Cover Letter

Dear, Sir/Madam

I am Dr. Ali Hassan Sodhro, applying for the Position of the Postdoctoral Research Fellow in your prestigious organization. Please find enclosed my CV.

The nature of my degree course titled, "Computer Applications Technology", has prepared me for this position. It involved a great deal of enthusiasm, eagerness, independent research, requiring initiative, self-motivation and a wide range of skills. For research domains wireless sensor networks, in designing, developing and implementing novel analytical models and protocols for sensor network, and content delivery in vehicular networking, smart transportation and smart city based applications, Internet of Things, Fog, Edge/Cloud computing, Wireless Body Sensor Networks, an understanding of the Energy-efficiency Wireless and sensor Networks, medical-QoS, Medical-IoT, Telemedicine, e-Health, m-Health, Wireless Power Transfer, Wireless Video Transmission are essential. I found these fields very stimulating.

I am good at technical writing and critical thinking with fast problem solving ability, with a keen eye for more detail and I will be very grateful for the opportunity to prove my capabilities and hone my research skills for making progress at Industry level. I am able to take on the responsibility of this position immediately, and have the enthusiasm and determination to ensure that I make a success of it.

Thank you very much for taking the time to consider this application and I look forward to hearing from you in the near future.

Yours sincerely,

Dr. Ali Hassan Sodhro

Dr. Ali Hassan Sodhro

E-mail: ali.hassan@iba-suk.edu.pk
: alihassan.sodrho@univ-lyon2.fr
Cell# +33641189103
Address: University Lumiere Lyon 2, DISP LAB, Lyon, France

Objective

I am very enthusiastic, dedicated and hardworking individual seeking an opportunity in a prestigious and well-reputed organization, where I shall use all my professional skills to work for the betterment of that esteemed organization.

Personal

- Date of Birth 20th April 1986
- Marital Status Married
- Passport AB5441193
- Date of Issue Sept 2016
- Date of Expiry Sept 2021
- Nationality Pakistani

Education

Postodoctoral Research Fellow, under Erasmus Mundus's SMARTLINK Project,
Research Topic: Role of Internet of Things in the Medical Health Applications
DISP LAB, University Lumiere Lyon 2, Lyon, Bron-69500, France **Aug.2017 to June.2018**

PhD: Computer Applications Technology, **Aug.2011 to May, 2016**
Thesis title: Energy-efficient Communication in Wireless Body Sensor Networks SIAT,CAS, Shenzhen &University of Chinese Academy of Sciences, Beijing, China **73%**

M.E: Communication Systems and Networks (CSN) **Jan 2008 to July 2010**
Research Project: "Security Issue/ Authentication and Simulation of LEAP in WSN"
Mehran University of Engineering and Technology, Sindh, Pakistan.
CGPA: 3.63/4.0

B.E: Telecommunication Engineering **Jan 2004 to Jan 2008**
Research Project: "Wireless Sensor Networks. Simulation of Ad-Hoc Routing Protocols"
Mehran University of Engineering and Technology, Sindh, Pakistan.
CGPA: 3.3/4.0

Fields of Interest

- Wireless Communication
- Wireless Sensor Networks
- Vehicular Networking and Protocols
- Smart Transportation and Smart City based Applications
- Wireless Body Sensor Networks(WBSNs)
- Wireless Power/Energy Transfer and Energy Harvesting
- Wireless Multimedia
- Energy-efficient Communication in WBSNs
- Energy-efficient Video Transmission in WBSNs
- Fog/Edge Computing, Cloud Computing
- Medical QoS (m-QoS)/QoE
- Medical-Internet of Things
- Security in Wireless Sensor Networks(WSNs)
- Telemedicine Systems
- 5G, Smart Healthcare

Programming Skills

- Matlab
- OpNet
- OMNet++

Research Projects

- **Title: "Energy Efficient Communication for Wireless Body Area Networks", This project was supported by National Science Foundation China (NSFC) project of, from 2013.1.1--2017.12.31, Funding Code 61379136.**

