1015010157.

2011

87. Akram, Muhammad Usman, Anam Tariq, and Shoab Ahmad Khan. "Retinal recognition: Personal identification using blood vessels." *Internet Technology and Secured Transactions (ICITST), 2011 International Conference for.* IEEE, 2011.
88. Tariq, A.; Akram, M.U.; Khan, S.A. "An Automated System for Fingerprint Classification using Singular Points for Biometric Security", *Internet Technology and Secured Transactions (ICITST) 2011, 11-14 Dec 2011, Pages: 170-175.*
89. Atif Bin Mansoor, Hassan Masood, Mustafa Mumtaz, Shoab A. Khan: A feature level multimodal approach for palmpoint identification using directional subband energies. *J. Network and Computer Applications* 34(1): 159-171 (2011).
90. Khan, Mashud, Faizan Aslam, Tahir Zaidi, and Shoab A. Khan. "Wavelet Based ECG Denoising Using Signal-Noise Residue Method." In *Bioinformatics and Biomedical Engineering, (iCBBE) 2011 5th International Conference on*, pp. 1-4. IEEE, 2011.
91. Khawaja, Sajid Gul, Mian Hamza Mushtaq, and Shoab A. Khan. "Prioritized Direction based Switch for Bufferless Network on Chip Architecture." *International Journal of Electrical and Computer Sciences* 11.4 (2011): 14-18.
92. Habib, Durdana, S. A. Khan, and H. Jamal. "Collaborative path planning for multiple Unmanned Aerial Vehicles in dynamic environments." *Signal Processing, Communications and Computing (ICSPCC), 2011 IEEE International Conference on.* IEEE, 2011.
93. [Ubaidullah](#) ; Khan, S.A. "Accelerating MATLAB slow loop execution with CUDA." *Emerging Technologies (ICET), 2011 7th International Conference on.* IEEE, 2011.
94. Cheema, M. I., and S. A. Khan. "A low complexity fine timing offset and channel estimation algorithm for cooperative diversity OFDM system." *Communications and Information Technology (ICCIT), 2011 International Conference on.* IEEE, 2011.
95. Zeeshan, Muhammad, Shoab A. Khan, and Muhammad Yasir Malik. "A Capacity Improvement Method for CDMA based Mesh Networks in SUI Multipath Fading Channels." *arXiv preprint arXiv:1109.1874* (2011).
96. Zeeshan, Muhammad, Shoab A. Khan, and Muhammad Yasir Malik. "An Efficient Hybrid Power Control Algorithm for Capacity Improvement of CDMA-based Fixed Wireless Applications." *arXiv preprint arXiv:1109.1643* (2011).
97. Khan, Mohammad AU, Tariq M. Khan, and Shoab Ahmed Khan. "Coherence enhancement diffusion using Multi-Scale DFB." *Emerging Technologies (ICET), 2011 7th International Conference on.* IEEE, 2011.
98. Ahmad, T. J., Ali, H., Majeed, S. I., & Khan, S. A. (2011, August). Effect of atrioventricular conduction on heart rate variability. In *Engineering in Medicine and Biology Society, EMBC, 2011 Annual International Conference of the IEEE* (pp. 1953-1956). IEEE.

99. Lutfullah, Z., Aslam, F., Zaidi, T., & Khan, S. A. (2011, May). 12 Lead QRS Window Detection: Using Feature Extraction and Statistical Parameters. In *Bioinformatics and Biomedical Engineering, (iCBBE) 2011 5th International Conference on* (pp. 1-4). IEEE.
100. Shaukat, Rakhshanda, and Shoab Ahmed Khan. "Risk Analysis of Inter Base-station Dynamic Resource Sharing in IEEE-802. 22 MAC Layer Protocol." *International Journal of Digital Content Technology and its Applications* 5.11 (2011).
101. Kamboh, Hamid M., and Shoab A. Khan. "An algorithmic transformation for FPGA implementation of high throughput filters." *Emerging Technologies (ICET), 2011 7th International Conference on*. IEEE, 2011.
102. Sadiq, Ismail, and S. A. Khan. "Heart Beat Classification of ECGs Using Morphology and Beat Intervals." *Bioinformatics and Biomedical Engineering, (iCBBE) 2011 5th International Conference on*. IEEE, 2011.
103. Bhatti, Farrukh A., et al. "MIMO OFDM signal detection using quadratic programming." *Multitopic Conference (INMIC), 2011 IEEE 14th International*. IEEE, 2011.
104. Raja, K. B., R. K. Chhootaray, and Sabyasachi Pattanaik. "DWT Based Fingerprint Recognition using Non Minutiae Features." *arXiv preprint arXiv:1106.3517* (2011).

2010

105. Rizwana Mehboob, Shoab A Khan, Zaheer Ahmed, Habibullah Jamal, M. Shahbaz, "Multigig lossless data compression device", IEEE Trans on Consumer Electronics, Vol 56, Issue 3, Oct 2010, pp 1927-1932,
106. Ahmed, Zaheer, Habibullah Jamal, Rizwana Mehboob, Shoab Khan, and Muhammad Shahbaz. "Secure cognitive mobile hotspot." *Consumer Electronics, IEEE Transactions on* 56, no. 2 (2010): 606-612.
107. Iqbal, M. Aqeel, Uzma Saeed Awan, and Shoab A. Khan. "Reconfigurable computing technology used for modern scientific applications." *Education Technology and Computer (ICETC), 2010 2nd International Conference on*. Vol. 5. IEEE, 2010.
108. Shahid, Adnan, et al. "Cognitive ALE for HF radios." *Computer Engineering and Applications (ICCEA), 2010 Second International Conference on*. Vol. 2. IEEE, 2010.
109. Perwaiz, Aqib, Hamid M. Kamboh, and Shoab A. Khan. "FPGA fabric specific optimization for RTL design." *Pakistan Journal of Engineering and Applied Sciences* 6 (2010): 52-57.
110. Sadiq, Ismail, and Shoab Ahmad Khan. "Fuzzification of the Analysis of Heart Rate Variability Using ECG in Time, Frequency and Statistical Domains." *Computer Engineering and Applications (ICCEA), 2010 Second International Conference on*. Vol. 1. IEEE, 2010.
111. Anwar-ul-Haq, M., Asad Waqar Malik, and Shoab A. Khan. "Aerial Threat Perception Architecture Using Data Mining." *Networked Digital Technologies*. Springer Berlin Heidelberg, 2010. 297-305.
112. Saleem, Adil, and Shoab A. Khan. "Low power State Machine design on FPGAs." *Advanced Computer Theory and Engineering (ICACTE), 2010 3rd International Conference on*. Vol. 4. IEEE, 2010.

