Hammad Afzal, PhD

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Scopus: http://www.scopus.com/authid/detail.url?authorId=34771183700

Education	**PhD Computer Science.** Jan,2006 – Dec,2009 The University of Manchester, UK **MSc Computing Science**. Sep, 2004 – Sep, 2005. The University of Manchester, UK * Passed with Distinction and Peter Jones Prize for highest score among all MSc students in the Department of Informatics. **BE Software Engineering**. Dec, 1999 – June,2003. National University of Science and Technology, (NUST) Pakistan. 3.53/4.0 CGPA. (Honours) **HSSC**. 1997 – 1999. Federal Board of Education. Pakistan 894/1100 **SSC**. 1995 – 1997. Rawalpindi Board of Education. Pakistan 750/850
Honours	• I have been invited (and fully funded) by the University of Tokyo to participate in BioHackathon 2010 (http://hackathon3.dbcls.jp/) in Tokyo, Japan • Peter Jones Prize of the year 2005, to attain highest grades in all MSc courses in the Department of Informatics, University of Manchester, UK. • Invited as Judge in COMPEC, 2012 and COMPEC 2013 in Information Systems Domain • Full funding for PhD from NUST, Pakistan (2006-2008). • Scholarship from MoST for graduate studies (2000-2003). • Allama Iqbal Scholarship from Rawalpindi Board of Education, Pakistan for top 20 positions in SSC examinations (equivalent O – levels - 1997). • A UG project "HTML Obfuscation", supervised by Dr. Hammad Afzal, won the Rector's Gold Medal for best UG FY Project 2013. • A UG project "Crowd Sourced Intelligent Route Planner", supervised by Dr. Hammad Afzal, won the Rector's Gold Medal for best UG FY Project 2016.
Work Experience	**Assistant Professor: May, 2010 – Date** National University of Sciences and Technology (NUST), Pakistan. **Research Fellow: July, 2009 – Dec, 2009** Digital Enterprise Research Institute (DERI), National University of Ireland. Ireland. (http://nlp.deri.ie/home) **Software Application Tester: August, 2008 – April, 2009** Transitive (an IBM company). (http://www.transitive.com), UK **Teaching Assistant: 2007- 2009** The University of Manchester, UK

Junior Software Engineer: August, 2003 – Nov, 2003
RnD Establishment, National University of Science and Technology, Pakistan

Research Interests
- Data Mining and Machine Learning
- Natural Language Processing (NLP) (special emphasis on Term Classification;
- Terminology Management, i.e. Controlled Vocabularies).
- Special Emphasis on Urdu NLP

Research Projects

Selected Recent Projects (PG Students Research Projects)
Text Mining
- Cyber Bullying Detection on Social Media
- The bias in news and social media based on geographical differences
- Creating an Infrastructure for Semantic Search of Holy Quran.

Urdu Text Mining (In Collaboration with Senior Lecturer Dr. Raheel Nawaz, Manchester Metropolitan University, UK)
- Urdu Semantic Search Engine
- Expansion of Linguistic Resources for Urdu using NLP Techniques
- Sentiment Analysis in Urdu for complex sentences
- Spam Detection in Urdu Messages (SMS and Tweets)

Machine Learning
- Data Mining to predict and analyze crimes in Rawalpindi District
- Chunk Prediction in Telecom Industry
- Gender Prediction using Hand Writing Analysis

Previous Projects
A Framework for Semantic Descriptions of e-Science Resources (PhD Dissertation)
The University of Manchester, UK: 2006-2009

LexInfo – A meta model for ontology lexica (Post-Doc Research Fellow)
Digital Enterprise Research Institute (DERI), National University of Ireland: 2009

Selected Publications

Book

1. Hammad Afzal (2013): _A Framework for Semantic Descriptions of e-Science Resources_. Published By: LAMBERT Academic Publishing. ISBN: 978-3-659-36122-7

Book Chapters

1. Iqra Javed, Hammad Afzal, Awais Majeed, Behram Khan (2014): _Towards creation of linguistic resources for Bi-lingual Sentiment Analysis of Twitter Data_, Natural Language Processing and Information Systems (2014) _LNCS_8455, pp. 232–236, 2014. Publisher: Springer**(Scopus Indexed)**