Abstract: Wireless Body Area Network (WBAN) worked as the basic unit for vital life signal sensing and transmission for healthcare, and energy consumption has been considered as the biggest challenge for long-term monitoring. Because of properties of medical traffic diversity, service differentiation, and environmental dynamics, and concerns for energy depletion will be aggregated if the traditional communication techniques are still applied to the WBAN. On the other hand, due to consideration of low-power radio, change of body posture can easily interfere with the communication link of WBAN. However, the traditional power control strategies are developed on the stable state and large scale environment, while lack of solutions in a dynamic and micro-scale environment. According to the need of green communication in the future, we first present the typical medical service behavior model and the index of medical quality of service (m-QoS) requirements; secondly, according to the medical traffic diversity and service difference, the key theories such as the system level optimization of energy efficiency, resource allocation and

adaptive service are investigated by the combination with the specific QoS quantitative index. As for the dynamics of WBANs environment, we also pursue the multiple-nodes data fusion, and the context-aware dynamic power control strategies. This project would provide theoretical guidance for the widely adopted applications and standardization of Internet of Things (IoT) for healthcare.

- **Title: "Energy-efficient Video Transmission in Wireless Body Sensor Networks". This project is supported by Higher Education Commission (HEC) of Pakistan as a Principle Investigator (PI) under START-UP RESEARCH GRANT PROGRAM (SRGP)#21-1465/SRGP/R&D/HEC/2016, from 01-01-2017 to 01-01-2018.**

Abstract: Due to continuous enhancement to safety and effectiveness in medical health a video transmission is considered as a quite significant step during first hour of the emergency event. However, the energy hungry video encoding and transmission processes and slow progress in battery technologies have become a major and serious problem for the evolution of video technology in wireless body sensor networks (WBSN). So enhancing energy-efficiency during voluminous and variable bit rate (VBR) video transmission in WBSN is a challenging and crucial problem for researchers and engineers. Therefore, the need arose to conduct research on energy-efficient battery-friendly technologies to cater the need of upcoming sensor nodes. It is reported that a significant amount of energy is consumed during communication, which shortens operation and battery lifetime of the nodes for particular applications in WBSNs. Therefore, in this context it is very vital to develop energy-efficient and battery-friendly solutions that can minimize energy-deficiency and extend battery lifetime of WBSNs. Moreover, due to large temporal variations in the wireless on-body channel, typical conventional techniques do not provide the sufficient energy saving in WBSNs.

- **Title:** "**Building Skills 4.0 THrough UniversitY and Entreprise CollaboraTion (SHYFTE)**". **This project is supported by European Commission, EACEA, Erasmus+ - Key Action 2 - Capacity building in the field of higher education, worked as a Team-Leader, from Aug.2017 to Feb 2018.**

The main motivation of SHYFTE is to transform the technology-oriented skills of Skills 4.0 from European developed countries (i.e., France, Italy and Portugal) to the Asian developing countries (i.e., Thailand, China and Malaysia) in association with the Industry4.0, University 4.0 and Knowledge 4.0. Then bring together the targeted European and Asian countries with specific competencies and state-of-the art technologies applied to production systems for optimizing and managing the productivity, human labour, safety and social issues related to industrial production. Asian partner countries (PCs) such as, Thailand, China and Malaysia involved in this proposal are facing rapid radical changes in their industrial systems, due to the high requirement from their stakeholders to be efficient, costs effective by following the 4th wave of industrial revolution to improve their skills and competencies. So, Asian PCs need better learning and teaching methodologies with digital art to get clear instructions on how to prepare workforce and HEIs in association with Industry4.0 to bridge the skills gap and boost the job market at regional, national and international level.

Awards and Honors

- Got **Postodoctoral Research Fellow,** under Erasmus Mundus's SMARTLINK Project @ DISP LAB, University Lumiere Lyon 2, Lyon, France, **from Aug.2017 to June.2018**

- Fully funded PhD scholarship from University of Chinese Academy of Sciences and Shenzhen Institutes of Advanced Technology, Chinese Academy of Sciences, China, **from August 2011 to July 2016.**

- Fully funded Merit Scholarship from Sindh Technical Board, Karachi and Illm-e-Foundation Lahore, Pakistan, for M.Engg:, **from Jan 2008 to July 2009.**

- Fully-funded Merit Scholarship from Sindh Technical Board, Karachi, Pakistan, for B.Engg:, **from Jan 2004 to Dec. 2007**

- Third Best Paper Award with Cash Prize & Certificate at Guangzhou Annual Report Competition, Guangzhou, China, 2012.

