Dr. Muhammad Tanvir Afzal

Professor of Software Engineering
Gisma University of Applied Sciences
Potsdam, Germany

Excellent in:

Research	Teaching	Executive Training	University Services	Psychology and Motivation

tanvir.afzal@gisma.com
+49 176 14724169

Expertise:
Artificial Intelligence (NLP), Human Computer Interaction, UX/UI Design, Data Science, Usability Engineering, Advanced User Interface Design, Data Structures, Fundamentals of Web Design, Programming Languages, Databases, Operating Systems, Information Retrieval and Visualization, Scientometrics

Section [1/4] – Career Highlights

1. Brief Profile

Dr. Afzal received the PhD degree with highest distinction in Computer Science from the Graz University of Technology, Austria, secured Gold medal in his M.Sc Computer Science from Quiad-i-Azam University, Islamabad, Pakistan. He has been associated with academia and industry at various levels for the last 20 years, and currently he is serving as Professor and Dean, at Faculty of Computing and Director Campus at one of the largest campus of Shifa Tameer-e-Millat University at park Road Islamabad, Pakistan. Previously, he has served Namal Institute Mianwali as Director (QEC) and Professor. He has served Capital University of Science and Technology, Islamabad as Professor, Associate Professor, and Assistant Professor of CS. Furthermore, he has served NESCOM, COMSATS University Islamabad, and JinTech Islamabad. He is also serving as editor-in-chief for reputed impact factor journal known as: Journal of Universal Computer Science. Dr. Afzal authored more than 130 research papers including over 60 published papers in impact factor leading journals in the field of Artificial Intelligence, Data Science, Information retrieval and visualization, Semantics, Digital Libraries, and Scientometrics. He has authored two books and has edited two books in Computer Science. His cumulative impact factor is 170+, with citations over 2,100. He played pivotal role in making collaborations between STMU-JUCS, MAJU-JUCS, MAJU-IICM, and TUG-UNIMAS. He served as PhD symposium chair, session chair, finance chair, committee member, and editor of several IEEE, ACM, Springer, Elsevier international conferences and journals. Dr. Afzal conducted more

than 100 curricular, co-curricular, and extra-curricular activities in the last 5 years including seminars, workshops, national competitions (ExcITeCup) and invited international and national speakers from Google, Oracle, IICM, IFIS, SEGA Europe etc. Under his supervision, more than 70 post grad students (MS and PhD) have defended their research theses successfully and a number of PhD and MS students are pursuing their research with him. He served as Master trainer and a program director at a national level training for a public sector organization in Pakistan on Human Factors Engineering and conducted the training of over 150 hours for experts from the industry. He is the recipient of multiple international research funding.

2. *Education*

Degree	Discipline (field)	Institution & Achievements	Date
PhD	Computer Science **(Highest Distinction)**	Graz University of Technology, Austria Supervisor: Prof. Dr. Hermann Maurer (Former Dean, CS-Section Chair and Board of Trustees for European Academy of Science, a very prestigious organization having over **70 noble laureates** as its members) http://www.iicm.edu/maurer During PhD, I have worked on Data Science tasks (AI (NLP), Semantic Web, Social Web, and Knowledge Management & Representations), during PhD studies, published 20 papers in leading referred journals and conferences with top researchers of the World.	March 2010
M.Sc	Computer Science **(Gold Medal)**	Quaid-i-Azam University (QAU), Islamabad, Pakistan, Ranked #1 in Pakistan. Achieved Highest distinction from a class of 30 students selected representing all Pakistan, in 2004, developed Database Migration system that supported migration of tables, views, snapshots, procedures, relationships etc between databases developed in: ORACLE, MySQL, MSSQL, and PostgresSQL	September 2004

3. *Academic Experience*

Institution	Date	Full Time/ Part Time	Title / Rank
Gisma University of Applied Sciences, Potsdam, Germany	**5th January 2026 – Now**	**Full Time**	**Professor**
Shifa Tameer-e-Millat University, Islamabad, Pakistan	Oct 2024 – Dec 28th 2025 [on one-year leave from 29th Dec 2025 to 28th December 2026]	Full Time	Professor and Dean
Shifa Tameer-e-Millat University, Islamabad, Pakistan	Feb 2022---31st August 2024	Full Time	Professor and Director
Namal University Mianwali, Pakistan	July 2020-Jan 2022	Full Time	Professor and Director QEC
Capital University of Science and Technology, Islamabad, Pakistan	May 2019-Jun 2020	Full Time	Professor
Capital University of Science and Technology, Islamabad, Pakistan	Jan 2015-Apr 2019	Full Time	Associate Professor
Mohammad Ali Jinnah University, Islamabad, Pakistan	June 2014-Dec 2014	Full Time	Associate Professor
Mohammad Ali Jinnah University, Islamabad	July 2010-May 2014	Full Time	Assistant Professor
COMSATS Institute of Information Technology, Islamabad	Jan 2005-Sep 2005	Full Time	Research Associate
Suffah College Sargodha	Dec 2001 – June 2002	Full Time	Lecturer

