

## Biography

- **Specialization:** I am working as an Associate Professor in the Department of Information Technology, Faculty of Computing and IT (FCIT), The University of the Punjab, Lahore. Before that, I worked as an Associate Professor and Chairman of the Department of Software Engineering, Faculty of Computing, The Islamia University of Bahawalpur.

I have 22 years of experience in teaching, research, coordination, and University-level education management. Defended my Ph.D. thesis - titled "Contribution to the formal specification and verification of a multi-agent robotic system" - with distinction "Tres Honorable magna cum laude" on Thursday 2nd of September 2010 from IRISA, University of South Brittany (UBS), Bretagne, FRANCE. Worked as a Teaching Assistant, teaching and supervising projects at the University of South Brittany (UBS), Bretagne, France in 2007, 2008, and 2009. Completed MS (Master-2) with a specialization in Information System Architecture from the Institut Universitaire Professionnalis   (IUP), University of South Brittany, Bretagne, FRANCE in 2006.

Recipient of several scholarships, awards, and research grants, including the HEC overseas scholarship 2006 for Ph.D. studies in France, the French Embassy scholarship for Master and MS studies Study in France in 2004, the teaching assistant for ENSIBS University of South-Brittany Vannes France, HEC Start-up research grant of 0.5 million in 2012, student research project grant from ICT in 2014, and HEC Approved Ph.D. supervisor. Research areas are Multi-Agent Systems, Formal modeling, Deep Learning, Machine Learning, Blockchain, Web3, Data analytics, and Formal verification & validation,

I have been teaching university post-graduate and graduate students and supervising Ph.D. and MS research. Three PhD and 110 MS students have completed their thesis under my supervision. Have 55 research articles published in reputed International Journals and 2 research articles published in Internationally reputed Conferences.

## Summary of Qualifications

- **Research Specialization:** Formal Software Verification, Formal Modelling, Blockchains, Smart Contracts, Crypto-Currencies, Multi-Agent Systems, Software Quality Assurance, Data Analytics
- **Blockchain Development:** Smart-Contracts, Solidity, Ethereum, Bitcoin, Chainlink, Solana, Avalanche, Algorand, Polygon, zkSync
- **Web Scraping:** Python Scrapy, Python Beautiful Soup
- **Data Wrangling:** Python
- **Advanced Data Visualization:** Tableau, Python
- **Machine Learning:** Python (Machine Learning libraries of Pandas, Scikit-Learn, Seaborn, Matplotlib, PyTorch, Tensorflow, Keras), WEKA, L<sup>A</sup>T<sub>E</sub>X, R, MATLAB<sup>®</sup>
- **Full-Stack Web Development:** dot NET, React, C#, Javascript, TypeScript, HTML, CSS
- **Mobile App Development:** Native Android development, Android Development using Kotlin, Jetpack Compose for Android
- **Formal Languages and Formal Technologies:** TLA+, PlusCal, Coloured-Petri Nets (CP-Nets), Event-B, Rodin, UPPAAL, LTSA, FSP (Finite State Processes, VDM
- **Databases:** ORACLE, MySQL, Microsoft SQL, PostgreSQL, MongoDB
- **Virtualization Technologies:** Proxmox, Kubernetes, Docker, VirtualBox, Vagrant
- **Programming Languages:** Python, JavaScript, Java, C#, C++/C, Visual C#, Visual C, Visual dot NET

## Experience

- **Associate Professor, Faculty of Computing and IT (FCIT)** 20 June 2024 - Present  
*PUCIT - The University of the Punjab, Lahore* *Punjab, Pakistan*
- **Chairman, Department of Software Engineering** 06 June 2022 - 20 June 2024  
*Faculty of Computing, The Islamia University of Bahawalpur* *Punjab, Pakistan*
- **Associate Professor, Faculty of Computing** 28 March 2022 - Present  
*The Islamia University of Bahawalpur* *Punjab, Pakistan*
  - Teaching and conducting computer labs.:
  - Updating and Implementing new Computing Courses according to HEC and NCEAC guidelines:

- Supervising research projects (PhD, MSCS, MSSE, MCS, BSCS, BSSE, BSIT).:

- **Assistant Professor, Dept of Computer Science & IT** 22 Dec 2011 - 28 March 2022  
*The Islamia University of Bahawalpur* *Punjab, Pakistan*
- **Lecturer (BPS-18), Dept of Computer Science & IT** 10 May 2004 - 21 Dec 2011  
*The Islamia University of Bahawalpur* *Punjab, Pakistan*
- **Lecturer / Teaching fellow** 2008/2009/2010  
*ENSIBS, University of South Brittany(UBS)* *Bretagne, FRANCE*
- **Ph.D. with the highest Honor (Très Honorable)** April 2006 to Sept. 2010  
*ArchLog team - Lab. IRISA - University of South Brittany (UBS)* *Bretagne, FRANCE*
- **Master Internship** February 2005 to September 2005  
*Lab. IRISA (Computer Science) - University of South Brittany (UBS)* *Bretagne, FRANCE*
- **Information Technology Officer** October 2002 to April 2004  
*PICIC Commercial Bank Ltd* *Punjab, Pakistan*

## Education

- **Ph.D. Computer Science - Highest Honor (Tres Honorable)** Mar. 2006 - Sept. 2010  
*ArchLog team - IRISA - Ecole Doctorale* *University of South Brittany (UBS)* *Bretagne FRANCE*
- **M.S. in Computer Science - (Information Systems Architecture)** Aug. 2004 - Feb. 2006  
*Institut Universitaire Professionnel (IUP), University of South Brittany (UBS)* *Bretagne, FRANCE*
- **BS (Computer Sciences) – (4 years university degree)** Sep. 1998 - Dec. 2002  
*1st Division – CGPA 3.81 – 78% - Department of Computer Sciences* *Bahawalpur - Pakistan*  
*The Islamia University Bahawalpur*
- **F.Sc (Higher Secondary School Certificate)** Aug. 1996 - Sept. 1998  
*1st Division - 72% - Govt. Sadiq Egerton College* *Bahawalpur – Pakistan*
- **Matriculation (Secondary School Certificate)** Aug. 1996  
*2nd Position - A+ Grade - 85% - F.G Boys Public School Bahawalpur Cantt* *Bahawalpur – Pakistan*

## Recent Awards

- **Chairman**, Department of Software Engineering, Faculty of Computing, The Islamia University of Bahawalpur, from 6 June 2022 to 20 June 2024.
- Three students **Dr Muhammad Nauman**, **Dr Mustafa Hameed** and **Dr Nazeer Ahmad** have completed PhD under my supervision.
- I have supervised **110 MS Research theses**. These research dissertations led to a number of research projects with wide range of applications.
- Higher Education Commission (HEC) Pakistan **Approved PhD Supervisor**.
- Coordinator PhD and MS Programs in 2018, Department of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan.
- **Coordinator Evening Programs** from 2014 to 2016, Department of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan.
- Member Board of Faculty, Faculty of Management Sciences, The Islamia University of Bahawalpur.
- In charge of Examination, MCS programs in 2016, Department of Computer Science & IT, The Islamia University of Bahawalpur.
- Member Library Committee, The Islamia University of Bahawalpur.
- Member, Quality Assurance Cell, Department of Computer Science & IT, The Islamia University of Bahawalpur.

