Nadeem Akhtar

Email : nadeem.akhtar@pucit.edu.pk

https://www.linkedin.com/in/dr-nadeem-akhtar-rana/

https://orcid.org/0000-0003-2475-5590

Biography

- **Specialization**: I am currently serving as an Associate Professor in the Department of Information Technology, Faculty of Computing and Information Technology (FCIT), University of the Punjab, Lahore. My academic and research interests span various domains of computing and information technology. Prior to this, I held the position of Associate Professor and Chairman in the Department of Software Engineering, Faculty of Computing, The Islamia University of Bahawalpur, where I contributed to academic leadership, curriculum development, and research advancement.

  I have more than 23 years of experience in teaching, research, academic coordination, and university education management. I earned my Ph.D. from IRISA, University of South Brittany (UBS), Bretagne, France, defending my thesis titled **"Contribution to the Formal Specification and Verification of a Multi-Agent Robotic System"** with distinction (Très Honorable Magna Cum Laude) on September 2, 2010.

  During my doctoral studies, I served as a Teaching Assistant at the University of South Brittany in 2007, 2008, and 2009, where I taught and supervised student projects. I also hold a MS (Master-2) degree specializing in Information System Architecture from the Institut Universitaire Professionnalisé (IUP), University of South Brittany, completed in 2006. I am the recipient of several scholarships, awards, and research grants, including:

  - **HEC Overseas Scholarship (2006)** for Ph.D. studies in France
  - **French Embassy Scholarship (2004)** for Master's studies in France
  - **Teaching Assistantship**, ENSIBS, University of South Brittany, Vannes, France
  - **HEC Start-up Research Grant (2012)** worth PKR 0.5 million
  - **ICT Student Research Project Grant (2014)**
  - **HEC-approved Ph.D. Supervisor** status

  My research interests include Multi-Agent Systems, Formal Modeling and Verification, Deep Learning, Blockchain, Web3 Technologies, and Data Analytics. Over the course of my academic career, I have taught undergraduate and post-graduate courses and supervised numerous research projects. To date, four(04) Ph.D. and 110 MS students have successfully completed their theses under my supervision. I have authored 65 research papers in reputed international journals and two in internationally recognized 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, LaTeX, R, MATLAB®
- **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, Dockers, 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 — *Bretagne FRANCE*
  University of South Brittany (UBS)
- **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.
- Four students **Dr Muhammad Nauman**, **Dr Mustafa Hameed**, **Dr Nazeer Ahmad**, and **Dr Shahbaz 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

Impact Factor Publications - HEC Recognized W Category

[1] Saba Khan, **Nadeem Akhtar**, M. Faheem Mushtaq, Nagwan Abdel Samee, Noha F. Mahmoud, and Imran Ashraf. "Towards robust electronic health record systems: integrating formal verification and process modeling techniques". In: *BMC Medical Research Methodology* 25.215 (2025), pp. 1–21. DOI: https://doi.org/10.1186/s12874-025-02637-8.

[2] Sidra Hameed, Muhammad Nauman, **Nadeem Akhtar**, Muhammad A. B. Fayyaz, and Raheel Nawaz. "Explainable AI-driven depression detection from social media using natural language processing and black box machine learning models". In: *Frontiers in Artificial Intelligence* 8 (2025), pp. 1–19. DOI: https://doi.org/10.3389/frai.2025.1627078.

[3] 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.

[4] 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.

[5] 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.

[6] 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.

[7] 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. eprint: https://doi.org/10.1080/23311932.2024.2339572. URL: https://doi.org/10.1080/23311932.2024.2339572.

[8] 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.

[9] 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.

[10] 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.

[11] 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.

[12] 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.

[13] 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.

[14] 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.

[15] 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.

[16] 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.

[17] 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/j01.itc.49.3.25265.

[18] 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.

[19] 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.

[20] 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.

[21] 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.

[22] 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.

[23] **Nadeem Akhtar**, Abdul Rehman, Mujtaba Hussnain, 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.

[24] Subhan Tariq, **Nadeem Akhtar**, Humaira Afzal, Shahzad Khalid, Muhammad Rafiq Mufti, Shahid Hussain, Asad Habib, and Ghufran 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.

[25] 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.

[26] 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.

[27] **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.