- Best Student Presentation Award with Cash Prize at 3rd Global Health Informatics Summit 2015, in Conjunction with The 11th IEEE-EMBS International Summer School & Symposium on MDBS'2015 & The 10th International School & Symposium on BHE'2015.

- Outstanding Graduate Award,2015 with Cash Prize and Certificate

- Got Research Travel Grant#267.19/TG/R&D/HEC/2017/21658 of 2.68 million PKR from Higher Education Commission (HEC) of Pakistan, for oral presentation of research my paper entitled "Energy Management during Video Transmission in WBSNs", in 14th IEEE International Conference on Networking,Sensong and Control (ICNSC), May 16-18, 2017, Calabria, Southern Italy.

- Got Research Travel Grant#287.25/TG/R&D/HEC/2017/25147 of 2.1054 million PKR from Higher Education Commission (HEC) of Pakistan, for oral presentation of research my paper entitled "Green Wireless Body Sensor Networks", in 15th IEEE International Conference on Networking,Sensong and Control (ICNSC), March 27-29, 2018, Zhuhai, China.

- Got research project of 5 million PKR from Higher Education Commission (HEC) of Pakistan as a Principle Investigator (PI) under START-UP RESEARCH GRANT PROGRAM (SRGP)#21-1465/SRGP/R&D/HEC/2016, **from July 2017 to July 2018.**

Teaching Experience

- Working as Assistant Professor in Electrical Engineering Department at Sukkur IBA University, Sukkur, Sindh, Pakistan, **From 10-2016 to date.**

- Worked as Lecturer in Electrical Engineering Department at Sukkur Institute of Business Administration, Sukkur, Sindh, Pakistan, **From 07-2009 to 10-2016.**

TEL-312	Analog &Digital Communication	Undergraduate
TEL-311	Signals &Systems	Undergraduate
ESE-311	Digital Signal Processing	Undergraduate
ESE-312	Advanced Digital Signal Processing	Postgraduate
TEL-411	Telecom Switching & Transmission	Undergraduate
CSC-332	Network Security and Cryptography	Undergraduate
ELE-321	Feedback Control System	Undergraduate

Reteach Experience

- **Postodoctoral Research Fellow,** under Erasmus Mundus's SMARTLINK Project @ DISP LAB, University Lumiere Lyon 2, Lyon, France, **from Aug.2017 to June.2018**

- Worked as PhD student/Research Associate in Research Center for Biomedical Information Technology, at Chinese Academy of Sciences, Shenzhen Institutes of Advanced Technology (CAS, SIAT), Shenzhen, China, **from August 2011 to July 2016.**
- Worked as Research Assistant in Crest LAB, Mehran University of Engineering and Technology, Pakistan, **from Jan 2008 to June 2009.**

- Supervised Master students for the Project entitled, "Power-aware Communication in WBSNs", **since Sept. 2013 to Aug. 2014**

- Supervised Undergraduate Students Project in Sukkur IBA, Pakistan.
  " ICI Cancellation in OFDM system" **2010**

- Supervised Undergraduate Students in Sukkur IBA, Pakistan.
  "Physical Layer Performance of Mobile Wimax and LTE " **2010**

- Attained International Winter School for on Frontier and Inter-disciplinary Sciences for the Oversea Students in IC-UCAS, at Guanzhou, China. **From 5th Jan to 11th Jan, 2016**

- Supervising two Master of Engineering (M.E) Students in Electrical Engineering at Sukkur IBA University, **from Feb. 2017 to date**

Research Publications

[1] **Ali Hassan Sodhro**, Ye Li, Madad Ali Shah,"Energy-efficient Adaptive Transmission Power Control in Wireless Body Area Networks", **IET Communications**, Vol.10, No.1, pp.81-90, Jan.2016 **.**

[2] **Ali Hassan Sodhro**, Ye Li, Madad Ali Shah, "Green and Friendly Media Transmission Algorithms for Wireless Body Sensor Networks", **Journal of Multimedia Tools & Applications**, Vol.76, No.19, pp.20001-20025, 2017

[3] **Ali Hassan Sodhro,** Aicha Sekahri, Yacine Ouzrout, **"**Energy-efficiency Comparison between Data Rate Control and Transmission Power Control Algorithms for Wireless Body Sensor Networks", **International Journal of Distributed Sensor Networks (IJDSN),** Vol.14, No.1, pp.1-18, 2018