- Research Project Funding under ICT Final Year Projects program 2013
- Subject Expert in Board of Studies, Department of Computer Science & IT, University of Sahiwal, Sahiwal.
- Subject Expert in Board of Studies, Department of Information Technology, Bahauddin Zakariya University (BZU), Multan.
- Subject Expert in Board of Studies, Department of Computer Science, Bahauddin Zakariya University (BZU), Multan.
- Member Board of Studies, Department of Computer Science & IT, The Islamia University of Bahawalpur.
- HEC Research Project Startup Grant of 0.310 Million 2012.
- On 02 September 2010, **awarded Ph.D. degree with the Highest French Honor ("Très Honorable") from Research center IRISA, Ecole Doctorale, University of South Brittany (UBS), FRANCE.**
- During the years 2009 and 2010, participated in ArchLog – Lab. IRISA meetings for European research project proposals writing and discussions – Vannes, FRANCE.
- During the years 2008, 2009, and 2010, participated in teaching courses, and project management of software engineering students at ENSIBS – Vannes, FRANCE.
- In January 2009, my research paper was selected and I participated in the International Conference on Agents and Artificial Intelligence (ICAART 09) in Porto, PORTUGAL.
- In the year 2006, I was awarded **HEC-SFERE scholarship for Ph.D.** studies in the field of formal methods for multi-agent robotic systems at Laboratory IRISA of Computer Science, Ecole Doctorale, University of South Brittany (UBS) – Vannes, FRANCE
- In the year 2005, completed MS internship (Robotics Software Interface Development) at Laboratory IRISA of Computer Science with the highest distinction from the University of South Brittany FRANCE.
- From 05 July 2004 to 10 September 2004 completed 250 hours of an extensive French language course with distinction from CAREL Institute Royan, FRANCE
- In the year 2004, I was selected by the French embassy for the "Study in France 2004" scholarship program for Master Professional (MS - Computer Science) studies in FRANCE.
- Throughout my academic career I have achieved first grade, first division.(1st Division, 2nd position, 85% marks, A+ grade at SSC) (1st Division at HSSC) (1st Division – CGPA 3.81 – 78% at BSCS) (Distinction during MS Internship at Laboratory IRISA, University of South Brittany Vannes, FRANCE) (Awarded the Ph.D. degree with the highest honorable distinction "French grade = Très honorable")

## Publications

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### Impact Factor Publications - HEC Recognized W Category

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- [1] Abdul Rehman, **Nadeem Akhtar**, and Omar H. Alhazmi. "Monitoring and predicting cotton leaf diseases using deep learning approaches and mathematical models". In: *Scientific Reports* 15 13 (2025), p. 22570. DOI: [10.1038/s41598-025-06985-9](https://doi.org/10.1038/s41598-025-06985-9).
- [2] Shahbaz Ahmad, **Nadeem Akhtar**, Adeel Ahmed, Saman Iftikhar, Shaikhan Bawazeer, and Saima Abdullah. "An Ensemble Formal Approach to Improve Energy Efficiency and Data Aggregation in Smart Agriculture". In: *IEEE Access* 13 (2025), pp. 65316–65333. DOI: [10.1109/ACCESS.2025.3558551](https://doi.org/10.1109/ACCESS.2025.3558551).

