Ali Khaqan

Registered Engineer (PEC)

Contact Details

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Objectives

Academically sophisticated professional with pioneering career reflecting strong technical expertise flavored with professional teaching and research experience in academia. Driven with desire of sharing my expertise in a competitive and healthy academic environment.

Educational Qualifications

2012 – 2017 **PhD(Electrical Engineering)**
COMSATS University Islamabad, Pakistan.
Specialization: Controls and Biomedical.

2006 – 2008 **MS(Telecom)**
Institute for Communication Technologies, Islamabad, Pakistan.
Major: Digital Signal Processing, Signals and Systems, Control Engineering, Communication systems.

2001 – 2005 **BS(CE)**
COMSATS University Islamabad, Pakistan.
Final Year Project: Supervisory Control and Data Acquisition (SCADA).

1999 – 2001 **BSc (Double Math, physics)**
Islamabad College for boys, G-6/3, Islamabad.

Teaching & Research Experience

Jan – 2007 – Nov 2012 **Lecturer**
Department of Electrical and Computer Engineering,
COMSATS University Islamabad(CUI), Pakistan (www.cui.edu.pk)

- Courses taught: Digital Signal Processing, Control Systems, Signals and systems, Electric Circuit Analysis, Digital Logic Design, Software Engineering.
- Labs conducted: Digital Signal Processing, Control systems, Digital Communication, Electric Circuit Analysis, Digital Logic Design.

Dec 2012– till date **Assistant Professor**
Department of Electrical and Computer Engineering,
COMSATS University Islamabad(CUI), Islamabad, Pakistan (www.cui.edu.pk)

Projects supervised

- GSM Based Fuel Monitoring System.
- Implementation of Finger Print Recognition Algorithm using Verilog VHDL.
- Wideband Code Division Multiple Access (WCDMA), Implementation on physical layer.

- Fuzzy Logic Control Applications.
- Physical Layer Implementation of 4G LTE using MIMO Techniques.

Publications

Journals

1) **Ali Khaqan**, Muhammad Bilal, Bilal Ijaz, Raja Ali Riaz, Control Law Design for Propofol Infusion to Regulate Depth of Hypnosis: A Nonlinear Control Strategy, *Computational and Mathematical Methods in Medicine*, volume 2016, Article ID 1810303, 10 pages. http://dx.doi.org/10.1155/2016/1810303.

2) Muhammad ILYAS, **Ali KHAQAN,** Jamshed IQBAL, Raja Ali RIAZ**,** Regulation of Hypnosis in Propofol Anesthesia Administration Based on Non-linear Control Strategy, *Brazilian Journal of Anaesthesiology*, Elsevier, ISSN: 0034-7094 (Print), 1806-907X (Elect.), 2016.

3) **Khaqan A**, ul Hasan Q, Malik SA, Bilal M, Butt MF, Riaz RA. Comparison of Two Nonlinear Control Strategies for Hypnosis Regulation. *Arabian Journal for Science and Engineering*. 2017:1-4.

4) Faiz-Ul-Hassan, Muhammad Adil, **Ali Khaqan***, Sana Shuja, Moazzam Islam Tiwana, Qadeer-ul-Hassan, Shahzad Malik, Raja Ali Riaz, Closed Loop Blood Glucose Control in Diabetics, *Biomedical Research-India*, 2017.

5) M.Ilyas, Muhammad Fasih Uddin Butt, Muhammad Bilal, Khalid Mahmood, **Ali Khaqan** and Raja Ali Riaz. A Review of Modern Control Strategies for Clinical Evaluation of Propofol Anesthesia Administration Employing Hypnosis Level Regulation, *Biomed Research International, 2017.*

6) Zuwwar Khan Jadoon, Sobia Shakeel, Abeera Saleem, **Ali Khaqan***, Qadeer-ul-Hasan, Shahzad A. Malik and Raja Ali Riaz. A Comparative Analysis of PID, Lead, Lag, Lead-Lag and cascaded Lead controller for a Drug Infusion System, *Journal of Healthcare Engineering, 2017*.

7) Muhammad Hamayun Qammar Kayani, Kainat Naeem Malik, Shaban Ahmad, **Ali Khaqan*,** Sana Shuja, Qadeer-ul-Hasan, Shahzad A. Malik and Raja Ali Riaz, A switching based PID technique for blood glucose control, *Biomedical Research-India*, 2018.

8) Hajra Arif, Sana Shuja, Shehryar Imtiaz, **Ali Khaqan*,** Qadeer ul Hasan, Shahzad A. Malik, Junaid Ahmed, Raja Ali Riaz, Risks Reduction Control Techniques Analysis in Type-1 Diabetes*, Biomedical Research-India*, 2018.

