

Irum Nosheen

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CAREER OBJECTIVE

To continue on a challenging career-path of Software and Computer Engineering in environments where experience can be leveraged, used and enhanced to increase knowledge, and complement the analytical, research and implementation skills in organizations focused upon adding value to education.

PROFESSIONAL EXPERIENCE

International Islamic University Islamabad, Pakistan (June 2009-present)

Lecturer (faculty of Engineering and Technology)
Department of Electrical Engineering

Worked as a research associate in Center for Advanced Research in Engineering (CARE), (2011-2019)

I am working on a project TA'EERUN is an advanced multimode-multiband Software Defined Radio (SDR) that supports different configurations and form factors for robust tactical communications. With enhanced secure voice and high-speed data capabilities through state-of-the-art technology TA'EERUN radio transceiver achieves high performance in a network environment. TA'EERUN through its run-time configurability option provides capability to download multiple waveforms comprising of all layers in a typical network setting. These layers include Physical layer (PHY), Medium Access Layer (MAC), Transport Layer, Network Layer and user configurable Application layer. The associated SDR framework enables the user to design its own set of waveforms by selecting different components for each layer from a library of components. For example the PHY supports both multiple frequency hopped narrow band and wideband components and waveform can have one out of many PHY components in a particular waveform. Similarly propriety and standard AD-HOC wireless network protocols add the flexibility of self-healing and self-forming thus make the TA'EERUN a very reliable communication device in a network setting. Radio performance has been enhanced several folds by using All-Digital IF and voice processing through state-of-the-art DSP/FPGA devices on TA'EERUNs SDR processing boards designed by CARE.

TECHNICAL SKILLS

- ✓ Programming skills in C/C++, C#.
- ✓ Software tools experience in OpenCv, Matlab 7.0, NS-2, OMENT++, Visual Studio.NET, MS Visio, MS Project, Ethereal, and Asterisk.
- ✓ Database skills in MS-SQL server, Oracle 9i Developer, MySQL and MS Access.
- ✓ Working knowledge of Database Management System, Software Designing, Software Quality Assurance, Object Oriented Methodology, Computer Networks, Mobile adhoc Networks and Digital Logic Design, TMS320VC5416 DSP kit.CCstudio_v3.1,CISCO Packet tracer.
- ✓ Practical experience of working on Amplitude, frequency and phase modulation trainers.

EDUCATION:

Center for Advanced Studies in Engineering (CASE), Islamabad, Pakistan (2012-2019).

PhD in Computer Engineering

Area of research: Cross Layer Design for Multi-hop Self-healing and Self-forming Tactical Networks.

Center for Advanced Studies in Engineering (CASE), Islamabad, Pakistan (2007-2008).

Ms Computer Engineering (Gold Medalist)

Area of Specialization: Computer Networks and Communications.

CGPA: 3.95

Workshops and Conferences attended:

- ✓ Participated in four days International Conference on “Power Generation Systems and Renewable Energy Technologies”-(29th November to 2nd December,2010)”
- ✓ Participated in two days workshop on” Understanding Writing/Winning International Research Grants and Developing Sustainable Collaborative Research Networks-Tips and Tricks (7th-08th Dec 2010)”.
- ✓ Participated in two day workshop on curriculum Design arranged by COMSATS. (OCT,2014)

BS Thesis Supervised

1. Human Body Vital Parameters Acquisition And Transmission

(The gadget developed acquires the main vital parameters like pulse rate/heart rate, body temperature, ECG and transmit it to the ICU administrative system)

2. Crowd Behavior Through Imaging

(it is a surveillance project, in which an intelligent system observes crowd optical flow and detects and generate warning in case of any abnormal event in crowd)

3. Driver Safety System Using Fatigue Detection

(Objective is to prevent accidents by sensing signs of drowsiness. Main techniques used are image processing, serial communication and embedded systems and tools used are OpenCv, AVR studio and Proteus .

4. Wheel Chair Movement Control Using Eyeball Tracking

(Project is aimed to integrate software results of eyeball tracking with a wheel chair to make it move accordingly. This result of software will be sent to the microcontroller (serially interfaced with the software) which will further direct the motors interfaced with the wheel chair which will either move in the specific direction or stop, based on the initial state)

5. Intelligent Cam

(This project is an image processing based real Time security surveillance system .The aim of a real time surveillance system is to detect any type of motion i.e. Moving objects in the field of view of camera and tracking the motion)

Publications

1. F. Khalique, S. A. Khan and I. Nosheen, , "A Framework for Public Health Monitoring, Analytics and Research", in *IEEE Access* . doi: 10.1109/ACCESS.2019.2930730, vol. 7, pp. 20520-20530, 2019.
2. I. Nosheen, S. A. Khan and F. Khalique, "A Mathematical Model for Cross Layer Protocol Optimizing Performance of Software Defined Radios in Tactical Networks," in *IEEE Access*. doi: 10.1109/ACCESS.2019.2896363, vol. 7, pp. 101309 - 101326, 2019.
3. I. Nosheen, S. A. Khan, and U. Ali, "A Cross Layer Design for a Multi Hop, Self-Healing and Self Forming Tactical Network" *Wireless Communications and Mobile Computing*, Hindawi, in vol. 2019, no. 1523906, pp. 1-16, 2019.
4. I. Nosheen and S. A Khan, "A cross layer protocol for optimal performance of software defined radios in mission critical networks," 2017 IEEE 11th International Conference on Application of Information and Communication Technologies (AICT) pp. 1-5, 09 2017.
5. S. Naz, A. Ahmed, Q. ul ain Mubarak and I. Noshin, "Intelligent driver safety system using fatigue detection," 2017 19th International Conference on Advanced Communication Technology (ICACT), Bongpyeong, 2017, pp. 89-93. doi: 10.23919/ICACT.2017.7890063