- [3] Nadeem Salamat, Malik Muhammad Saad Missen, **Nadeem Akhtar**, Muhammad Mustahsan, and V. B. Surya Prasath. “Color image restoration by filtering methods: a review”. In: *Soft Computing* 28.13 (2024), pp. 7755–7782. DOI: [10.1007/s00500-024-09673-4](https://doi.org/10.1007/s00500-024-09673-4).
- [4] Nadia Khan, Muhammad Nauman, Ahmad S. Almadhor, **Nadeem Akhtar**, Abdullah Alghuried, and Adi Alhudhaif. “Guaranteeing Correctness in Black-Box Machine Learning: A Fusion of Explainable AI and Formal Methods for Healthcare Decision-Making”. In: *IEEE Access* 12 (2024), pp. 90299–90316. DOI: [10.1109/ACCESS.2024.3420415](https://doi.org/10.1109/ACCESS.2024.3420415).
- [5] Nazir Ahmad, Salman Qadri, and **Nadeem Akhtar**. “A multimodal fusion framework to diagnose cotton leaf curl virus using machine vision techniques”. In: *Cogent Food & Agriculture* 10.1 (2024), pp. 1–16. DOI: [10.1080/23311932.2024.2339572](https://doi.org/10.1080/23311932.2024.2339572). eprint: <https://doi.org/10.1080/23311932.2024.2339572>. URL: <https://doi.org/10.1080/23311932.2024.2339572>.
- [6] Fatima Hussain, Muhammad Nauman, Abdullah Alghuried, Adi Alhudhaif, and **Nadeem Akhtar**. “Leveraging Big Data Analytics for Enhanced Clinical Decision-Making in Healthcare”. In: *IEEE Access* 11 (2023), pp. 127817–127836. DOI: [10.1109/ACCESS.2023.3332030](https://doi.org/10.1109/ACCESS.2023.3332030).
- [7] Ambreen Sarwar, Muhammad Kashif Imran, **Nadeem Akhtar**, and Tehreem Fatima. “Does social media usage boost career prospects of women: an exploratory study in the academia”. In: *Kybernetes* 52.6 (Feb. 2022), pp. 2061–2091. ISSN: 0368-492X. DOI: [10.1108/K-04-2021-0294](https://doi.org/10.1108/K-04-2021-0294).
- [8] Muhammad Nauman, **Nadeem Akhtar**, Omar H Alhazmi, Mustafa Hameed, Habib Ullah, and Nadia Khan. “Improving the Correctness of Medical Diagnostics Based on Machine Learning With Coloured Petri Nets”. In: *IEEE Access* 9 (2021), pp. 143434–143447. ISSN: 2169-3536. DOI: [10.1109/ACCESS.2021.3121092](https://doi.org/10.1109/ACCESS.2021.3121092).
- [9] Irfan Ullah Khan, Nida Aslam, Talha Anwar, Sumayh S Aljameel, Mohib Ullah, Rafiullah Khan, Abdul Rehman, and **Nadeem Akhtar**. “Remote Diagnosis and Triaging Model for Skin Cancer Using EfficientNet and Extreme Gradient Boosting”. In: *Complexity* 2021 (2021), pp. 1–13. ISSN: 1076-2787. DOI: [10.1155/2021/5591614](https://doi.org/10.1155/2021/5591614).
- [10] Muhammad Nauman, **Nadeem Akhtar**, Adi Alhudhaif, and Abdulrahman Alothaim. “Guaranteeing correctness of machine learning based decision making at higher educational institutions”. In: *IEEE Access* 9 (2021), pp. 92864–92880. ISSN: 2169-3536. DOI: [10.1109/ACCESS.2021.3088901](https://doi.org/10.1109/ACCESS.2021.3088901).
- [11] Abdul Rehman, **Nadeem Akhtar**, and Omar H Alhazmi. “Formal Modeling, Proving, and Model Checking of a Flood Warning, Monitoring, and Rescue System-of-Systems”. In: *Scientific Programming* 2021 (Apr. 2021), pp. 1–17. ISSN: 1058-9244. DOI: [10.1155/2021/6685978](https://doi.org/10.1155/2021/6685978).
- [12] Salman Qadri, Syed Furqan Qadri, Abdul Razzaq, Muzammil Ul Rehman, Nazir Ahmad, Syed Ali Nawaz, Najia Saher, **Nadeem Akhtar**, and Dost Muhammad Khan. “Classification of canola seed varieties based on multi-feature analysis using computer vision approach”. In: *International Journal of Food Properties* 24.1 (Mar. 2021), pp. 493–504. ISSN: 1094-2912. DOI: [10.1080/10942912.2021.1900235](https://doi.org/10.1080/10942912.2021.1900235).
- [13] Muhammad Khalid Sohail, **Nadeem Akhtar**, Dost Muhammad, Humaira Afzal, Muhammad Rafiq Mufti, Shahid Hussain, Mansoor Ahmed, et al. “Analyzing COVID-2019 impact on mental health through social media forum”. In: *Computers, Materials and Continua (CMC)* 67.3 (2021), pp. 3737–3748. ISSN: 1546-2218. DOI: [10.32604/cmc.2021.014398](https://doi.org/10.32604/cmc.2021.014398).
- [14] Syeda Javeria Shoukat, Humaira Afzal, Muhammad Rafiq Mufti, Muhammad Khalid Sohail, Dost Muhammad Khan, **Nadeem Akhtar**, Shahid Hussain, and Mansoor Ahmed. “Analyzing COVID-19 impact on the researchers productivity through their perceptions”. In: *Computers, Materials and Continua (CMC)* 67.2 (2021), pp. 1835–1847. ISSN: 1546-2218. DOI: [10.32604/cmc.2021.014397](https://doi.org/10.32604/cmc.2021.014397).
- [15] Dost Muhammad Khan, Talal Aslam, **Nadeem Akhtar**, Salman Qadri, Imran Mujaddid Rabbani, and Muhammad Aslam. “Black hole attack prevention in mobile ad-hoc network (MANET) using ant colony optimization technique”. In: *Information Technology and Control (ITC), Kaunas University of Technology (KTU)* 49.3 (Sept. 2020), pp. 308–319. ISSN: 1392-124X. DOI: [10.5755/jol.itc.49.3.25265](https://doi.org/10.5755/jol.itc.49.3.25265).
- [16] Malik Muhammad Saad Missen, Aqsa Naeem, Hina Asmat, Nadeem Salamat, **Nadeem Akhtar**, Mickaël Coustaty, and VB Prasath. “Improving seller–customer communication process using word embeddings”. In: *Journal of Ambient Intelligence and Humanized Computing* 12.1 (July 2021), pp. 2257–2272. ISSN: 1868-5145. DOI: [10.1007/s12652-020-02323-1](https://doi.org/10.1007/s12652-020-02323-1).

