

## **DR. MUHAMMAD KHURRAM SHAHZAD**

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### **1. SUMMARY**

Dr. Khurram Shahzad is Tenure Track Assistant Professor at University of the Punjab, Lahore. He holds a Masters and PhD from KTH – Royal Institute of Technology, Sweden. He has been with leading groups at Technical University Eindhoven, The Netherlands, University of Fribourg, Switzerland, and Stockholm University, Sweden. Also, he has been Guest Researcher at BT Innovation Centre at the Ulster University UK. He has published over 50 papers in reputed journals, including ACM TALLIP, BISE, JAISE, C&EE, and leading conferences, BPM, CAiSE, BIS, RCIS, and PoEM.

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### **2. EXPERIENCE**

*February 2013 – to date ‘Assistant Professor’* University of the Punjab, Lahore, Pakistan.

*January 2008 – February 2013 ‘Assistant Professor’,* Department of Computer Science, COMSATS Institute of Information Technology, Lahore, Pakistan.

*August 2006 – January 2008. ‘Lecturer’,* Department of Computer Science, COMSATS Institute of Information Technology, Lahore, Pakistan.

*Mar 2004 – August 2005. ‘Lecturer’,* Punjab University College of Information Technology (PUCIT), University of the Punjab, Lahore, Pakistan.

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### **3. EDUCATION**

*PhD Computer and Systems Sciences,*  
*(2008 - 2013)*  
KTH - Royal Institute of Technology  
Stockholm, Sweden.

*Masters of Science in IT*  
*(2005 - 2006)*  
Department of Computer & System Sciences (DSV),  
KTH - Royal Institute of Technology,  
Stockholm, Sweden.

*M.Sc. Computer Science*  
*(2001-2004)*  
Punjab University College of Information Technology (PUCIT),

## 4. PUBLICATIONS

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### Journal Papers

1. M. M. Khan, K. Shahzad, M. K. Malik. *Hate-speech detection in Roman Urdu*. ACM Transactions on Asian and Low-Resource Language Information Processing, 20(1), 1-19. (Accepted)
2. K. Shahzad, Arslaan Mazhar, G. Mustafa, F. Aslam. *Effective utilization of Supervised Learning Techniques for Process Model Matching*. Computing and Informatics, 39 (3), 361-384, 2020.
3. M. Tayyab, M. K. Malik, K. Shahzad, F. Aslam, A. Iqbal, Z. Nawaz, F. Bukhari. *Named Entity Recognition and Classification for Punjabi Shahmukhi*. ACM Transactions on Asian and Low-Resource Language Information Processing, 19(4), pp. 1-13, 2020.
4. S. I. Muzaffar, K. Shahzad, K. Malik, K. Mahmood. *Intention mining: A deep learning-based approach for smart devices*. Journal of Ambient Intelligence and Smart Environments, 12(1), pp. 61-73, 2020.
5. M. Ali, K. Shahzad, S. I. Muzaffar, M. K. Malik. *Deep Analysis of Process Model Matching Techniques*. IEEE Access, 8(1), pp. 99239-99253, 2020.
6. I. Muzaffar, K. Shahzad, F. Aslam, M. Khalid, K. Malik. *Process Matching: Performance Trade-off between Summary and Full-length Descriptions*. Computing and Informatics, 38(4), pp. 851-882, 2019.
7. K. Shahzad, S. Zaheer, A. Nawab, F. Aslam. *On Comparing Manual and Automatic Generated Textual Descriptions of Business Process Models*. Journal of Software: Evolution and Process, 31(11), pp. 1-16, 2019.
8. S. Kanwal, K. Malik, K. Shahzad, F. Aslam, Z. Nawaz. *Urdu Named Entity Recognition: Corpus Generation and Deep Learning Applications*. ACM Transactions on Asian and Low-Resource Language Information Processing Vol. 19, No. 1, pp. 218-229, 2019.
9. K. Shahzad, S. Kanwal, K. Malik, F. Aslam. *A Word-Embedding-Based Approach for Accurate Identification of Corresponding Activities*. Computers & Electrical Engineering Vol. 78, No. 1, pp. 218-229, pp. 1-12, 2019.
10. K. Shahzad, A. Nawab, A. Abid, K. Sharif, F. Ali, F. Aslam, A. Mazhar. *A Process Model Collection and Gold Standard Correspondences for Process Model Matching*. IEEE Access 7(1), pp. 30708 – 30723, 2019.
11. S. Faisal, M. Sarwar, K. Shahzad, et al. *Temporal and Evolving Data Warehouse Design*. Scientific Programming 17(1), pp.1-18, 2017.
12. R. Vanwersch, K. Shahzad, et al. *A critical review and framework of business process improvement methods*. Business & Information Systems Engineering. Vol. 58, No. 1, pp. 43-53, 2016.