113. Zeeshan, Muhammad, and Shoab A. Khan. "Power optimization of multiuser CDMA based mobile ad hoc networks in tactical setting." *Proceedings of International Colloquium on Computing, Communication, Control and Management*. Vol. 2. 2010.
114. Uddin, M. A., M. A. Orakzai, Q. Abbas, and S. A. Khan. "Cognitive controller for multiple interfaces (C2MI)." In *Software Technology and Engineering (ICSTE), 2010 2nd International Conference on*, vol. 1, pp. V1-88. IEEE, 2010.
115. Malik, Asad Waqar, Shoab A. Khan, and S. Rauf ul Hassan. "An HLA Based Real Time Simulation Engine for Man-in-Loop Net Centric System." *Pak. J. Engg. & Appl. Sci. Vol* (2010): 47-54.
116. Rana, Saadia Afzal, Shoab A. Khan, and Ali Afzal Awan. "Advance Approach to Estimate Fingerprint Images Quality Using Statistical & Graphical Methodology."
117. Mahmood, Attiya, Syed Ali Abbas, and Shoab A. Khan. "High Level Synthesis of Kahn Process Networks (KPN) for Streaming Applications."
118. Mansoor, Atif Bin, Hassan Masood, Mustafa Mumtaz, Sameem Shabbir, and Shoab A. Khan. "An evaluation of wavelet kernels for palmprint based recognition." In *Articulated Motion and Deformable Objects*, pp. 128-137. Springer Berlin Heidelberg, 2010.
119. Mehboob, Rizwana, and Shoab A. Khan. *Efficient Architectures for High Speed Lossless Data Compression and FIR Filter Implementation*. Diss. University of Engineering & Technology, Taxila, 2010.
120. Saqib, Sunila, U. Bin Ali, Waqas Ali, and Shoab A. Khan. "Automated optimization of datapath design by improving circuit area and critical time through adaptive transformation." In *Intelligent Systems Design and Applications (ISDA), 2010 10th International Conference on*, pp. 1493-1498. IEEE, 2010.
121. Farooq, Muhammad Umar, Shoab Ahmad Khan, Syed Ayad Hasan, and Adnan Ahmad Khan. "Hostname addressing in heterogeneous mobile ad hoc networks." In *Computer Science and Information Technology (ICCSIT), 2010 3rd IEEE International Conference on*, vol. 4, pp. 488491. IEEE, 2010.
122. Iqbal, Raja, Rafia Mumtaz, and Shoab A. Khan. "Image Enhancement Using Nonsubsampling Contourlet Transform." *International Federation for Information Processing Digital Library* 228.1 (2010).

2007, 2008, 2009

123. Umar Farooq, Habibullah Jamal, Shoab Ahmed Khan, "High Speed and Computationally Efficient Realization of Recursive Interpolation Filters", Elsevier International Journal of Signal Processing, Vol. 89, Issue 11, Nov 2009, pp 2202-2212
Umar Farooq, Habibullah Jamal and Shoab Ahmed Khan, "Transformation to Implement Computationally Efficient IIR Decimation Filters", Elsevier Journal of Digital Signal Processing, Volume 19, Issue 1, January 2009, pp. 33-44.
124. Farooq, Umar, Habibullah Jamal, and Shoab Ahmed Khan. "High speed and computationally efficient architecture for recursive interpolation filters." *Signal Processing* 89.11 (2009): 2202-2212.
125. R. Mehboob, Shoab A. Khan, R. Qamar, "FIR Filter Design Methodology for Hardware Optimized Implementation", IEEE Trans. on Consumer Electronics, Vol. 55, No. 3, Aug 2009, pp:1669-1673.

126. Sheikh Muhammad Farhan, Shoab A Khan and Habibullah Jamal, "An 8-bit Systolic AES Architecture for Moderate Data Rate Applications", Elsevier Journal of Microprocessors and Microsystems, Vol 33, Issue 3, May 2009.
127. Zaheer Ahmed, Habibullah Jamal, Shoab Khan, Rizwana Mehboob and Asrar Ashraf, "Cognitive Communication Device for Vehicular Networking", IEEE Trans. on Consumer Electronics, Vol. 55, No. 2, May 2009, pp: 371:375.
128. Akram, M. Usman, et al. "Blood vessel enhancement and segmentation using wavelet transform." *Digital Image Processing, 2009 International Conference on*. IEEE, 2009.
129. Khan, Umair Mateen, Shoab Ahmed Khan, and Naveed Ejaz. "A fingerprint verification system using minutiae and wavelet based features." *Emerging Technologies, 2009. ICET 2009. International Conference on*. IEEE, 2009.
130. Ahmad, Talha Jamal, Hussnain Ali, Muhammad Asim Ajaz, and Shoab A. Khan. "A DSK based simplified speech processing module for Cochlear Implant research." In *Acoustics, Speech and Signal Processing, 2009. ICASSP 2009. IEEE International Conference on*, pp. 369-372. IEEE, 2009.
131. Khan, Muhammad Usman, and Shoab Ahmed Khan. "Social networks identification and analysis using call detail records." *Proceedings of the 2nd International Conference on Interaction Sciences: Information Technology, Culture and Human*. ACM, 2009.
132. Ali, Hussnain, Talha J. Ahmad, and Shoab A. Khan. "Inductive link design for medical implants." *Industrial Electronics & Applications, 2009. ISIEA 2009. IEEE Symposium on*. Vol. 2. IEEE, 2009.
133. Ali, Hussnain, Talha J. Ahmad, and Shoab A. Khan. "Mathematical modeling of an inductive link for optimizing efficiency." *Industrial Electronics & Applications, 2009. ISIEA 2009. IEEE Symposium on*. Vol. 2. IEEE, 2009.
134. Mansoor, Atif Bin, et al. "A hybrid image quality measure for automatic image quality assessment." *Image Analysis*. Springer Berlin Heidelberg, 2009. 91-98.
135. Akram, M. Usman, Anam Tariq, and Shoab A. Khan. "Retinal image blood vessel segmentation." *Information and Communication Technologies, 2009. ICICT'09. International Conference on*. IEEE, 2009.
136. Ali, Hussnain, Talha J. Ahmad, Asim Ajaz, and Shoab A. Khan. "Laboratory prototype of cochlear implant: Design and techniques." In *Engineering in Medicine and Biology Society, 2009. EMBC 2009. Annual International Conference of the IEEE*, pp. 803-806. IEEE, 2009. 97. Usman Akram, M., Anam Tariq, Sarwat Nasir, and Shoab A. Khan. "Gabor wavelet based vessel segmentation in retinal images." In *Computational Intelligence for Image Processing, 2009. CIIP'09. IEEE Symposium on*, pp. 116-119. IEEE, 2009.
137. Perwaiz, Aqib, and Shoab A. Khan. "Effect of bit Precision on hardware complexity for DDFS architecture." *Advanced Computer Control, 2009. ICACC'09. International Conference on*. IEEE, 2009.
138. Islam, Muhammad Hasan, Kamran Nadeem, and Shoab A. Khan. "Optimal Placement of Detection Nodes against Distributed Denial of Service Attack." *Advanced Computer Control, 2009. ICACC'09. International Conference on*. IEEE, 2009.