2. Hammad Afzal, Robert Stevens, Goran Nenadic (2009): _Mining Semantic Descriptions of Bioinformatics Web Resources from the Literature_, The Semantic Web Research and Applications (2009) _LNCS_ 5554, pp. 535–549, 2009. Publisher: Springer, Pages: 535-549**(Scopus Indexed)**

Patent (Pakistan)
1. Imran Abeel, Khawar Khurshid, Hammad Afzal, Arslan Shaukat, Syed Sajjad Zaidi, Attaullah Memon, "Reconfigurable Road Markers".
   Patent No. 459/2015.

Journal Publications

1. Ahmed, Mahreen, Asma Ghulam Rasool, Hammad Afzal, Imran Siddiqi. *Improving handwriting based gender classification using ensemble classifiers*. Expert Systems with Applications 85 (2017): 158-168. **3.98 IF (JCR 2017)**

2. Toshiaki Katayama, Mark D Wilkinson, Gos Micklem, Shuichi Kawashima, Atsuko Yamaguchi, Mitsuteru Nakao, Yasunori Yamamoto, Shinobu Okamoto, Kenta Oouchida, Hong-Woo Chun, Jan Aerts, **Hammad Afzal**, et al. *(2013)* "*The 3rd DBCLS BioHackathon: improving life science data integration with semantic Web technologies*", Journal of Biomedical Semantics 2011, 4:6; Feb, 2013. **2.26 Impact Factor (JCR 2016)**

3. **Hammad Afzal**, James Eales, Robert Stevens, Goran Nenadic (2011): *Mining Semantic Networks of Bioinformatics Web Resources from the Literature*: Journal of Biomedical Semantics, March 2011. **2.26 Impact Factor (JCR 2016)**

4. Mehreen Ahmed, Hammad Afzal, Awais Majeed, Behram Khan (2017): *A Survey of Evolution in Predictive Models and Impacting Factors in Customer Churn*. Accepted in Advances in Data Science and Adaptive Analysis. **[ISI-Masters List]**

5. Zeshan Anwar, Hammad Afzal, Anwar, Khwar Khurshid (2017): *Analysis of Intrusion Detection Systems*. In International Journal of Advanced Computer Science and Applications (IJACSA). 8(7), July 2017. **[ISI-Master List]**

6. Raheela Arshad, Awais Majeed, Hammad Afzal, Muhammad Muzammal, Arif Rehman (2016): *Evaluation of Navigational Aspects of Moodle*. In International Journal of Advanced Computer Science and Applications (IJACSA). 7(3) Jan 2016 **[ISI-Master List]**

7. Sabeen Javed, , Hammad Afzal, Fahim Arif, Awais Majeed, (2016): *Reputation Management System for Fostering Trust in Collaborative and Cohesive Disaster Management*. Iternational Journal of Advanced Computer Science and Applications (IJACSA). 7(7). Jun 2016 **[ISI-Master List]**

8. Muhammad Hassan Latif, Hammad Afzal (2016): Prediction of Movies popularity Using Machine Learning Techniques. International Journal of Computer Science and Network Security (IJCSNS) 16(8) (2016): 127. **[ISI-Master List]**

9. Shoohira Aftab, **Hammad Afzal**, Amna Khalid. *An Approach for Secure Semantic Data Integration at DaaS Layer*. In International Journal of Information and Education Technology, IJIET, Vol 5, Issue 2, Feb2014

10. U. Mahmud, N.A. Malik, B. Rauf, K.A. Bhatti and H. Afzal (2015): **"*QoS Aware Wavelength Assignment in Wavelength Division Multiplexing Based Optical Networks*".** In International Journal of Multidisciplinary Sciences and Engineering (IJMSE).ISSN 2045-7057.vol 6 no 1 pp 23-27. Jan 2015