13. A. Sohail, P.D.D. Dominic, K. Shahzad. *Business process analysis: a process warehouse-based resource preference evaluation method*. International Journal of Business Information Systems. Vol. 21, No. 2, pp. 137-161, 2016.
14. K. Shahzad, J. Zdravkovic. *Process Warehouse in Practice: A Goal-Driven Approach for Business Process Improvement*. Software Process Improvement and Practice. Vol. 24, No.3, pp. 321-339, 2012.
15. R. Vanwersch, K. Shahzad, P. Vanhaecht, L. Grefen, G. Pintelon, H. van Merode, H. Reijers. *Methodological Support for Redesigning Business Processes in Healthcare: A Literature Review Protocol*, International Journal of Care Pathways, Vol: 15, No. 4, pp: 119 - 126, 2011.
16. M. Idrees, F. Aslam, K. Shahzad, M. Sarwar. *Towards a Framework for Visual Programming Languages*. Pakistan Journal of Engineering and Applied Science. 23(1), pp. 55-65, 2018.

### **Books Chapters**

17. Daniel Fasel, Khurram Shahzad. *Fuzzy Data Warehousing with a Case Study in Performance Measurement*. In the (Eds.) Andreas Meier, Laurent Donzé. *Fuzzy Methods for Customer Relationship Management and Marketing: Applications and Classifications*. pp. 217-251, IGI Global, 2012, USA.
18. Khurram Shahzad. *From Conventional to Multi-version Data Warehouse: Practical Issues*. In the (Eds.) Pedro Furtado. *Evolving Application Domains of Data Warehousing and Mining: Trends and Solutions*, pp.41-63, IGI Global, 2010, USA.
19. Mohammad El-Mekawy, Khurram Shahzad, Nabeel Ahmed. *Modeling and Managing Business Processes*, In the (Eds.) Angappa Gunasekaran, Maqsood Sandhu. *Handbook on Business Information Systems*, pp. 93-116, World Scientific, 2010, USA.

### **Conference Papers**

20. A. Mustansir, K. Shahzad, I. Muzaffar, K. Malik. *Utilizing Customer Feedback for Business Process Performance Analysis*. In Proceedings of the 17<sup>th</sup> International Conference on Business Informatics Research, Springer LNBIP, Vol. 330, pp. 235-249, Stockholm, Sweden, 2018.
21. K. Shahzad, I. Pervaz, A. Nawab. *WordNet-based Semantic Similarity Measures for Process Model Matching*. In Proceedings of the 17th International Conference Perspectives in Business Informatics Research (BIR'18), CEUR Proceedings, Vol. 2218, pp. 33-44, Stockholm, Sweden, 2018.
22. M. Ali, K. Shahzad. *Enhanced Benchmark Datasets for a Comprehensive Evaluation of Process Model Matching Techniques*. 14<sup>th</sup> International Workshop on Enterprise and Organizational Modeling and Simulation (EOMAS'18), in conjunction with 30<sup>th</sup> International Conference on Advanced Information System Engineering (CAiSE'17), Springer LNBIP, Vol. 332, pp. 107-122, Tallina, Estonia, 2018.
23. S. Ahmad, I. Muzaffar, K. Shahzad, K. Malik. *Using BPM Frameworks for Identifying Customer Feedback about Process Performance*. In proceedings of the International Workshop on Business Data Analytics: Techniques and Applications (BDA), in