4. *Academic Administration and R&D Experience*

A— Shifa Tameer-e-Millat University, Founding Campus Director, managing one of the largest campus of the university having 2,000 students in Computing, Rehabilitation Sciences, Clinical Psychology, Management Sciences, Shariah and Law, Islamic studies, English Linguistics and literature, Bio-Sciences. Further market oriented programs were started, currently offering 25

academic programs, three faculties and nine departments. I am supervising all administrative departments as well such as: administration, Examination, Student Engagement, Human Resource, Library, and Security departments of this campus. Within one-year student intake has increased by 70% and many new market oriented programs were started, Feb 2022 – September 2025.

B— Shifa Tameer-e-Millat University, Dean, Faculty of Computing, have developed Faculty of Computing and its departments from scratch by establishing 7 academic programs: PhD Computer Science, MS Data Science, BS Artificial Intelligence, BS Cyber Security, BS Software Engineering, BS Computer Science and Associate Degree in Computer Science. All programs were accredited by Computing Council and Higher Education Commission due to their quality and adherence to quality standards set by the regulators. First year students won national competitions by competing final year students of other good universities. All this was achieved in one year, [Feb 2022 – Sep-2024 as Director and Oct 2024 –Now as Dean].

C— Shifa Tameer-e-Millat University, Director Information Systems: this is an interim charge where I am supervising both Network team and Software Development Team until fulltime director joins the university. Feb 2023 – Now

D— Namal University Mianwali, Director Quality Enhancement Cell, evaluating quality of academic programs and activities of the university. Jul 2020 – Jan 2022

E— Namal Executive Development Centre, Master Trainer and In-charge Technology and Innovation: I had planned and executed executive trainings which were attended by CEOs. Directors, General Managers of more than 15 companies. Training on Human Factors Engineering was offered first time in Pakistan, other trainings were Data Analytics for Leaders, HR Analytics, Sales Analytics, Marketing Analytics, generated revenue of 10 million in first year from trainings. Jul 2020 – Jan 2022

F— NESCOM, HQ, Islamabad, Pakistan, Assistant Manager Technical: Research and Development of innovative computing projects. Sep 2005-Mar 2007.

G— Jin Technologies, Islamabad, Software Developer: Development in 4D for many international clients. Sep 2004-Jan 2005.

H— Journal of Universal Computer Science, Editor-in-chief, research and development of innovative projects in J. UCS. 2012-2020 & 2023 - Now.

I— Centre of Distributed and Semantic Computing, Director, organized weekly research meetings, mentored 20+ PhD students and 80+ Masters students to complete their research theses, 2010-2020.

J— JSPARK, Patron, organized national technology event every year with name: ExcITeCup, invited national and international renowned personalities from Google, LLC Percona, SEGA, IICM, IFIS, ZONG, Telenor, PTCL, and many national software houses and academia.

5. *Certification or professional registrations*
IEEE; ACM.

6. *Current membership in professional organizations*
Senior Member IEEE
ACM member

7. *Honors and awards*
a) Winner of World Data Science Challenge at ESWC (CORE ranking {A}), 2016.

b) PhD with Highest Distinction from Graz University of Technology.

c) M. Sc with Gold medal from top rated university of Pakistan.

d) Citation Mining developed technique was able to identify those citations which were missed by Thomson ISI (Clarivative Analytics now)

e) CAFSIAL, Web 3.0 application developed in 2009, was ranked as top 10 applications of Semantic Web in the World by ReadWriteWeb, a similar paper was presented in LDOW 2010 at prestigious conference, WWW.

f) Letter of appreciations for great research, teaching, and services from many international prestigious academicians.

g) Included in the list of Productive Scientists both under 40 years and complete lists 2018 by Pakistan Council of Science and Technology.

h) Youngest PhD in Computer Science from Austria [PhD awarded at the age of 27 years]

i) Teaching Feedback of last 13 years is 93% in courses taught at four universities

j) Received admirations for great research, teaching, services, administration and executive trainings.