Conference Publications

1. Mehreen Ahmad, Hammad Afzal, Imran Siddiqi, Behram Khan (2017): "*An expert system for diabetes prediction using auto tuned multi-layer perceptron*". In Intelligent Systems Conference (IntelliSys 2017), London, UK. ((IEEE)

2. Maham Jehangir, Mehreen Ahmad, Hammad Afzal, Raheel Nawaz (2017): "*MCS: Multiple Classifier System to Predict the Churners in the Telecom Industry*". In Intelligent Systems Conference (IntelliSys 2017), London, UK. ((IEEE)

3. Muhammad Samiul Haq, Zeeshan Anwar, Ali Ahsan and Hammad Afzal (2017): "*Object

Oriented Design Patterns / Framework for Secure Information Systems Development". In 14th International Bhurban Conference on Applied Sciences and Technology (IBCAST-2017): 10-14 Jan, 2017 Bhurban, Pakistan. Accepted

4. Malik, Sunia, Hammad Afzal, Imran Siddiqi, and Awais Majeed. "*Analyzing Socio-economic and Geographical factors for Crime Incidents using Heat maps and Hotspots*." In Proceedings of the Mediterranean Conference on Pattern Recognition and Artificial Intelligence, pp. 144-151. ACM, 2016.

5. Kamal, Uzair, Imran Siddiqi, Hammad Afzal, and Arif Ur Rahman. "*Pashto Sentiment Analysis Using Lexical Features*." In Proceedings of the Mediterranean Conference on Pattern Recognition and Artificial Intelligence, pp. 121-124. ACM, 2016.

6. Hammad Afzal, Kashif Mehmood (2016): "*Spam Filtering of Bi-Lingual Tweets Using Machine Learning*". Accepted in 18th International Conference on Advanced Communication Technologies (ICACT 2016), Korea. ((IEEE Sponsored)**(Scopus Indexed)**

7. Mahreen Ahmad, Maham Jahangir, Hammad Afzal, Awais Majeed, Imran Siddiqi (2015): "*Using Crowd-source based features from social media and Conventional features to predict the movies popularity*". In The 8thInternational Conference on Social Computing and Networking(SocialCom 2015), Chengdu, Sichuan, China. ((IEEE/ACM/Elsevier/Springer Sponsored)**(Scopus Indexed)**

8. Kashif Mehmood, Hammad Afzal (2015): "*Contributions to the study of bi-lingual SMS filtering*". In 2015 NationalSoftware Engineering Conference (NSEC 2015), Pakistan. ((IEEE Sponsored)

9. Anum Kaleem, Awais Majeed, Hammad Afzal, Tamim Ahmed Khan, Faisal Bashir (2015): "*Volunteer Reputation Evaluation for Emergency Response Operations*". Accepted in 2nd International Conference on Information and Communication Technologies for Disaster Management (ICT-DM'2015) Rennes, France. **(Scopus Indexed)**

10. Zeshan Javed, Hammad Afzal, Sarmad Sadik. (2014). "*Biomedical Text Mining for Concept Identification from Traditional Medicine Literature".* In IEEE 8th ICOSST-2014, Lahore Pakistan**(Scopus Indexed)**

11. Iqra Javed, Hammad Afzal (2014). "*Towards creation of linguistic resources for Bilingual Sentiment Analysis of Twitter Data*" 19th International Conference on Application of Natural Language to Information Systems. France.**(Scopus Indexed)**

12. Iqra Javed, Hammad Afzal. "*Creation of bi-lingual Social Network Dataset using classifiers*" Accepted in 10th International Conference on Machine Learning and Data Mining MLDM 2014 July 21-24, 2014, St. Petersburg, Russia**(Scopus Indexed)**

13. Amna Khalid, Hammad Afzal, Shoohira Aftab. "Balancing Scalability, Performance and Fault tolerance in structured data". In 16th Conference on Advanced Communication Technology. IEEE ICACT Feb, 2014, Korea. **(Scopus Indexed)**

14. Iqra Javed, Hammad Afzal (2013). "*Opinion analysis of bi-lingual event data from social networks*" Paper published in ESSEM: International Workshop on Emotion and Sentiment in Social and Expressive Media: approaches and perspectives from AI (Italy)**(Scopus Indexed)**