139. Qureshi, Khurram Yasin, and Shoab Ahmed Khan. "Effectiveness of assigning confidence levels to classifiers and a novel feature in fingerprint matching." *Systems, Man and Cybernetics, 2009. SMC 2009. IEEE International Conference on*. IEEE, 2009.
140. Qureshi, Khurram Yasin, and Shoab A. Khan. "Effectiveness of a novel feature and confidence levels assignment to classifiers in fingerprint matching." *Computer Science and Information Technology, 2009. ICCSIT 2009. 2nd IEEE International Conference on*. IEEE, 2009.
141. Naeem, Huma, Asif Masood, Mukhtar Hussain, and Shoab A. Khan. "A Novel TwoStaged Decision Support based Threat Evaluation and Weapon Assignment Algorithm, Assetbased Dynamic Weapon Scheduling using Artificial Intelligence Techniques." *arXiv preprint arXiv:0907.0067* (2009).
142. Zia, Muhammad Tassadaque, Muhammad Umar Farooq, and Shoab A. Khan. "Seamless communication over heterogeneous interfaces in mobile ad hoc networks." *Wireless and Optical Communications Networks, 2009. WOCN'09. IFIP International Conference on*. IEEE, 2009.
143. Ahmad, Talha J., Hussnain Ali, Muhammad Asim Ajaz, and Shoab A. Khan. "Efficient algorithm development of CIS speech processing strategy for cochlear implants." In *Engineering in Medicine and Biology Society, 2009. EMBC 2009. Annual International Conference of the IEEE*, pp. 1270-1273. IEEE, 2009.
144. Mubarik, Muhammad Asim, Shoab Ahmad Khan, Syed Ayad Hassan, and Naveed Sarfraz. "Implementation of Geocast Enhanced AODV-UU in Linux Testbed." In *Computer and Information Science, 2009. ICIS 2009. Eighth IEEE/ACIS International Conference on*, pp. 803-807. IEEE, 2009.
145. Naeem, Huma, Asif Masood, Mukhtar Hussain, and K. Shoab. "A novel two-staged decision support based threat evaluation and weapon assignment algorithm." *International Journal of Computer Science and Information Security, IJCSIS 2*, no. 1 (2009): 132-138. 107. Naeem, Huma, Asif Masood, Mukhtar Hussain, and Shoab A. Khan. "A Novel TwoStage Dynamic Decision Support based Optimal Threat Evaluation and Defensive Resource Scheduling Algorithm for Multi Air-borne threats." *arXiv preprint arXiv:0906.5038* (2009).
146. Naeem, Huma, Asif Masood, Mukhtar Hussain, and Shoab A. Khan. "A semi-automated dynamic approach to threat evaluation and optimal defensive resource allocation." In *Emerging Intelligent Computing Technology and Applications*, pp. 8-17. Springer Berlin Heidelberg, 2009.
147. Akram, M. Usman, Sarwat Nasir, and Shoab A. Khan. "Comparison of Matched Filter and Wavelet Based Blood Vessel Enhancement." *Proceedings of the IASTED International Conference*. Vol. 654. 2009.
148. Farooq, Muhammad Umar, Muhammad Tassadaque Zia, Muhammad Asim Mubarik, and Shoab Ahmad Khan. "Supporting Heterogeneous Interfaces in Mobile Ad hoc Networks." In *Computing, Engineering and Information, 2009. ICC'09. International Conference on*, pp. 87-90. IEEE, 2009.
149. Zahid, Aasma, Umar Muneer, and Shoab A. Khan. "Grouping Of Actors On An Enterprise Social Network Using Optimized Union-Find Algorithm." *Algarve, Portugal* (2009): 148.

150. Abdullah, Asim, and Shoab Ahmed Khan. "Frequency synchronization for multi input multi output orthogonal frequency division multiplexing systems." *Internet, 2009. AH-ICI 2009. First Asian Himalayas International Conference on*. IEEE, 2009.
151. Perwaiz, Aqib, Shoab A. Khan, and Hamid M. Kombh. "Optimization for Quantization and Embedded Resources on FPGA." *New Trends in Information and Service Science, 2009. NISS'09. International Conference on*. IEEE, 2009.
152. Islam, M. H., I. Zubair, M. F. Butt, K. Nadeem, and S. A. Khan. "Optimal placement of detection nodes for Ad hoc networks." In *Networked Digital Technologies, 2009. NDT'09. First International Conference on*, pp. 544-546. IEEE, 2009.
153. Haleem, Shahid, and S. A. Khan. "Common sub-expression elimination in PAPR reduction of OFDM system." *Internet, 2009. AH-ICI 2009. First Asian Himalayas International Conference on*. IEEE, 2009. **2008**.
154. Zaheer Ahmed, Habibullah Jamal, Rizwana Mehboob, and Shoab Khan, "A Navigation Device with MAC Supporting Multiple Physical Networks for Extended Coverage and Operations", IEEE Trans. on Consumer Electronics, Vol. 54, No. 3, Aug. 2008.
155. Akram, M. Usman, et al. "Fingerprint image: pre-and post-processing." *International Journal of Biometrics* 1.1 (2008): 63-80.
156. Zeshan, Muhammad, Shoab A. Khan, Ahmad Raza Cheema, and Attique Ahmed. "Adding Security against Packet Dropping Attack in Mobile Ad Hoc Networks." In *Future Information Technology and Management Engineering, 2008. FITME'08. International Seminar on*, pp. 568-572. IEEE, 2008. 119. Masood, Hassan, Mustafa Mumtaz, M. Asif Afzal Butt, A. Bin Mansoor, and Shoab A. Khan. "Wavelet based palmprint authentication system." In *Biometrics and Security Technologies, 2008. ISBAST 2008. International Symposium on*, pp. 1-7. IEEE, 2008.
157. Butt, MA Afzal, Hassan Masood, Mustafa Mumtaz, A. Bin Mansoor, and Shoab A. Khan. "Palmprint identification using contourlet transform." In *Biometrics: Theory, Applications and Systems, 2008. BTAS 2008. 2nd IEEE International Conference on*, pp. 1-5. IEEE, 2008.
158. Yasin, Hashim, and Shoab Ahmad Khan. "Moment invariants based human mistrustful and suspicious motion detection, recognition and classification." *Computer Modeling and Simulation, 2008. UKSIM 2008. Tenth International Conference on*. IEEE, 2008. 122. Mansoor, Atif Bin, Mustafa Mumtaz, Hassan Masood, M. Asif A. Butt, and Shoab A. Khan. "Personal identification using palmprint and contourlet transform." In *Advances in Visual Computing*, pp. 521-530. Springer Berlin Heidelberg, 2008.
159. Iqbal, M. Aqeel, Shoab A. Khan, and Uzma Saeed Awan. "RISP design with most optimal configuration overhead for VLIW based architectures." *Electrical Engineering, 2008. ICEE 2008. Second International Conference on*. IEEE, 2008.
160. Aslam, Baber, Monis Akhlaq, and Shoab A. Khan. "802.11 disassociation DoS attack simulation using Verilog." *WSEAS Transactions on Communications* 7 (2008): 198-206. 125. Shaukat, Rakhshanda, Shoab Ahmed Khan, and Attiq Ahmed. "Threats identification and their solution in inter-basestation dynamic resource sharing IEEE-802.22." *Convergence and Hybrid Information Technology, 2008. ICHIT'08. International Conference on*. IEEE, 2008. 126. Bin Mansoor, A., Zohaib Khan, Adil Khan, and Shoab Ahmad Khan. "Enhancement of exudates for the diagnosis of diabetic retinopathy using Fuzzy Morphology." In *Multitopic Conference, 2008. INMIC 2008. IEEE International*, pp. 128-131. IEEE, 2008.