- conjunction with 30<sup>th</sup> International Conference on Advanced Information System Engineering (CAiSE'18), Springer LNBIP, Vol. 316, pp. 55-69, Tallina, Estonia.
24. M. Rana, K. Shahzad, A. Nawab, H. Leopold, U. Babar. *A Textual Description based Approach to Process Matching*. In: Proceedings of the 9th IFIP WG 8.1 Working Conference on the Practice of Enterprise Modeling (PoEM'17), Springer LNBIP Vol. 267, pp. 194-208, Skovde, Sweden.
  25. S. Zaheer, K. Shahzad. A. Nawab. *Comparing Manual- and Auto-Generated Textual Descriptions of Business Process Models*. In Proceedings of the 6th IEEE-International Conference on Innovative Computing Technology (INTECH'16), Islamabad, Pakistan.
  26. K. Shahzad, K. Shareef, R. Ali, A. Nawab, A. Abid. *Generating Process Model Collection with Diverse Label and Structural Features*. In Proceedings of the 6th IEEE-International Conference on Innovative Computing Technology (INTECH'16), Islamabad, Pakistan.
  27. M. Khalid, I. Muzaffar, K. Shahzad, F. Bukhari. *Process Model Searching: A Corpus of Summary Textual Descriptions*. International Conference on Innovative Computing, Lahore, Pakistan
  28. Rob Vanwersch, Khurram Shahzad, K. Vanhaecht, P.W.P.J. Grefen, L.M. Pintelon, G.G. van Merode, H.A. Reijers. *Business Process Redesign in Healthcare: Towards a Comprehensive Methodological Framework*. In Proceedings of the European Care Pathway Conference (E-C-P), 2012, Amsterdam, The Netherlands.
  29. Khurram Shahzad, Constantinos Giannoulis. *Towards a Goal-Driven Approach for Business Process Improvement Using Process-Oriented Data Warehouse*. In Proceedings of the 14th International Conference on Business Information Systems (BIS'11), Springer LNBIP Vol. 87, pp. 111-121, Poznan, Poland.
  30. Khurram Shahzad, Jelena Zdravkovic. *Towards Goal-driven Access to Process Warehouse: Integrating Goals with Process Warehouse for Business Process Analysis*. In Proceedings of the Fifth IEEE International Conference on Research Challenges in Information Science (IEEE-RCIS'11), Guadeloupe, France.
  31. Mohamed El-Mekawy, Anders Östman, Khurram Shahzad. *Towards Interoperating CityGML and IFC Building Models: A Unified Model Based Approach*. In Proceedings of the 5th International 3D GeoInfo Conference, Springer LNG&C Series, pp. 73-94, Berlin, Germany.
  32. Mturi Elias, Khurram Shahzad. *Using Multi-Criteria Decision Making to choose Process Representation Format for a Process Repository*. In Proceedings of the 2nd AKTB, in conjunction with BIS'10, Springer LNBIP Vol. 57, pp.19-24, Berlin, Germany.
  33. Mturi Elias, Khurram Shahzad, Paul Johannesson. *A Business Process Metadata Model for a Process Model Repository*. In, Proceedings of the 15th International Conference on Exploring Modelling Methods in Systems Analysis and Design (EMMSAD'10), Springer LNBIP Vol. 50, pp.287-300, Hammamet, Tunisia.
  34. Khurram Shahzad, Mturi Elias, Paul Johannesson. *Requirements for a Business Process Model Repository: A Stakeholders' Perspective*. In Proceedings of the 13th International Conference on Business Information Systems (BIS'10), Springer LNBIP Vol. 47, pp.158-170, Berlin, Germany, Springer LNBIP proceedings.