15. Tayyaba Mukhtar, Hammad Afzal, Awais Majeed (2012). *Vocabulary of Quranic Concepts: A semi-automatically created Terminology of Holy Quran*. Published in 15th International Multi-topic Conference. IEEE INMIC, Islamabad,

Pakistan**(Scopus Indexed)**

16. Sabeen Javaid, Awais Majeed, Hammad Afzal (2013).*A Reputation Framework for Disaster and Emergency Response Operations*. Published in 15th Conference on Advanced Communication Technology. IEEE ICACTJan, 2013, Korea**(Scopus Indexed)**

17. Veena Safdar, Faisal Bashir, Zara Hamid, Hammad Afzal (2012): *A hybrid routing protocol for wireless sensor networks with mobile sinks*, Published in 7th International Symposium on Wireless Pervasive Computing ISWPC 2012, Dalian China.**(Scopus Indexed)**

18. Hammad Afzal, Paul Buitelaar, Philipp Cimiano (2010): ***Generating Lexical Information for Terminology in a Bioinformatics Ontology,*** In Proceedings of TKE (Terminology and Knowledge Engineering) Conference, Ireland.**(Scopus Indexed)**

19. Hammad Afzal, James Eales, Robert Stevens, Goran Nenadic (2009): ***Mining Semantic Networks of Bioinformatics Web Resources from the Literature***, In Proceedings of the 2nd Workshop of Semantic Web Applications and Tools for Life Sciences (SWAT4LS), Amsterdam.**(Scopus Indexed)**

20. Hammad Afzal, Robert Stevens, Goran Nenadic (2009): *Mining Semantic Descriptions of Bioinformatics Web Resources from the Literature*, In Proceedings of the 6th European Semantic Web Conference (ESWC) on the Semantic Web: Springer-Verlag: 535-549. Heraklion, Crete, Greece.**(Scopus Indexed)**

21. Hammad Afzal, Robert Stevens, Goran Nenadic (2008): *Towards Semantic Annotation of Bioinformatics Services: Building a Controlled Vocabulary*, Proceedings of the Third International Symposium on Semantic Mining in Biomedicine, Turku, Finland.**(Scopus Indexed)**

22. Hammad Afzal, Robert Stevens, Goran Nenadic (2009)**;** *Towards Semantic Network of Bioinformatics Resources:* 17th Annual International Conference on Intelligent Systems for Molecular Biology (ISMB), Stockholm, Sweden

International Talks

1. Text Mining perspective towards automation of semantic service descriptions in Bioinformatics , Presented at BioHackathon 2010 in Tokyo, Japan , Feb 2010
2. Generating Lexical Information for Terminology in a Bioinformatics Ontology, Presented to the members of gnTEAM and Bergman Lab, November 2009, School of Computer Science, University of Manchester
3. Generating Lexical Information for Terminology in a Bioinformatics Ontology. Presented at TKE, 2010 Ireland - Aug, 2010

Teaching

Spring, 2017	Machine Learning	PG
Spring, 2017	Object Oriented Programming	UG
Fall, 2016	Data Warehousing and Data Mining	UG
Spring, 2016	Machine Learning	**PG**
Spring, 2016	Computer Organization and Architecture	**PG**
Fall, 2015	Data Warehousing and Data Mining	UG
Summer, 2015	Machine Learning	**PG**
Spring, 2015	Software Quality Engineering	**PG**
Fall, 2014	Data Mining and Warehousing	UG
Summer, 2014	Object Oriented Programming	UG
Spring, 2014	Distributed Computing	UG

Fall, 2013	Object Oriented Programming	UG
Spring, 2013	Data Mining	UG
Spring, 2013	Computer Org and Arch	UG
Fall 2012	Operating Systems	UG
Spring, 2012	Distributed Computing	UG
Fall 2011	Parallel and Distributed Computing	**PG**
Fall 2011	Operating Systems	UG
Spring, 2011	Distributed Computing	UG
Fall 2010	Parallel and Distributed Computing	**PG**
Fall 2010	Computer Organization and Architecture	UG