161. Jabeen, Shahida, and Shoab A. Khan. "A hybrid false minutiae removal algorithm with boundary elimination." *System of Systems Engineering, 2008. SoSE'08. IEEE International Conference on*. IEEE, 2008.
162. Islam, Muhammad Hasan, Kamran Nadeem, and Shoab A. Khan. "Efficient placement of sensors for detection against distributed denial of service attack." *Innovations in Information Technology, 2008. IIT 2008. International Conference on*. IEEE, 2008.
163. Khan, Usman Shahid, and Shoab Ahmed Khan. "Converting an Existing Communication System into SCA complaint SDR." *7th WSEAS Int. Conf. on Electronics, Hardware, Wireless and Optical Communications, Cambridge, UK*. 2008.
164. Ahmed, Furqan, and Shoab A. Khan. "A framework for computationally efficient detection of frequency hopped signals in non-cooperative environment." *Software, Telecommunications and Computer Networks, 2008. SoftCOM 2008. 16th International Conference on*. IEEE, 2008. 131. Mansoor, Usman, Aun Iftikhar, Qasim Maqbool, Shoab Khan, and M. Asim Ajaz. "Frequency estimation using back-propagation neural networks for a frequency hopped spread spectrum receiver." In *Electrical and Computer Engineering, 2008. CCECE 2008. Canadian Conference on*, pp. 000797-000800. IEEE, 2008.
165. Malik, Asad Waqar, and Shoab A. Khan. "Distributed Autonomous System Based Design Technique to Enhance Synchronization Productivity in Simulations." *Modeling & Simulation, 2008. AICMS 08. Second Asia International Conference on*. IEEE, 2008. 133. Noori, Khalida, Sami Ahmed Haider, and Shoab Ahmed Khan. "An Efficient Estimation Algorithm for MIMO OFDM System Using Turbo Codes." *Novel Algorithms and Techniques In Telecommunications, Automation and Industrial Electronics*. Springer Netherlands, 2008. 405-408.
166. Bin Mansoor, A., and Shoab A. Khan. "Contoulet denoising of natural images." *Audio, Language and Image Processing, 2008. ICALIP 2008. International Conference on*. IEEE, 2008.
167. Ashraf, Sadia, Shoab A. Khan, and Naveed S. Khattak. "QoS Provisioning for Multimedia Applications on Ts by Adapting MPLS." *International Journal of Business Data Communications and Networking (IJBDCN) 4.4 (2008): 36-52*.
168. Perwaiz, Aqib, and Shoab A. Khan. "Eight Bit Serial Triangular Compressor Based Multiplier." *Proceedings of the International MultiConference of Engineers and Computer Scientists*. Vol. 2. 2008.
169. Shaukat, Rakhshanda, Shoab Ahmed Khan, and Attiq Ahmed. "Augmented Security in IEEE 802.22 MAC Layer Protocol." *Wireless Communications, Networking and Mobile Computing, 2008. WiCOM'08. 4th International Conference on*. IEEE, 2008.
170. Perwaiz, Aqib, and Shoab A. Khan. "LMS Bit Stream Adaptive Filter Design." *Computer Modeling and Simulation, 2008. UKSIM 2008. Tenth International Conference on*. IEEE, 2008.
171. Ali, Hussnain, Talha J. Ahmed, and Shoab Khan. "Adaptive neuro fuzzy classifier for heart sounds." *Proceedings of the Sixth IASTED International Conference on Biomedical Engineering*. ACTA Press, 2008.
172. Yasin, Hashim, and S. A. Khan. "Trained table based recognition & classification (TTRC) approach in human motion reconstruction & analysis." *Emerging*

Technologies, 2008. ICET 2008. 4th International Conference on. IEEE, 2008. **2007.**