Local HEC Recognized Journal Publications - HEC X and Y Category

[28] Sidra Hameed, Muhammad Nauman, Muhammad Hasnain, **Nadeem Akhtar**, Fatima Hussain, and Zeshan Afzal. "An Explainable Deep Learning Framework for Automated Classification of Ocular Diseases in a Big Data Environment". In: *VFAST Transactions on Software Engineering* 13.3 (2025), pp. 258–278. ISSN: 2309-3978. DOI: https://doi.org/10.21015/vtse.v13i3.2228.

[29] 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.

[30] 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.

[31] 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.

[32] **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.

[33] **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.

[34] 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.

[35] 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.

[36] **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.

[37] **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.

[38] **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.

[39] 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

[40] 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.

[41] 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.

[42] 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.

[43] 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.

[44] **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.

[45] Nasira Perveen, Malik M Saad Missen, Qaisar Rasool, and **Nadeem Akhtar**. "Sentiment based twitter spam detection". In: *International Journal of Advanced Computer Science and Applications (IJACSA)* 7.7 (July 2016), pp. 568–573. ISSN: 2156-5570. DOI: 10.14569/IJACSA.2016.070777.

[46] 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.

[47] Daler Ali, Malik Muhammad Saad Missen, **Nadeem Akhtar**, Nadeem Salamat, Hina Asmat, and Amnah Firdous. "Gender prediction for expert finding task". In: *International Journal of Advanced Computer Science and Applications (IJACSA)* 7.5 (May 2016), pp. 161–165. ISSN: 2156-5570. DOI: 10.14569/IJACSA.2016.070525.

[48] Mustafa Hameed, **Nadeem Akhtar**, and Malik Saad Missen. "Role based multi-agent system for e-learning (MASeL)". In: *International Journal of Advanced Computer Science and Applications (IJACSA)* 7.3 (2016), pp. 194–200. ISSN: 2156-5570. DOI: 10.14569/IJACSA.2016.070327.

International Journal Publications indexed in different International Indexing Agencies

[49] Nadeem Salamat and **Nadeem Akhtar**. "A New Similarity Measure for Combining Conflicting Evidences". In: *Computer Science and Information Technology* 03.05 (2015), pp. 214–218. ISSN: 2331-6063. DOI: 10.13189/csit.2015.030506.

[50] **Nadeem Akhtar** and Muhammad Nauman. "Timed-Automata Based Model-Checking of a Multi-Agent System: A Case Study". In: *Journal of Software Engineering and Applications* 08.02 (Feb. 2015), pp. 43–50. ISSN: 1945-3116. DOI: 10.4236/jsea.2015.82006.

[51] **Nadeem Akhtar**, Aisha Shafique Ghori, and Nadeem Salamat. "REQUIREMENT ANALYSIS, ARCHITECTURAL DESIGN AND FORMAL VERIFICATION OF A MULTI-AGENT BASED UNIVERSITY INFORMATION MANAGEMENT SYSTEM". In: *International Journal of Computer Science and Information Technology (IJCSIT)* 06.05 (Dec. 2014), pp. 73–81. ISSN: 0975–3826.

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[53] Tareef Ali Khan, Hina Asmat, Faisal Shahzad, M Faheem Mushtaq, Malik Muhammad Saad Missen, and **Nadeem Akhtar**. "SN2SMS: Location-Aware Social Network Based SMS Health-Care System". In: *International Journal of Computer Science Issues (IJCSI)* 11.4 (July 2014), pp. 144–149. ISSN: 1694-0814.

[54] **Nadeem Akhtar** and Anique Akhtar. "KitRobot: A multi-platform graphical programming IDE to program mini-robotic agents". In: *Computer Engineering and Intelligent Systems – IISTE* 05.03 (Mar. 2014), pp. 34–42. ISSN: 2222-1719.

[55] **Nadeem Akhtar**. "Requirements, Formal Verification and Model transformations of an Agent-based System: A CASE STUDY". In: *Computer Engineering and Intelligent Systems – IISTE* 05.03 (Mar. 2014), pp. 01–16. ISSN: 2222-1719.

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[57] **Nadeem Akhtar** and Muhammad Nauman. "Formal Specification and Verification of an Internet Marketing System Using Timed-Automata Based Uppaal". In: *European Journal of Scientific Research* 117.01 (Jan. 2014), pp. 56–64. ISSN: 1450-216X.