[4] **Ali Hassan Sodhro**, Arun Kumar Sangaiah, Sandeep Pirphulal, Aicha Sekhari ,Yacine Ouzrout, Green Media-Aware Medical IoT System, **Multimedia Tools & Applications,**Springer,http://link.springer.com/article/10.1007/s11042-018-5634-0,pp.1-20, 2018

[5] **Ali Hassan Sodhro,** Arun Kumar Sangaiah, "Convergence of IoT and Product Lifecycle Management in Medical Health Care **"Future Generation Computer Systems: Special Issue on Emerging Edge-of-Things Computing: Opportunities and Challenges, Elsevier, [SCI Indexed, IF=3.997] (In Press)**

[6] **Ali Hassan Sodhro**, Arun Kumar Sangaiah, Sandeep Pirphulal, 'An Overview of Power Management Strategies for Medical Information Transmission in Wireless Body Sensor Networks', **IEEE Consumer Electronics Magzine [SCI Indexed, IF=1.153] (Accepted for Publications, Jan 2018)**

[7] **Ali Hassan Sodhro,** Arun Kumar, **"**An Energy-Efficient Algorithm for Wearable Electrocardiogram Signal Processing in Ubiquitous 3 Healthcare Applications", MDPI Sensors Vol.8, No.3, pp.923, 2018 **[SCI Indexed, IF=2.677] (In Press)**

[8] **Ali Hassan Sodhro, Arun Kumar,**'Towards IoT-based Smart City Architecture using Ubiquitous Sensing Technologies', MDPI Remote Sensing, **[SCI Indexed, IF=3.244] (Accepted for Publications, March 2018)**

[9] **Ali Hassan Sodhro, Arun Kumar, Gul Hassan Sodhro,** '5G-based Transmission Power Control Mechanism in Fog Computing for IoT Devices', MDPI Sustainability,Vol.10, No.4, pp.1-17, April 2018 **[SCI Indexed, IF=1.789]**

[10] **Ali Hassan Sodhro, Ye Li,** "Medical Quality-of-Service Optimization in Wireless Telemedicine System Using Optimal Smoothing Algorithm",E-Health Telecommunication Systems and Networks (ETSN) Journal, Vol.2, No.1,March 2013.

[11] **Ali Hassan Sodhro, Ye Li,** "Novel Key Storage and Management Solution for the Security of Wireless Sensor Networks", TELKOMNIKA Indonesian Journal of Electrical Engineering, Vol. 11, No. 6, pp.3383-3390, June 2013, **[EI]**

[12] LiliWang, Ni An, **Ali Hassan Sodhro**, Ye.Li*,"Power-aware Wireless Communication System Design for Body Area Networks",E-Health Telecommunication Systems and Networks (ETSN) Journal, Vol. 2 No. 2, pp. 23-28 , June 2013.

[13] **Ali Hassan Sodhro**, Safeer Hyder, Feroz Shah, "Impact of Transmission Control protocol Window Size on Routing Protocols of Wireless Sensor Networks" , Sindh University Research Journal (SURJ) . Vol.44 (2AB), pp.143-148, 2012.

[14] **Ali Hassan Sodhro**, Safeer Hyder, FS Syed, "Effect of TCP Window Size on Routing Protocols of Wireless Sensor Networks", 2nd International Conference on Computer and Emerging Technologies (ICCET), Shah Abdul Latif University, Khairpur Mirs, Sindh Pakistan. Feb 23-35, 2012.

[15] Dai Hu, **Ali Hassan Sodhro**, Ye Li, " Decomposing Atrial Activity Signal by Combining ICA and WABS", 35th IEEE Annual International Conference of the Engineering in Medicine and Biology (EMBC), Osaka Japan,3-7 July, 2013 [EI Indexed].

[16] **Ali Hassan Sodhro**, Ye Li, ,"Battery-Friendly Packet Transmission Strategies for Wireless Capsule Endoscopy", IFMBE The International Conference on Health Informatics, Internation Federation for Medical and Biological Engineering (IFMBE) Proceedings, Vol.42, pp.236-239, 2014

[17] AA Chandio, D. Zhu, **Ali Hassan Sodhro**, M.Umer Syed, "An Implementation of Web Services for Internet-Connectivity of Information Systems, International Journal of Computing and Digital Systems (IJCDS)", Vol.3, No.3, pp.1-7, 2014

[18] AA Chandio, D.Zhu, **Ali Hassan Sodhro**, "Integration of Inter-Connectivity of Information Systems (i3) using Web Services", Lecture Notes in Engineering and Computer Science, 2012

[19] **Ali Hassan Sodhro**, Giancarlo Fortino, "Energy Management during Video Transmission in WBSNs", 14th IEEE International Conference on Networking, Sensing and Control (ICNSC), Calabria, Southern Italy, May 16-18, 2017.