173. Umar Farooq, Habibullah Jamal, and Shoab Ahmed Khan, "Realization of IIR Decimation Filters Based on Merged Delay Transformation," *Research Letters in Signal Processing* Vol 2007, Hindawi Publishing Corporation 142. M. M. Rahmatullah, S. A. Khan, H. Jamal, "Carrier Class High Density VoIP Media Gateway using Hardware Software Distributed Architecture", *IEEE Trans. on Consumer Electronics*, Vol. 53, Issue 4, Nov. 2007, pp:1513 – 1520.
174. Muhammad Sohail Sadiq and Shoab A. Khan, "Optimal Mapping of DSP Algorithms on Commercially Available Off-The-Shelf (COTS) VLIW DSPs" *IEEE Transactions on Consumer Electronics*, Vol. 53, No. 3, AUGUST 2007.
175. Saria Safdar, Shoab Ahmad Khan, Fahim Arif, "Analysis of ECGs Survey Data Using Threshold Inference Engine", *International Conference on Computing, Communication System and Informatics Management (ICCSIM)*, IISRC Journals, ISSN: 2091-1610. 145. Sadia Ashraf, Shoab Khan, Naveed S Khattak, Abdur Rehman, "M2PLS: Mobile Multiprotocol Label Switching", *4th International Conference on Innovations in Information Technology*, 18-20 Nov. 2007 Pages:83 – 87.
176. Aqib Perwaiz, Shoab A Khan, "High Performance and Low Power Programmable Bit Serial Digital down Converter Design Based on Half Band FIR Decimation, pp 218-223, (HPCNCS-07) Orlando, Florida, USA, July 9-12, 2007.
177. Perwaiz, Aqib, and Shoab A. Khan. "Bit serial CORDIC DDFS design for serial digital down converter." *Telecommunication Networks and Applications Conference, 2007. ATNAC 2007. Australasian.* IEEE, 2007.
178. Asad Waqar Malik, Shoab A. Khan, Sulieman, "Context Aware Network Enabled Distributed Modeling and Simulation Framework", *Modeling & Simulation, 2007. AMS '07. First Asia International Conference 27-30 March 2007* Pages:200 – 205.
179. Atif Bin Mansoor, Ajmal S. Mian, Adil Khan, Shoab A. Khan, "Fuzzy Morphology for Edge Detection and Segmentation" *ISVC (2) 2007*: pages: 811821.
180. Aisha Butt, Shoab Ahmed Khan, "Static and Dynamic Information Extraction In Video Sequences", *IVCNZ 2007, Hamilton, New Zealand* 151. Aslam, Baber, Monis Akhlaq, and Shoab A. Khan. "IEEE 802.11 wireless network simulator using Verilog." *Proceedings of the 11th Conference on 11th WSEAS International Conference on Communications.* 2007.
181. Mumtaz, Rafia, Raja Iqbal, and Shoab A. Khan. "Image Enhancement Using Nonsampled Contourlet Transform." *Intelligent Information Processing III.* Springer US, 2007. 391-400. 153. Hussain, Imran, Sadia Hussain, Imtiaz Khokhar, Raja Iqbal, and Shoab Ahmed Khan. "Comparative analysis of OFDMA and MC-IDMA multiple access techniques for XG wireless applications." In *Proceedings of the 2007 Euro American conference on Telematics and information systems*, p. 24. ACM, 2007.
182. Akram, Adeel, Shahbaz Pervez, and Shoab A. Khan. "Resource Aware Media Framework for Mobile Ad hoc Networks." *Innovative Algorithms and Techniques in Automation, Industrial Electronics and Telecommunications.* Springer Netherlands, 2007. 2730.
183. Akram, Adeel, Shahbaz Pervez, and Shoab A. Khan. "Extending Ad hoc Network range using CSMA (CD) parameter optimization." *Innovative Algorithms and Techniques in Automation, Industrial Electronics and Telecommunications.* Springer

Netherlands, 2007. 2325.

184. Tehsin, Samabia, Shoab Ahmed Khan, and Naveed Sarfraz Khattak. "Visualizing Network Traffic as Images for Network Anomaly Detection." (2007).
185. Tehsin, Samabia, and Shoab A. Khan. "A novel packet header visualization methodology for network anomaly detection." *Proceedings of the Fourth IASTED International Conference on Communication, Network and Information Security*. ACTA Press, 2007.
186. Basit, Abdul, and SHOAB A. KHAN. "Design and simulation of a mobile ad-hoc network in HLA environment." *Proceedings of the 9th WSEAS international conference on Automatic control, modelling and simulation*. World Scientific and Engineering Academy and Society (WSEAS), 2007.
187. Asghar, Asghar Hussain, Sadia Rizvi, Shoab Shah, Muhammad Rauf, Ayub Khan, and Javed Irfan. "Correlation Of Perfusion And Contractility Of Left Ventricle Myocardium On Gated Myocardial Perfusion Scintigraphy." *J Ayub Med Coll Abbottabad* 19, no. 2 (2007).
188. Khan, Saira Parvez, S. Ismaeel, M. Akbar, S. A. Khan, and Z. Ahmed. "Metropolitan Active Space: Introducing Context-Aware Services in GSM Networks." In *Mobile Data Management, 2007 International Conference on*, pp. 309-314. IEEE, 2007.

2006

189. Rafia Mumtaz, Shoab Ahmed Khan, Raja Iqbal, "Image Enhancement Using Non Sub-sampled Contourlet Transform", International Conf on Intelligent Information Processing (ICIIP-2006), University of South Australia, City West Campus, North Terrace, Adelaide, Australia.
190. Rafia Mumtaz, Shoab Ahmed Khan, Raja Iqbal, "Image Enhancement Using Non Sub-sampled Contourlet Transform", International Conf on Intelligent Information Processing (ICIIP-2006), University of South Australia, City West Campus, North Terrace, Adelaide, Australia.
191. Adeel Yusuf, Dawood Khan, Shoab Khan, "Prediction of Protein Coding Regions on a Programmable VLIW Architecture", BIOT 2006.
192. Qaiser, Aysha, and Shoab A. Khan. "Automation of time and attendance using RFID systems." *Emerging Technologies, 2006. ICET'06. International Conference on*. IEEE, 2006. 165. Hamid, Zara, and Shoab A. Khan. "An augmented security protocol for WirelessMAN mesh networks." *Communications and Information Technologies, 2006. ISCIT'06. International Symposium on*. IEEE, 2006.
193. Aslam, Baber, M. Hasan Islam, and Shoab A. Khan. "Pseudo randomized sequence number based solution to 802.11 disassociation denial of service attack." *Mobile Computing and Wireless Communication International Conference, 2006. MCWC 2006. Proceedings of the First*. IEEE, 2006.
194. Mehboob, Rizwana, Shoab A. Khan, and Zaheer Ahmed. "High speed lossless data compression architecture." *Multitopic Conference, 2006. INMIC'06. IEEE*. IEEE, 2006. 168. Aslam, Baber, M. Hasan Islam, and Shoab A. Khan. "802.11 disassociation DoS attack and its solutions: A survey." *Mobile Computing and Wireless Communication International Conference, 2006. MCWC 2006. Proceedings of the First*. IEEE, 2006.