35. Daniel Fasel, Khurram Shahzad. *A Data Warehouse Model for Integrating Fuzzy Concepts in Meta Table Structures*. In Proceedings of the 17th IEEE- International Conference on Engineering of Computer-Based Systems (IEEE-ECBS'10), Oxford, UK.
36. Khurram Shahzad, Jelena Zdravkovic. *A Goal-oriented Approach for Business Process Improvement Using Process Warehouse Data*. Proceedings of the 2nd IFIP WG8.1 Working Conference on the Practice of Enterprise Modeling (PoEM'09), Springer LNBIP Vol. 39, pp.84-98, Stockholm, Sweden.
37. Khurram Shahzad, Mturi Elias, Paul Johannesson. *Towards Cross Language Process Model Reuse – A Language Independent Representation of Process Models*. Proceedings of the 2nd IFIP WG8.1 Working Conference on the Practice of Enterprise Modeling (PoEM'09), Springer LNBIP Vol. 39, pp.176-190, Stockholm, Sweden.
38. Khurram Shahzad, Paul Johannesson. *An Evaluation of Process Warehousing Approaches for Business Process Analysis*. In Proceedings of the 5th ACM-EOMAS in conjunction with CAiSE'09, ACM Press, & CEUR-WS Proceedings, Volume 458, pp 1-14, Amsterdam, Netherland.
39. Khurram Shahzad, Birger Andersson, Maria Bergholtz, Ananda Edirisuriya, Tharaka Ilayperuma, Parsad Jayaweera, Paul Johannesson. *Elicitation of Requirements for a Business Process Model Repository*. 4th BPD in conjunction with BPM'08, Springer LNBIP Volume 17, pp 42-53, Milan, Italy.

## 5. STUDENTS SUPERVISION

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My PhD students are as follows:

1. Abdullah Ilyas (2017- to date). *Multilingual Emotion Analysis: A Case of Roman-Urdu and English*. PhD Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
2. Syed Irtaza Muzaffar (2017- to date). *ProRevMapper: Mapping Customer Reviews to business Process Models*. PhD Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
3. Amina Mustansar (2016- to date). *Customer-driven Business Process Redesign*. PhD Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
4. Muhammad Ali (2016- to date). *Multidimensional Analysis of Business Process Models*. PhD Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.

I have supervised numerous Masters theses.

1. Zaman Roman Urdu Normalization
2. Shuja Aspect based Sentiment Analysis
3. Ayesha. Threat Detection in Urdu
4. Naveed. Absuive Language Detection in RU
5. Ghazala. Emotion Analysis in RU

6. Muhammad Ali (2019- 2020). *Process Model Matching: A Comprehensive Analysis of Matching Techniques*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
7. Muhammad Zulquarnain Nazir (2018- 2020). *Urdu Authorship Attribution Corpus, Stylometry Features, Effectiveness of Supervised Learning Techniques*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
8. Tayyab Nasir (2018- 2020). *Urdu OCR*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
9. Muhammad Moin Khan (2018- 2020). *Hate-Speech Detection in Roman Urdu*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
10. Saba Shaukat (2018- 2020). *A Pooling Based Approach for the Development of Urdu IR Benchmark*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
11. Muhammad Tayyab Ahmad (2018-2019). *Named-Entity Recognition for Punjabi Shahmukhi*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
12. Namra Butt (2018-2019). *Techniques for Tokenization of Urdu Language*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
13. Sundas Sagheer (2017-2018). *Efficiency analysis of different syntactic techniques using benchmark datasets*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
14. Asma Ibrahim (2017-2018). *Business Process Model Abstraction: Extracting Resource Intensive Activities*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
15. Basharat Fatima (2017-2018). *Business Process Model Abstraction: Extracting Business Significant activities*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
16. Aneela Mehmood (2017-2018). *Business Process Model Abstraction: Using Supervised Learning Approaches to Rank Process Model Activities*. MS Computer Science Thesis at Kinnard College for Women University, Lahore, Pakistan.
17. Mehwish Afshan (2016-2017). *A Parameterless Technique for Overlapping Community Detection*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
18. Arslaan Mazhar (2016-2017). *Using Data Balancing in Supervised Learning to Improve Process Model Matching*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
19. Ifrah Pervaz. (2016-2017). *Performance Evaluation of Semantic Approaches for Process Model Matching*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.