Graduate Projects Supervised (PG)

1. A framework for Semantic Enhancements of Information Retrieval Systems for Urdu.
2. The text mining of bio-medical literature to connect Traditional Chinese Medicine (TCM) data with genes/proteins.
3. A framework/DaaS Layer for handling issues of interoperability and security in composition of Data and Web Services
4. Bi-lingual Opinion Mining from the Social Media
5. Creating an Infrastructure for Semantic Search of Holy Quran.
6. Linked Data Portal for e-Government Resources of Pakistan.
7. A framework to cluster the structured data and recovery mechanism

Complete List Available Here:
https://sites.google.com/a/mcs.edu.pk/codteem/projects

Final Year Projects (UG)

2015-2016
- Mobile Medical Assistance
- Crowd Source based Intelligent Route Planner
- Messenger Opinion Analysis

2014-2015
- Army Supply System
- Surveillance System

2013-2014
- Semantic Job Portal
- A Tool for Parallelization of Serial Code
- Social Media Mine
- Flash Flood Detection System
- Runtime Survey Application

2012-2013
- Geo-Location based Discovery Service
- HTML Obfuscation

Professional Activities

Reviewer of International Journals (with Impact Factor)
- Arabian Journal for Science and Engineering (AJSE)
- Computer Journal (Oxford Journals)
- Cluster Computing (Springer)
- International Arab Journal of Information Technology.
- Journal of Information Science (Sage)
- Journal of Internet Technology
- Journal of Natural Language Engineering
- Kuwait Journal of Science
- Natural Language Engineering (Cambridge)

Reviewer of Local Journals (HEC Recognized)

- Bahria University Journal of Information and Communication.Technologies (BUJICT)

Member Program Committee and Reviewer of International Conferences:
- The International Conference on Pattern Analysis and Recognition (ICPAR 2018) December 21-23, 2018, Sousse, Tunisia.
- 5th International Conference International Conference on Man-Machine Interactions, ICMMI 2017, Poland
- IEEE International Conference on Communication, Computing and Digital Systems, Islamabad, Pakistan (2017)
- 10th IEEE International Conference on Open Source Systems and Technologies (2016), Lahore, Islamabad
- Mediterranean Conference on Pattern Recognition and Artificial Intelligence, Nov, 2016, France
- 2nd Conference on Information Insurance and Cyber Security 2015 (CIACS-2015), NUST Pakistan
- National Software Engineering Conference (IEEE Co-Sponsored NSEC 15), NUST, Pakistan
- National Software Engineering Conference (IEEE Co-Sponsored NSEC 14), NUST, Pakistan
- 8th International Conference on Open Source Systems and Technologies, (IEEE ICOSST) UET Lahore. 2014
- 7th International Conference on Open Source Systems and Technologies, (IEEE ICOSST) UET Lahore. 2013
- 2nd National Conference on Information Assurance NCIA (IEEE Co-sponsored), NUST, Pakistan 2013
- Conference on Information Insurance and Cyber Security 2014 (CIACS-2014), NUST Pakistan
- 12th International Conference on Frontiers of Information Technology (FIT 2014), Islamabad, Pakistan

Session Chair of International Conferences
- IEEE International Conference on Communication, Computing and Digital Systems, Islamabad, Pakistan (2017)
- 2nd Conference on Information Insurance and Cyber Security 2015 (CIACS-2015), NUST Pakistan
- National Software Engineering Conference (IEEE Co-Sponsored NSEC 15), NUST, Pakistan
- National Software Engineering Conference (IEEE Co-Sponsored NSEC 14), NUST, Pakistan
- 2nd National Conference on Information Assurance NCIA (IEEE Co-sponsored), NUST, Pakistan 2013
- Conference on Information Insurance and Cyber Security 2014 (CIACS-2014), NUST Pakistan

References
- Dr. Goran Nenadic- University of Manchester. UK
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- Dr. Paul Buitelaar- University of Ireland, Galway Ireland
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- Dr. Raheel Nawaz - Manchester Metropolitan University, UK
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