169. Murtaza, Zeeshan, et al. "Silicon real time operating system for embedded DSPs." *Emerging Technologies, 2006. ICET'06. International Conference on.* IEEE, 2006. 170. Jabeen, Mehwish, and Shoab A. Khan. "Label switch path with guaranteed quality of service in mobile Ad Hoc network." *Wireless and Mobile Communications, 2006. ICWMC'06. International Conference on.* IEEE, 2006.
195. Kawish, Babar S., Baber Aslam, and Shoab A. Khan. "Reduction of Overheads with Dynamic Caching in Fixed AODV based MANETs." *World Academy of Science, Engineering and Technology* 16 (2006): 60-65.
196. Khan, Ahmed, and Shoab A. Khan. "Performance evaluation of AODV & DSR for wireless sensor networks." *WSEAS Transactions on Computers* 5.10 (2006): 2454-2459. 173. Jamal, Habibullah, Sheikh M. Farhan, and Shoab A. Khan. "Low Power Area Efficient High Data Rate 16-bit ABS Crypto Processor." *Microelectronics, 2006. ICM'06. International Conference on.* IEEE, 2006.
197. Rab, Rabia Abdur, Aneela Shoukat, Madhia Sajjad, and Shoab A. Khan. "Executive Information Systems Based on Data Mining Techniques Modeled through Quadratic Programming." In *Emerging Technologies, 2006. ICET'06. International Conference on*, pp. 599-604. IEEE, 2006.
198. Akram, Adeel, Shahbaz Pervez, and Shoab A. Khan. "Multimedia task scheduling on OLSR enabled ad hoc networks." *WSEAS Transactions on Communications* 5.3 (2006): 444. 176. Rasheed, Abdullah Haroon, et al. "A Low Bit Architecture for a Very Compact Hardware Implementation of the AES Algorithm." *ISSA*. 2006.
199. Latif, Seemab, and Shoab A. Khan. "Correlations and Associations Analysis for Identification and Prediction of Relationships and Their Activeness." *Information and Communication Technologies, 2006. ICTTA'06. 2nd. Vol. 1.* IEEE.
200. Yusuf, A., and S. A. Khan. "Hardware Accelerator for Prediction of Exons." *Engineering in Medicine and Biology Society, 2006. EMBS'06. 28th Annual International Conference of the IEEE.* IEEE, 2006.
201. Khan, S., S. Basharat, M. S. H. Khiyal, and S. A. Khan. "Investigating Energy Consumption of Localized and Non Localized Ad hoc Routing Protocols in TinyOS." In *Multitopic Conference, 2006. INMIC'06. IEEE*, pp. 355-358. IEEE, 2006.

2004-2005

202. Atif Bin Mansoor, Awais Mansoor, and Shoab A Khan, "Curvelet based Fingerprint Matching", in Proc. URSI, Oct 2005.
203. Shumaila Malik, Shoab A Khan, "Urdu Online Handwriting Recognition", in Proc. URSI, Oct 2005.
204. Faisal Moeen, Farhan Shafiq, and Shoab A. Khan, "Applying folding & register minimization transformation on DFG and generating Verilog HDL code", in proc. International SoC Design Conference, 2005, Seoul, Korea.
205. F. Noor, Shoab A. Khan, M. Rahmatullah, M. Tariq, "An upto OC-48 VoIP media gateway simulator for performance characterization", in Proc. ICWES 2005, South Korea.
206. K. Jafri, N. Jari, and Shoab A. Khan, "Multitasking OS for Reconfigurable hardware", in Proc. ICWES 2005, South Korea.

207. Khalid and Shoab A. Khan, "A hybrid-component design methodology for reconfigurable high rate digital communication receiver board", in Proc. ICWES 2005, South Korea.
208. Fatima Batool, Shoab A Khan, "Traffic Estimation And Real Time Prediction Using Ad hoc Networks", in Proc IEEE International Conf, ICET2005, Islamabad-Pakistan.
209. Ambreen Sheikh, Shoab A Khan, "Integer Programming Approach for Optimal Resource Allocation in Workflow Automation Design", in Proc. INMIC 2005.
210. Fozia Noor Khan, Shoab Khan, "A multi-DSP based simulator for architecture and high density algorithm exploration", in Proc. INMIC 2005.
211. Shahzad Saleem, Shoab Ahmad Khan, "Design and Tradeoff Analysis of an Area Efficient Viterbi Decoder, in Proc. INMIC 2005.
212. Malik, Asad Waqar, Abdul Basit, and Shoab A. Khan. "HLA compliant network enabled distributed modeling and simulation infrastructure design." *SEPADS'05: Proceedings of the 4th WSEAS International Conference on Software Engineering, Parallel & Distributed Systems*. 2005.
213. Butt, Irfan Majeed, and S. A. Khan. "Analyzing & Enhancing energy efficient communication protocol for wireless micro-sensor networks." *Information and Communication Technologies, 2005. ICICT 2005. First International Conference on*. IEEE, 2005.
214. Shafait, F., M. Usman, H. Jamal, and S. Ahmed Khan. "Architecture for 2-D IDCT for real time decoding of MPEG/JPEG compliant bitstreams." In *Microelectronics, 2005. ICM 2005. The 17th International Conference on*, pp. 5-pp. IEEE, 2005.
215. M.S. Sarfraz and S.A.Khan "Adaptive Block Matching Motion Estimation Algorithm For Video With Less Complex Motion Fields" Hawaii International Conference on Sciences, Jan. 2004 USA.
216. Rizwan Ghaffar, Noman Jafri, Shoab Ahmed Khan, "Depth Extraction System Using Stereo Pairs", *ICIAR (2) 2004*: 512-519.
217. Fozia Noor Khan, Shoab A. Khan, Hammad A. Khan, "A Hardware Software Design of Object Detection, Elimination and Placement System Using a Runtime Reconfigurable Processor for High Resolution Multimedia Applications", in Proc GSPx 30 Sep 2004, USA.
218. Hammad A. Khan and Habibullah Jamal, Shoab A. Khan and Awais Mansoor , "Partial Encryption Technique for Compressed Multimedia Data Using Perceptual Information", in Proc GSPx 30 Sep 2004, USA.

219. Zaheer Ahmed, Rizwana Mehboob, Shoab A Khan and Habibullah Jamal, "Decentralized GPS aware MANET For Mission Critical Applications", in Proc. (M2USIC04), October 2004, Malaysia.
220. Sheikh Muhammad Farhan, Shoab A Khan, Habibullah Jamal, "Mapping of High-bit Algorithm to Low-bit for Optimized Hardware Implementation", in Proc. ICM 2004, December 2004, pp. 148 – 151, TUNISIA.
221. Zaheer Ahmed, Rizwana Mehboob, Shoab A Khan and Habibullah Jamal, "Dynamic Mission Critical Network for Mobile System", Proceedings of the 16th International Conference on Microelectronics, ICM 2004, December 6-8, 2004, Tunis, pp. 776 – 779, TUNISIA.
222. S. Pervez, A. Akram, Shoab A Khan, "Optimal Antenna Placement Algorithm for Full Area Coverage Using Minimum Number of Antennas", ICICT 2004, Dec 2004, Cairo – Egypt.
223. R. Hafiz, M. A. Tahir, O. Arshad, Shoab A. Khan, "An optimized hardware accelerator for real time registration of aerial video imagery and its applications", in Proc. Image and Graphics, 2004. Dec. 2004, pp196 – 199, Hong Kong.
224. Zeshan Hameed Khan, Shoab A. Khan "Sub band Coder Design for Audio Compression", in Proc INMIC 2004, Dec 2004, pp 163-167, Lahore-Pakistan 203. Rehan Haifz, M. Ali Tahir, Omair Arshad, Shoab A. Khan, "Hardware Design for Registration of Aerial Video Imagery", in Proc INMIC 2004, Dec 2004, pp 682-7, Lahore-Pakistan.
225. Fozia Noor Khan, Shoab A. Khan, "Real-time Object Based SingleStream to Multi-Stream Network Enabled Multimedia System Using an AdderLess Reconfigurable Fast", in Proc INMIC 2004, Dec 2004, pp 688-3, Lahore Pakistan.
226. Tahir Zaidi, Qasir Chaudry, Shoab A. Khan, "An Area and Time Efficient Collapsed Modified Cordic DDFS Architecture For High Rate Digital Receivers" in Proc INMIC 2004, Dec 2004, pp 677-1, Lahore-Pakistan.