- [17] Muhammad Osama Akbar, Muhammad Jamshaid Ali, Azfar Hussain, Ghazia Qaiser, Maruf Pasha, Urooj Pasha, Malik Saad Missen, and **Nadeem Akhtar**. “IoT for development of smart dairy farming”. In: *Journal of Food Quality* 2020 (2020), pp. 1–8. ISSN: 0146-9428. DOI: [10.1155/2020/4242805](https://doi.org/10.1155/2020/4242805).
- [18] Malik Muhammad Saad Missen, Sajeeha Qureshi, Nadeem Salamat, **Nadeem Akhtar**, Hina Asmat, Mickaël Coustaty, and VB Prasath. “Scientometric analysis of social science and science disciplines in a developing nation: a case study of Pakistan in the last decade”. In: *Scientometrics* 123.1 (2020), pp. 113–142. ISSN: 0138-9130. DOI: [10.1007/s11192-020-03379-8](https://doi.org/10.1007/s11192-020-03379-8).
- [19] Moomina Waheed, **Nadeem Akhtar**, Humaira Afzal, Mansoor Ahmed, Dost Muhammad Khan, Muhammad Rafiq Mufti, Shahid Hussain, and Asad Habib. “Automatic Video Annotation of Human Health Care Action via Clustering”. In: *Journal of Medical Imaging and Health Informatics* 10.10 (Oct. 2020), pp. 2512–2521. ISSN: 2156-7018. DOI: [10.1166/jmihi.2020.3181](https://doi.org/10.1166/jmihi.2020.3181).
- [20] Sadaf Zahid Mahmood, Humaira Afzal, Muhammad Rafiq Mufti, **Nadeem Akhtar**, Asad Habib, and Shahid Hussain. “A Novel Method of Image Denoising: New Variant of Block Matching and 3D”. In: *Journal of Medical Imaging and Health Informatics* 10.10 (Oct. 2020), pp. 2490–2500. ISSN: 2156-7018. DOI: [10.1166/jmihi.2020.3185](https://doi.org/10.1166/jmihi.2020.3185).
- [21] **Nadeem Akhtar**, Abdul Rehman, Mujtaba Hussain, Saad Rohail, Malik Saad Missen, Mehwish Nasir, Alina Hayder, Nadeem Salamat, and Maruf Pasha. “Hierarchical coloured petri-net based multi-agent system for flood monitoring, prediction, and rescue (fmpr)”. In: *IEEE Access* 7.01 (Dec. 2019), pp. 180544–180557. ISSN: 2169-3536. DOI: [10.1109/ACCESS.2019.2958258](https://doi.org/10.1109/ACCESS.2019.2958258).
- [22] Subhan Tariq, **Nadeem Akhtar**, Humaira Afzal, Shahzad Khalid, Muhammad Rafiq Mufti, Shahid Hussain, Asad Habib, and Ghufraan Ahmad. “A novel co-training-based approach for the classification of mental illnesses using social media posts”. In: *IEEE Access* 7.01 (Nov. 2019), pp. 166165–166172. ISSN: 2169-3536. DOI: [10.1109/ACCESS.2019.2953087](https://doi.org/10.1109/ACCESS.2019.2953087).
- [23] Mujtaba Husnain, Malik Muhammad Saad Missen, **Nadeem Akhtar**, Mickaël Coustaty, Shahzad Mumtaz, and VB Prasath. “A systematic study on the role of SentiWordNet in opinion mining”. In: *Frontiers of Computer Science* 15.4 (Oct. 2019), pp. 1–26. ISSN: 2095-2228. DOI: [10.1007/s11704-019-9094-0](https://doi.org/10.1007/s11704-019-9094-0).
- [24] Mohammed Attik, Malik Muhammad Saad Missen, Mickaël Coustaty, Gyu Sang Choi, Fahd Saleh Alotaibi, **Nadeem Akhtar**, Muhammad Zeeshan Jhandir, VB Surya Prasath, Nadeem Salamat, and Mujtaba Husnain. “OpinionML—Opinion markup language for sentiment representation”. In: *Symmetry* 11.4:545 (Apr. 2019), pp. 1–37. ISSN: 2073-8994. DOI: [10.3390/sym11040545](https://doi.org/10.3390/sym11040545).
- [25] **Nadeem Akhtar** and Saima Khan. “Formal architecture and verification of a smart flood monitoring system-of-systems.” In: *The International Arab Journal of Information Technology (IAJIT)* 16.2 (Mar. 2019), pp. 211–216. ISSN: 1683-3198. URL: [http://iajit.org/index.php?option=com\\_content&task=view&id=1698&Itemid=469](http://iajit.org/index.php?option=com_content&task=view&id=1698&Itemid=469).