[20] **Ali Hassan Sodhro**, Madad Ali Shah, "Role of 5G in Medical Health", IEEE International Conference on Innovations in Electrical Engineering and Computational Technologies (ICIEECT),Indus University, Karachi, Pakistan, 5-7 April, 2017

[21] **Ali Hassan Sodhro,** Aicha Sekhari, Yacine Ouzrout, "Medical QoS Optimization over joint Body Sensor Networks and Internet of Multimedia Things", 12th International conference on Body Area Networks, Sept.28-29, 2017, Dalian, China **(Accepted for Publication)**

[22] **Ali Hassan Sodhro,** Aicha Sekhari, Yacine Ouzrout, "Battery Friendly Internet of Medical Media Things Networks", 3rd EAI International Conference on Interoperablity in IoT, Valencia, Spain, Nov.6-7, 2017 **[Accepted for Publication]**

[23] **Ali Hassan Sodhro,** Aicha Sekhari, Yacine Ouzrout, "Green Wireless Body Sensor Networks", 15th IEEE ICNSC2018, Zhuhai China, March 27-29,2018, **[Accepted for Publication]**

Book Chapters

1. **Ali Hassan Sodhro**, Arun Kumar, Sandeep Pirbhulal, Saeed Ahmed Khan Abro" Medical Quality of Service Optimization over Internet of Multimedia Things", Computational Intelligence for Multimedia Big Data on the Cloud with Engineering Applications,

Intelligent Data-Centric Systems: Sensor Collected Intelligence By Elsevier **[Accepted for Book]**

2. **Ali Hassan Sodhro**, Sandeep Pirbhulal, Faisal K.Shaikh, Madad Ali Shah, "Medical-QoS Telemedicine Service Selection using Analytic Hierarchy Process", Handbook on Smart Healthcare, Springer , Handbook of Large-Scale Distributed Computing in Smart Healthcare pp 589-609, 2017.
3. **Ali Hassan Sodhro, Sandeep Pirbhulal, Mir Muhammad Lodro, Madad Ali Shah,"Chapter#16: Energy-efficiency in Wireless Body Sensor Networks",** Book Title: Networks of the Future Architectures, Technologies, and Implementations, Chapman & Hall/CRC Computer and Information Science Series, pp.492, **CRC Press** (Taylor & Francis Group), Oct. 2017
4. **Ali Hassan Sodhro**, Arun Kumar, "Energy-efficiency of Tools and Applications on Internet", Computational Intelligence for Multimedia Big Data on the Cloud with Engineering Applications, Intelligent Data-Centric Systems: Sensor Collected Intelligence By Elsevier **[Accepted for Book]**
5. **Ali Hassan Sodhro,** Yacine Ouzrout, Aicha Sekhari, "A Novel Joint TPC and WPT Approach for WBSNs,", Energy Management by Springer, 2017 **[Submitted]**

Technical Reviewer of Journals

1. IEEE Communication Magzine 2017 to date
2. IEEE Sensor Journal, 2017 to date
3. IEEE Consumer Electronics Magzine, Jan 2018 to Date
4. Journal of Network and Computer Applications, Elsevier, Feb 2018 to date
5. Wireless Personal Communication-Springer, from 2016 to date.
6. Digital Communications and Networks-Elsevier, from 2016 to date

References

1. **Professor Yacine Ouzrout**
   Director DISP LAB, University Lumiere Lyon 2,Lyon,France
   Email: yacine.ouzrout@univ-lyon2.fr

2. **Professor Giancarlo Fortino**
   University of Calaberia, Calaberia,Rende, Italy
   Department of Informatics, Modeling, Electronics and Systems (DIMES)
   Email: giancarlo.fortino@unical.it

3. **Professor Aicha Sekhari**
   Director DISP LAB, University Lumiere Lyon 2,Lyon,France
   Email: aicha.sekhari@univ-lyon2.fr