20. Ayesha Asmat. (2016-2017). *Benchmark Queries and Human Annotations for Process Model Matching*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
21. Syed Irtaza Muzaffar. (2015-2016). *Towards using Text Summarization for Process Matching*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
22. Sheeza Zaheer. (2015-2016). *The Impact of Human and System Generated Textual Descriptions on Process Matching*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
23. Iqra Safdar. (2015-2016). *Modified Greedy String Tiling Algorithm for Process Model Matching*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
24. Amina Mustansar. (2015-2016). *The State-of-the-Art of BPM Research: Evaluation of Rigor in Evaluating Artifacts*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
25. Maria Rana. (2015-2016). *On Using Text Matching Techniques for Process Matching*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
26. Muhammad Abdullah Ilyas. (2014-2015). *Business Process Models Matching for BPMN: A Label Based Approach*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
27. Muhammad Kareem Sharif. (2014-2015). *Business Process Models Matching: A Text based Approach*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
28. Ahsan Shauqat Ali. (2014-2015). *Evolution of Data Warehouse Design*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
29. Muhammad Naeem Akhtar. (2014-2015). *Ecology of Data Warehousing Community*. MPhil Computer Science Thesis at Punjab University College of Information Technology (PUCIT), Lahore, Pakistan.
30. Muhammad Amjad. (2013-2014). *Metrics for Identifying Research Trends using Academic Social Network: A Case of Business Process Management*. MSCS Thesis at Virtual University of Pakistan.
31. Niaz Ahmed, Waseem Akhtar. (2009-2010). *Enterprise Wide Data Warehouse: A design to store unstructured data using a structuring approach*. MS-EMIS thesis at Royal Institute of Technology (KTH), Sweden.
32. Nabeel Asif. (2007-2008). *Implementation and evaluation of virtual data warehouse Mapping over Object Relational Source*. MS-CS, thesis at COMSATS Institute of Information Technology, Lahore, Pakistan.
33. Umer Mirza. (2007-2008). *Extracting conceptual entity-relationship diagram from flat data sheet: A semi-automated approach*. MS-CS, thesis at COMSATS Institute of Information Technology, Lahore, Pakistan.

34. Abid Sohail. (2007-2008). *From ER to Single Star Model (ERSSM): A systematic translation approach*. MS-CS, thesis at COMSATS Institute of Information Technology, Lahore, Pakistan.
35. Ghulam Mustafa. (2006-2007). *Implementation and evaluation of Virtual Data Warehouse*, MS-CS thesis at COMSATS Institute of Information Technology, Lahore, Pakistan.
36. Muhammad Shoaib Chaudhary. (2006-2007). *Pragmatic evaluation of virtual alternative versions for simulating business scenarios in data warehouse*. MS-CS, thesis at COMSATS Institute of Information Technology, Lahore, Pakistan.
37. H. Mughal. (2006-2007). MS-CS, thesis topic: “*An FCI Analysis of data warehouse schema evolution*”, MS-CS, thesis at COMSATS Institute of Information Technology, Lahore, Pakistan.
38. Zaibunnasa Khosa. (2006-2007). *Re-modeling design changes: An empirical evaluation of ER modeling*, MS-CS, thesis at COMSATS Institute of Information Technology, Lahore, Pakistan.
39. Adeel Iqbal, Zaffar Abbas. (2005-2006). *Incorporating on-the-fly data in OLAP applications*. MS-EMIS thesis at Royal Institute of Technology (KTH), Sweden, (Co-supervisor)

## 6. REFERENCES

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