### Local HEC Recognized Journal Publications - HEC X and Y Category

- [26] Hafiz Muhammad Usman Akhtar, Muhammad Nauman, **Nadeem Akhtar**, Mustafa Hameed, Sidra Hameed, and Muhammad Zeshan Tareen. “Mitigating Cyber Threats: Machine Learning and Explainable AI for Phishing Detection”. In: *VFAST Transactions on Software Engineering* 13.2 (2025), pp. 170–195. DOI: [10.21015/vtse.v13i2.2129](https://doi.org/10.21015/vtse.v13i2.2129).
- [27] Sidra Sajjad, **Nadeem Akhtar**, and Laiqa Sajjad. “Formal Modelling and Model Checking of a Flood Monitoring and Rescue System: A Case Study of Safety-Critical System”. In: *VFAST Transactions on Software Engineering* 12.3 (2024), pp. 114–137. ISSN: 2309-3978. DOI: <https://doi.org/10.21015/vtse.v12i3.1871>.
- [28] Mustafa Hameed and **Nadeem Akhtar**. “Student Performance Prediction in Intelligent E-Learning for Tertiary Education”. In: *International Journal of Computational Intelligence in Control* 13.2 (Dec. 2021), pp. 293–299. ISSN: 0974-8571.
- [29] **Nadeem Akhtar**, Maruf Pasha, and Abdul Rehman. “Approach for the Formal Specification, Modelling, and Verification of a Safety-Critical Multi-agent System; An Employees Management Multi-agent System (EM-MAS)”. In: *Technical Journal - UET Taxilla* 25.4 (2021), pp. 46–54. ISSN: 1813-1786. URL: <https://tj.uettaxila.edu.pk/index.php/technical-journal/article/view/1201>.



- [30] **Nadeem Akhtar** and Shafiq Hussain. “Formal modeling of a mail transport system based on multi-agent system-of-systems”. In: *Journal of Information Communication Technologies and Robotic Applications (JICTRA)* 10.01 (June 2019), pp. 68–79. ISSN: 2523-5729. URL: <http://jictra.com.pk/index.php/jictra/article/view/146>.
- [31] Malik Muhammad Saad Missen, Dost Muhammad Khan, Hina Asmat, Kashif Faiz, and **Nadeem Akhtar**. “Profile Based Team Captain Recommendation System”. In: *Technical Journal - UET Taxilla* 24.03 (2019), pp. 83–89. ISSN: 1813-1786. URL: <https://tj.uettaxila.edu.pk/index.php/technical-journal/article/view/834>.
- [32] Dost Muhammad Khan, Iqra Yaqoob, **Nadeem Akhtar**, et al. “Smart education with smart phones: A case study of Bahawalpur”. In: *Global Regional Review (GRR)* 4.2 (2019), pp. 215–223. ISSN: 2616-955X. URL: [http://dx.doi.org/10.31703/grr.2019\(IV-II\).23](http://dx.doi.org/10.31703/grr.2019(IV-II).23).
- [33] **Nadeem Akhtar**, Abdul Rehman, and Dost Muhammad Khan. “Formal verification of safety and liveness properties using coloured petri-nets: a flood monitoring, warning, and rescue system”. In: *Journal of Information Communication Technologies and Robotic Applications (JICTRA)* 09.01 (June 2018), pp. 80–88. ISSN: 2523-5729. URL: <http://jictra.com.pk/index.php/jictra/article/view/84>.
- [34] **Nadeem Akhtar**. “Formal modeling and proving of Campus Management System: Event-B perspective”. In: *Bahria University Journal of Information & Communication Technologies (BUJICT)* 10.02 (Dec. 2017), pp. 1–6. ISSN: 1999-4974. URL: <https://www.bahria.edu.pk/ojs/index.php/bujict/article/view/174>.
- [35] **Nadeem Akhtar**, Dost Muhammad Khan, and Malik M Saad Missen. “Formal Validation of an Agent-based Location Guidance System (LGS)”. In: *Journal of Information Communication Technologies and Robotic Applications (JICTRA)* 08.02 (Dec. 2018), pp. 53–58. ISSN: 2523-5729. URL: <http://jictra.com.pk/index.php/jictra/article/view/18>.
- [36] Saima Khan, Muhammad Anwar, and **Nadeem Akhtar**. “ANALYSIS, DESIGN, ARCHITECTURE SPECIFICATION, AND FORMAL VERIFICATION OF A SMART FLOOD MONITORING SYSTEM-OF-SYSTEMS.” In: *Science International (Lahore)* 28.1 (Jan. 2016), pp. 221–226. ISSN: 1013-5316. URL: <http://www.sci-int.com/Search?catid=61>.