2002-2003

227. Maleeha Abbas, Batool Talha, Shoab Khan, Adeel Abbas, "A Motion Estimation Chip For Block Based Mpeg-4 Video Application", in proc INMIC 2003.
228. A. Ghafoor, R. N. Iqbal, S. Khan, "Modified Chamfer Matching Algorithm", in proc IDEAL 2003 Hong Kong pp 1102-1106, 2003.
229. Abdul Ghafoor, Rao Naveed Iqbal and Shoab Khan, "Stability Conditions for Discrete Domain Characteristic Polynomial", in proc SCI 2003, USA.
230. M. S. Sarfaraz, S. A. Khan, "Multimedia Engineering in Video Encodings", International Workshop on Frontiers of Information Technology, December 23-24, 2003.
231. M. S. Sarfraz and Shoab.Khan."A Novel Gradient based very fast Adaptive Block-based Motion estimation algorithm for Low Bit rate video coding", ICICS Taiwan. pp 1213-1219, December, 2003.
232. Habibullah Jamal, Fahed Hameed, Sharjeel Saeed, Moazzam Pasha, and Shoab Khan, "An RTL Verilog Processor", ICM2003 The 15th International Conference on Microelectronics Dec 2003 Cairo, Egypt.
233. Habibullah Jamal, Khalid Mahmood Shoab Khan, "Fast Hybrid Architectures", ICM2003 The 15th International Conference on Microelectronics Dec 2003 Cairo, Egypt.

234. Asim Munawar, Omer Qadir, M. Fahd Javed, S. Khan, "Design And Implementation Of An Optimized Processor For Table Driven Solution & Its Application In Manet's (Mobile Adhoc Networks)", in proc INMIC 2003.
235. Kishwar Jafri, Nasir Jafri, Shoab A Khan, "Modeling Temporal Partitioning In A Partially Reconfigurable System", in proc INMIC 2003.
236. Abdul Ghafoor, Rao Naveed Iqbal, Shoab Khan, "Robust Image Matching Algorithm", in proc. EC-VIP MC pp 155-160 July 2003, Zagreb Croatia.
237. Abdul Ghafoor, Rao Naveed Iqbal, Shoab Khan, "Image Matching Using Distance Transform". In proc. SCIA 2003: 654-660 July 2003, Halmstad, Sweden.
238. Bashir, Y. Rafiq, I. Shah, and S. Khan, "Interworking real-time FoATM and FoIP", Proceedings INMIC 2002, Dec 2002.
239. M. Z. Iqbal, S. Khan, A Multiple Path Constraint Quality of Service Routing Algorithm", Proceedings INMIC 2002, Dec 2002.
240. S. Khan, S. Shah, F. Kashif, I. Zaman, "A Low Complexity ITU-T Compliant DTMF Detector ", Proceedings INMIC 2002, Dec 2002.
241. Amjad, S. Khan, A. B. Mansoor, M. Hayat, "Functional Verification of Multiprocessor based System-on-Chip on Distributed Systems ", Proceedings INMIC 2002, Dec 2002.
242. Omar Mukhtar, S. Khan, "FPGA based White Box Verification Methodology for SOC Design", Proceedings INMIC 2002, Dec 2002.
243. A. Jawad, S. M. Masood, S. Khan, M. M. Rahamtullah, "In-system Debug Support for a Processor Core", Proceedings INMIC 2002, Dec 2002.
244. A. Abbas, S. Khan, H. Jamal, U. Farooq, "An Optimal Application Specific Processor and Development Tools Design Methodology ", Proceedings INMIC 2002, Dec 2002.
245. A. Abbas, S. Khan, BURAQ: A reconfigurable processor toolkit for VLIW architecture, in proceedings SPIE 2002 USA, pp 4867-08.
246. A. Abbas, S. Khan, "Optimal generation of DSP processor from behavioral description", in proceedings FPL2002 Sep 2002, France.
247. A. Abbas, S. Khan, "BPLD – Machine Description Language for Clustered VLIW Processors", in proceedings of System-on-Chip for real-time applications July 2002, Canada.
248. D. Habib, S. Khan, S. Sadiq, "Code Generation for Digital Communication Algorithms on Application-Specific Processors" Proceedings of the 12th International Conference of WSE, July 27-31,2002, Canada.
249. A. Abbas, S. Khan, "A reconfigurable processor toolkit , in proceedings", CATA2002, April 2002 USA.
250. A. Abbas and S. Khan, "BURAQ: A re-configurable processor toolkit for VLIW architectures," 17th ISCA International Conference on Computers and Their Applications, vol. 1, pp. 156-159, April 2002.

2001

251. Yaser Rafiq, Omar Bashir, Syed Ismail Shah and Shoab A. Khan, "FoIP Gateways - Architectures, Implementation and QoS Issues", Proceedings INMIC 2001, 2001, p 87-92.
252. Wasif Latif, Aniq Shahid, Faisal Saud, Saqib Ali And Shoab A Khan, "Exploring Multiple Levels Of Parallelism Using BOPs' DSP," Proceedings INMIC 2001, 2001, p

185-194.

253. M. S. Sadiq, S. A. Khan. "Scheduling of Digital Signal Processing Algorithms on StarCore VLIW DSP, 14th International Conference on Parallel and Distributed Computing Systems (PDCS-2001)", August 2001 Texas USA 233. M U Ilyas And Shoab A Khan, "A Clustering Heuristic Algorithm For Scheduling Periodic And Deterministic Tasks On A Multiprocessor System", Proceedings INMIC 2001, 2001, p 1-5.
254. Syed A Khayam, Shoab A Khan And M. Sohail Sadiq, "A Generic Integer Programming Approach To Hardware/Software Co-Design", Proceedings INMIC 2001, 2001, p 6-90.