[58] **Nadeem Akhtar** and Malik M Saad Missen. "Practical application of a light-weight formal implementation for specifying a multi-agent robotic system". In: *International Journal of Computer Science Issues (IJCSI)* 11.1 (Jan. 2014), pp. 247–255. ISSN: 1694-0814.

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[61] **Nadeem Akhtar**, Yann Le Guyadec, and Flavio Oquendo. "Formal requirement and architecture specifications of a multi-agent robotic system". In: *Journal of Computing (JoC)* 04.04 (Apr. 2022), pp. 75–80. ISSN: 2151-9617.

Conference Articles

[62] Mustafa Hameed, **Nadeem Akhtar**, and Malik M Saad Missen. *Comparative study of teaching first programming language in distance learning using lecture based approach and project based approach.* 4th e-Learning and Distance Education Conference (ELDEC2017). Lahore, Pakistan, Nov. 2017.

[63] **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.

Research Thesis

[64] **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).

[65] **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 Ph.D. (Computer Science) Thesis

- **Four Ph.D. students have completed Ph.D. under my supervision. Here below their details:**

1.	**Dr Muhammad Nauman** Thesis title: **A FORMAL APPROACH TOWARDS EFFICIENT AND FAULT-TOLERANCE BIG DATA ANALYTICS**	*Fall 2015-2019* Dept. of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan
2.	**Dr Mustafa Hameed** Thesis title: **FORMAL VERIFICATION OF INTELLIGENT E-LEARNING FRAMEWORK FOR TERTIARY EDUCATION**	*Spring 2015-2019* Dept. of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan
3.	**Dr Nazir Ahmad** Thesis title: **SMART MONITORING OF COTTON LEAF CURL VIRUS USING TEXTURE WITH MULTISPECTRAL RADIOMETRIC DATA**	*Spring 2018-2021* Dept. of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan
4.	**Dr Shahbaz Ahmed** Thesis title: **FORMAL MODELING AND VERIFICATION BASED APPROACH FOR IOT-ENABLED ENERGY EFFICIENT DATA AGGREGATION OF SMART AGRICULTURE SYSTEM**	*Fall 2021-2024* Dept. of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan

- **Currently, 6 Ph.D. fellows are working under my supervision. Here below their details:**

1.	**Abdul Rehman** Thesis title: **AN APPROACH FOR IMPROVED COTTON CROP MONITORING AND PREDICTION CENTERED ON DEEP LEARNING, FORMAL MODELING, AND VERIFICATION**	*Fall-2022* Dept. of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan
2.	**Saba Khan** Thesis title: **THE PROCESS MINING, PROCESS MODELING, AND MODEL CHECKING OF A HEALTH INFORMATION SYSTEM**	*Fall-2018* Dept. of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan
3.	**Muhammad Ikram** Thesis title: **AN IMPROVED REPTILE SEARCH-CONVOLUTIONAL NEURAL NETWORK FOR DISEASE DETECTION.**	*Fall-2022* Dept. of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan
4.	**Muhammad Talal** Thesis title: **FORMAL SPECIFICATION AND VERIFICATION OF IOT BASED DISASTER WARNING AND RESPONSE SYSTEM.**	*Fall-2022* Dept. of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan
5.	**Syed Zain Ul Abdin Bukhari** Thesis title: **IDENTIFYING PROCESS VARIATIONS IN CLINICAL PATHWAYS USING PROCESS MINING: A CASE STUDY OF THE PATIENTS OF SEPTICEMIA.**	*Fall-2021* Dept. of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan
6.	**Sidra Sajjad** Thesis title: **FORMAL MODELLING AND MODEL CHECKING OF A SAFETY-CRITICAL SYSTEM: A CASE STUDY**	*Spring-2018* Dept. of Computer Science & IT, The Islamia University of Bahawalpur, Pakistan

Evaluation of PhD thesis - External Examiner

- **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

- **110 MS (Computing)**, students have completed their Research Thesis under my supervision.
- Currently **03 MS students** are working under my supervision.

List of Supervision of Under-Graduate student Final Year Projects

- **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 400 students in the last 21 years. Scientific and professional projects are analyzed, designed, documented, and successfully implemented.
  - **Two student projects have won ICT Grass Root Project Funding**

Non-formal Education

- **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

- **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