#### Emerging Sources Citation Index (ESCI) Journal Publications - HEC Recognized Y Category - ISI Master Journal List Journals

- [37] Ayman Naseem, **Nadeem Akhtar**, and Malik Saad Missen. “Formal Specification of a Truck Geo-Location Big-Data Application”. In: *International Journal of Advanced Computer Science and Applications (IJACSA)* 8.4 (Apr. 2017), pp. 342–351. ISSN: 2156-5570. DOI: [10.14569/IJACSA.2017.080447](https://doi.org/10.14569/IJACSA.2017.080447).
- [38] Safdar Hussain, Malik Muhammad Saad Missen, **Nadeem Akhtar**, Mujtaba Husnain, Intesab Hussain, and M Ali Nizamani. “Empirical Evaluation of Social and Traditional Search Tools for Adhoc Information Retrieval”. In: *International Journal of Advanced Computer Science and Applications (IJACSA)* 8.2 (Feb. 2017), pp. 410–415. ISSN: 2156-5570. DOI: [10.14569/IJACSA.2017.080252](https://doi.org/10.14569/IJACSA.2017.080252).
- [39] Nukhba Afzal, Malik Muhammad Saad Missen, Amnah Firdous, **Nadeem Akhtar**, Hina Asmat, and Saleem Ullah. “Mobile Technology based Polio-Vaccination System (PVS)–First Step Towards Polio-Free Pakistan”. In: *International Journal of Advanced Computer Science and Applications (IJACSA)* 8.2 (Feb. 2017), pp. 416–429. ISSN: 2156-5570. DOI: [10.14569/IJACSA.2017.080253](https://doi.org/10.14569/IJACSA.2017.080253).
- [40] Muhammad Farhan, Malik Muhammad Saad Missen, **Nadeem Akhtar**, Muhammad Ali Nizamani, Amnah Firdous, and Hina Asmat. “Evaluating Mobile Phones and Web Sites for Academic Information Needs”. In: *International Journal of Advanced Computer Science and Applications (IJACSA)* 07.10 (Oct. 2016), pp. 377–384. ISSN: 2156-5570. DOI: [10.14569/IJACSA.2016.071051](https://doi.org/10.14569/IJACSA.2016.071051).
- [41] **Nadeem Akhtar**, Malik Muhammad Saad Missen, Nadeem Salamat, Amnah Firdous, and Mujtaba Husnain. “A Study of Resilient Architecture for Critical Software-Intensive System-of-Systems (Sisos)”. In: *International Journal of Advanced Computer Science and Applications (IJACSA)* 07.08 (Aug. 2016), pp. 254–258. ISSN: 2156-5570. DOI: [10.14569/IJACSA.2016.070834](https://doi.org/10.14569/IJACSA.2016.070834).
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- [43] Muhammad Asif, Malik Muhammad Saad Missen, **Nadeem Akhtar**, Hina Asmat, Mujtaba Husnain, and Muhammad Asghar. “Hashtag the tweets: Experimental evaluation of semantic relatedness measures”. In: *International Journal of Advanced Computer Science and Applications (IJACSA)* 7.6 (June 2016), pp. 474–482. ISSN: 2156-5570. DOI: [10.14569/IJACSA.2016.070662](https://doi.org/10.14569/IJACSA.2016.070662).
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## Conference Articles