9) **Khaqan, A.,** Nauman, A., Shuja, S., Khurshaid, T. and Kim, K.C. An Intelligent Model-Based Effective Approach for Glycemic Control in Type-1 Diabetes. *Sensors*, *22*(20), p.7773, 2022.

10) Alvi, Sajid Hussain, Bakhtiar Ali, Jawad Mirza, **Ali Khaqan**, Muhammad Awais Javed, Jehad Ali, and Niamat Hussain. "Achievable Rate of NOMA-Based Cooperative Spectrum-Sharing CRN over Nakagami-m Channels." *Applied Sciences* 12, no. 23 (2022): 12010.

11) Iqbal, A., Nauman, A., Hussain, R., Khan, I.L., **Khaqan, A**., Shuja, S. and Kim, S.W., 2023. Device Discovery in D2D Communication: Scenarios and Challenges. *CMC-COMPUTERS MATERIALS & CONTINUA*, *75*(1), pp.1735-1750.

12) Noor, A., Javaid, N., Alrajeh, N., Mansoor, B., **Khaqan, A**. and Bouk, S.H., 2023. Heart Disease Prediction using Stacking Model with Balancing Techniques and Dimensionality Reduction. *IEEE Access*.

13) **Khaqan Ali**, Sardar Muhammad GULFAM, Laeeq Riaz, Azhar Yasin, Abrar Ahmed, Mohsin Jamil, Bakhtiar Ali, Haider Ali, Fahad Sharief, and Raja Ali RIAZ. "Performance of Time Hopping Impulse Radio in Ultrawideband Propagation Channels: Implications of UWB and Diversity Order Selection." *Przeglqd Elektrotechniczny* 89, no. 7 (2013): 69-73.

14) GULFAM, Sardar Muhammad, Ayesha Maryam SIDDIQUI, **Ali Khaqan**, Abrar Ahmed, Azhar Yasin, Mohsin Jamil, Sharjeel Riaz, Mehmood QURESHI, Samar Naseem ABBASI, and Raja Ali RIAZ. "The Q-Best Spreading Sequences for Low-Complexity DS-CDMA IEEE 802.15 UltraWideBand Systems in Dense Multipath Channels." *Przeglqd Elektrotechniczny* 89, no.6 (2013): 88-92.

15) Jamil, Mohsin, Fahad Sharief, Azhar Yasin, Abrar Ahmed, Sardar Muhammad Gulfam, **Ali Khaqan**, and Raja A. Riaz. "DSP based hardware implementation of repetitive current controller for interleaved grid connected inverter." *Review on Electrical Engineering (Przeglad Electrotechniczny)* 2 (2013): 251-55.

16) BAKHSHI Asim Dilawer, Abrar Ahmed, Sardar Muhammad GULFAM, **Ali Khaqan**, Azhar Yasin, Sadaf Iqbal, Sharjeel Riaz, Mohsin Jamil, Ahsan Khawaja, and Raja Ali RIAZ. "Estimation of Baseline Wander Characteristics in ECG Signals Using Adaptive Transversal Filter and Lomb's Periodogram Analysis." *Przeglqd Elektrotechniczny* 89, no. 5 (2013): 107-110.

17) Azhar Yasin , Ahmed Alvi , Azfar Yaqub , Ayesha Siddqui , Abrar Ahmed , **Ali Khaqan** , Mohsin Jamil , Sardar Gulfam , Riaz Hussain , Atif Shakeel , Raja Riaz. "Vertical Handover Triggering Condition Estimation for a Mobile Node Moving Out of a WiFi Cell." *Przeglqd Elektrotechniczny* 89, no. 3a (2013): 86-88.

18) Bakhshi, Asim Dilawer, Abrar Ahmed, Sardar Gulfam, **Ali Khaqan**, Azhar Yasin, Raja Riaz, Khurram Alimgeer, Shahzad Malik, Shahid Khan, and Aamir Hanif Dar. "Detection of ECG T-wave Alternans Using Maxima of Continuous-Time Wavelet Transform Ridges."*Przeglqd Elektrotechniczny"* 88, no. 12b (2012): 35-38.

Conference

1) **A. Khaqan**, R.A. Riaz. Khaqan, Ali, and Raja Ali Riaz. "Depth of hypnosis regulation using nonlinear control approach." In 2016 IEEE International Conference on Electro Information Technology (EIT), pp. 0100-0104. IEEE, 2016.

Honours and Awards:

1) Awarded Research Productivity Award (RPA) by COMSATS, Islamabad 2012 and 2017.

Software Skills

Programming:	C/C++, MATLAB, Verilog, Assembly
O.S.:	Linux, Windows
Misc:	LabView, MS Project, MS Office

References

1) Dr. Raja Ali Riaz
Professor, Electrical and Computer Engineering Department, COMSATS University Islamabad, Pakistan
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2) Dr. Muhammad Fasih ud din Butt
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