2000

255. Shoab A. Khan and Malik Saqib, "Parallel Viterbi Algorithm for a VLIW DSP", Proceedings IEEE ICASSP 2000, Turkey.
256. M. S. Sadiq, S. A. Khan, "Optimal Digital Design and Implementation of CSD FIR Filters", in proceedings ICSPAT 2000 USA.
257. M. S. Sadiq, S. A. Khan, "Optimal Digital Design and Implementation of CSD FIR Filters", in proceedings ICSPAT 2000 USA.
258. M. S. Sadiq and Shoab Khan, "Combined Scheduling and Mapping of Digital Signal Processing Algorithms on C6x DSP", in proceedings ICSPAT 2000 USA.
259. Shoab A. Khan, S.M. Farhan, and M. S. Sadiq, "Optimal Time-Shared Design of Digital Signal Processing Architectures", Proceedings INMIC 2000, 2000, p 1-5.
260. Hassan Farooq, Noumaan A. Shah, Rehan Hameed, Shoab A. Khan, and Mubeen S. Khan, "Hardware CORDIC Assist to a DSP Processor", Proceedings INMIC 2000, 2000, p 6-9.
261. Zaheer Ahmed, and Shoab A. Khan, "Development of A Programmable Multiplierless Viterbi Accelerator", Proceedings INMIC 2000, 2000, p 15-18.
262. M. S. Sadiq, and Shoab A. Khan, "Optimal Design & Implementation of CSD Fir Filter", Proceedings INMIC 2000, 2000, p 19-22.
263. Khalid Mahmood, and Shoab A. Khan, "Optimal Digital Design of Signal Processing Applications using Hybrid Architectures", Proceedings INMIC 2000, 2000, p 48-51.
264. Khurram Tanvir, and Shoab A. Khan, "Hardware Implementation of Discrete Time Wavelet Transforms Using Recirculating Polyphase Decimation Filter Architecture for A 3-Level Tree Structured QMF Bank", Proceedings INMIC 2000, 2000, p 52-55.
265. Mehboob Alam, and Shoab A. Khan, "VLSI Implementation of Pipelined IIR Digital Filters", Proceedings INMIC 2000, 2000, p 56-61.
266. Rizwana Mehmoob, and Shoab A. Khan, "Design of Algorithmic State Machine Controlled Programmable Processor", Proceedings INMIC 2000, 2000, p 66-70.
267. Zaineb Suleman, Shoab A. Khan, Imtinan Elahi, and Raheel Khan, "Hardware-Software Co-Simulation of Signal Processing and Communication", Proceedings INMIC 2000, 2000, p 114-118.
268. M. Mudassar Nisar, and Shoab A. Khan, "A Methodology for Designing and

Verification of Digital Down Converter”, Proceedings INMIC 2000, 2000, p 222-225.

269. Zaheer Ahmed, and Shoab A. Khan, “Development of Complex Architectures Using ERTL Language”, Proceedings INMIC 2000, 2000, p 226231.
270. Z. Ahmed, S. A. Khan, “Design and Implementation of Complex Architectures using ERTL”, in proceedings ICSPAT2000 USA.
271. M. Farooq, S. Khan, R. Khan, Z. Suleman, “BURAQ: A DSP Development Framework”, in proceedings ICSPAT2000 USA.

1998-1999

272. M. S. Sadiq and Shoab Khan, “Scheduling and Mapping of Digital Signal Processing Algorithms on C6x DSP”, Proceedings 33rd Asilomar Conference, 1999, USA **1998**.
273. M. Sadiq and S. Khan, “Hardware/Software codesign of application specific signal processing systems”, proc. in INMIC’98 Conference, pp. 140, November 1998.
274. K. Iqbal and S. Khan, “Parallel Mapping of Hopfield Neural Networks on an SIMD Super Computer,” proc. in INMIC’98 Conference, pp. 141, November 1998.
275. D. Habib and S. Khan, “Parallel mapping of digital signal processing algorithms on a VLIW architecture,” in Proc INMIC’98 Conference, pp. 7-11, November 1998.
276. J. Sultan, S. Khan, S. Aziz, and A. Baig, “Verification and Design Environment for Timing & Phase Recovery in a Satellite Burst Demodulator,” in Proc. INMIC’98 Conference, pp. 38-43, November 1998.
277. S. Ahsan, M. Saqib, and S. Khan, “Design and implementation of FEC encoders and decoders for wireless & satellite data transmission applications,” in Proc INMIC’98 Conference, pp. 2-6, November 1998.
278. M. Khan, H. Farooq, and S. Khan, “Hardware Software Implementation of Direct Digital Frequency Synthesizer,” in Proc. INMIC’98 Conference, pp. 32-37, November 1998.
279. M. Khan, H. Farooq, and S. Khan, “Digital design of a universal modulator,” in Proc. IEEE Fast’98.
280. D. Habib and S. Khan, “VLIW architecture in high rate digital communication,” in Proc. IEEE Fast’98.
281. A. Nadeem and S. Khan, “Four Dimensional Trellis-Coded-Modulation,” in Proc. IEEE Fast’98.

1997

282. M. Sadiq and S. Khan, "Optimal mapping of DSP algorithm onto a VLIW Architecture," in Proc. 1st Comsats National Conference on Mathematical molding 1997.

1995

283. S. Khan and V. Madisetti, "High performance signal processing on DSPbased Multiprocessors," in International Conference on Parallel and Distributed Processing Techniques and Applications (PDPTA'95), November 95, USA.
284. S. Khan and V. Madisetti, "Parallel mapping of back propagation algorithm for mesh signal processor," in IEEE Workshop on Neural Networks for Signal Processing (NNSP'95), September 95, USA.
285. S. Khan and V. Madisetti, "System partitioning for MCMs for low power," IEEE Design and Test, pp. 41--52, Vol 12, March 1995, USA **1994**.
286. S. Khan and V. Madisetti, "Signal and Image Processing in C on a MeshBased SIMD Supercomputer", Technical Report Analog Devices Inc 1994.
287. S. Khan and V. Madisetti, "Yield-based partitioning strategies for MCM and ASEM Design," in Proc. IEEE Multi-Chip Module Conference, pp. 144-149, 1994, USA.

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1. Shahid Mehmood Khan
Particle Swarm Optimization as Hardware-Oriented Meta-Heuristic for Image Analysis
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Optimization Techniques for Throughput Enhancement in FPGA Specific Designs
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Optimized Implementation across Slice Fabric on FPGA
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Cooperative Diversity for OFDM System
5. Usman Akram
Automated Detection and Grading of Diabetic Retinopathy from Digital Retinal Images

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Honors and Awards

1. Tamgha-e-Imtiaz 2009, National Civil Award for Contribution in Engineering
2. NCR National Excellence Award 2005-2006 for outstanding services in IT Education
3. PEF National Education Award 2001 for Outstanding Services to S&T
4. CAE Gold Medal (1989) for being the top graduate of year 1989
5. Avionics Engineering Gold Medal
6. Govt. of Pakistan Fellowship for Ph.D. studies
7. President Georgia Tech Pakistan Students Association (1994-1995)
8. Georgia Tech Pakistan Students Association (1994-1995)