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- [60] **Nadeem Akhtar**, Yann Le Guyadec, and Flavio Oquendo. *Formal Specification and Verification of Multi-Agent Robotics Software Systems-A Case Study*. In Proceedings of the International Conference on Agents and Artificial Intelligence(ICAART2009). Porto, Portugal, Jan. 2009, pp. 475–482. ISBN: 978-989-8111-66-1. DOI: [10.5220/0001657904750482](https://doi.org/10.5220/0001657904750482).

## Research Thesis

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- [61] **Nadeem Akhtar**. “Contribution to the formal specification and verification of multi-agent robotic systems”. In: *PhD Thesis*. Laboratory VALORIA of Computer Science, University of South Brittany, Bretagne - FRANCE (Sept. 2010).
- [62] **Nadeem Akhtar**. “Design and development of graphical programming interface to program mini-robots and the definition of a Low Level Language grammar for this interface”. In: *Master Thesis*. Laboratory VALORIA of Computer Science, University of South Brittany, Bretagne - FRANCE (2005).

## Supervision of PhD (Computer Science) Thesis

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- **03 PhD (Computer Science) students have completed PhD’s under my supervision**  
Currently 08 PhD students are working under my supervision
- **Dr Muhammad Nauman** Fall 2015-2019  
Dept. of Computer Science & IT, The Islamia University of Bahawalpur Bahawalpur, Pakistan
  - **A FORMAL APPROACH TOWARDS EFFICIENT AND FAULT-TOLERANCE BIG DATA ANALYTICS:**
- **Dr Mustafa Hameed** Spring 2015-2019  
Dept. of Computer Science & IT, The Islamia University of Bahawalpur Bahawalpur, Pakistan
  - **FORMAL VERIFICATION OF INTELLIGENT E-LEARNING FRAMEWORK FOR TERTIARY EDUCATION:**
- **Dr Nazir Ahmad** Spring 2018-2021  
Dept. of Information Technology, Faculty of Computing, The Islamia University of Bahawalpur Bahawalpur, Pakistan
  - **SMART MONITORING OF COTTON LEAF CURL VIRUS USING TEXTURE WITH MULTISPECTRAL RADIOMETRIC DATA:**

## Evaluation of PhD thesis - External Examiner

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- **Dr Muhammad Abdul Basit ur Rahim** Dept. Software Engineering, Military College of Signals  
National University of Science & Technology (NUST) Rawalpindi, Pakistan
  - **MODELING AND VERIFICATION OF REAL-TIME AND HYBRID SYSTEMS**, Corrected, Evaluated the PhD thesis.

## Supervision of MS (Computer Science) Thesis

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- **110 MS (Computing)**, students have completed their Research Thesis under my supervision.
- Currently **08 MS students** are working under my supervision.



## List of Supervision of Under-Graduate student Final Year Projects

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- **Faculty of Computing** Bahawalpur, Pakistan
  - *Dept. of Computer Science & IT, The Islamia University of Bahawalpur*
    - **MCS / BS (Computer Science) / BS(IT) / BS(SE) Final Year Projects Supervision:** I supervised more than 350 students in the last 19 years. Scientific as well as professional projects are analyzed, designed, documented, and successfully implemented.
    - **Two student projects have won ICT Grass Root Project Funding**

## Non-formal Education

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- **Extensive French language Crash Course** Jul. 2004 to Sept. 2004  
*CAREL - Centre Audiovisuel de Royan pour l'Etude des Langues* Royan, FRANCE
- **French Language Course** Jan. 2004 to Jun. 2004  
*Alliance Française* Lahore, PAKISTAN
  - Conducted by Alliance Française under the supervision of **French embassy** with the aim of facilitating higher post-graduate studies in France.

## Languages

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- **French Language Course** Jan. 2004 to Jun. 2004  
*Alliance Française* Lahore, PAKISTAN
  - **English:** Excellent both spoken and written
  - **French:** Average both spoken and written
  - **Urdu:** Excellent both spoken and written