8. *Service activities (within and outside of the institution)*
I. **Editorial Services:** Journal of Universal Computer Science (Editor-in-chief),
    Reviewer/Editor: Scientometrics, Information Science, AJSE, Journal of Information Science, JSTMU, Computational Intelligence.
II. **TPC member**: Program Chair (IEEE-ICET 2016), IEEE/ACM FIT(2014-now), ICDS (2019), IEEE-ICOSST (2018), PhD Symposium Chair IEEE/ACM FIT (2014-2019), IEEE-ICACS (2019), IEEE-ACM ICCIT (2008-2010), IEEE-ADAPTIVE (2009-2016), IEEE-NCM (2009-2010), IEEE-INC (2009-2010), IEEE-IMS (2009-2010), IEEE-NISS (2009-2010), IEEE-IDC (2009-2010), IEEE-ICIS (2009-2010), IEEE-ICET (Finance Chair, 2013),

9. *Selected Publications*

Some of the selected publications are listed here, complete list is attached at the end.

    i. "A hybrid strategy to extract metadata from scholarly articles by utilizing support vector machine and heuristics", M. Waqas, N. Anjum, M. T. Afzal, **Scientometrics**, June 2023.

   ii. "Investigating Correlation between Protein Sequence Similarity and Semantic Similarity Using Gene Ontology Annotations", N. Ikram, M. A. Qadir, M. T. Afzal, **IEEE/ACM Transactions on Computational Biology and Bioinformatics**, 15 (3), pp. 905-9012, 2018.

  iii. G. Mustafa, M. Usman, L. Yu, M. T. Afzal, M. Sulaiman and A. Shahid "Multi-label Classification of Research Articles using Word2Vec and Identification of Similarity Threshold" in **Nature Scientific Report** 2021

  iv. "Information Extraction from PDF Sources Based on Rule based System Using Integrated Formats", R. Ahmad, M. T. Afzal, M. A. Qadir, World Challenge at **ESWC 2016. [World Challenge Winner].**

   v. "Important citation identification using sentiment analysis of in-text citations", H Aljuaid, R Iftikhar, S Ahmad, M Asif, MT Afzal, **Telematics and Informatics** 56, 101492

  vi. "Aspect based citation sentiment analysis using linguistic patterns for better comprehension of scientific knowledge", M. T. Ikram, M. T. Afzal, **Scientometrics**, 119 (1), pp. 73-95, 2019 (IF: 2.173)

 vii. "SimExact – An Efficient Method To Compute Function Similarity Between Proteins Using Gene Ontology", N. Ikram, M. A. Qadir, M. T. Afzal, **Current BioInformatics**, 15 (4), pp. 318-327

viii. "Sections-based bibliographic coupling for research paper recommendation", R. Habib, M. T. Afzal, **Scientometrics**, 119(2), pp. 643-656, 2019.

  ix. "Finding Relatedness between Research Papers Using Similarity and Dissimilarity Scores", 2014, Q. Mahmood, M. A. Qadir, M. T. Afzal, **15th international Conference Web-Age Information Management (WAIM)**, vol. 8485, eds: Li, Feifei and Li, Guoliang and Hwang, Seung-won and Yao, Bin and Zhang, Zhenjie, Springer International Publishing, 707-710, Macau, China, June 16-18, 2014.

   x. "Section-Wise Indexing and Retrieval of Research Articles", A. Shahid, M. T. Afzal, **Cluster Computing – The Journal of Networks, Software Tools and Applications**, 21 (1), pp. 481-492, 2018

  xi. "Pre-Production Box-Office Success Quotient Forecasting", M. Usman, H. Waqas, M. T. Afzal, accepted in **Soft Computing**, Published online August 2019

 xii. "Metadata Features Evaluation for Twitter based e-learning Recommendation", N. Sharif, M. T. Afzal, Published in **34th Information Systems Education Conference (ISECON)**, pp. 109-116, April 5-7, 2018, San Antonio, Texas.

xiii. "Identification of Important Citations by Exploiting Research Articles' Metadata and Cue-Terms from Content", F. Qayyum, M. T. Afzal, **Scientometrics**, 118 (1), pp. 21-43, 2019

xiv. "CAD: an algorithm for citation-anchors detection in research papers", R. Ahmad, M. T. Afzal, **Scientometrics**, 117 (3), pp. 1405-1423, 2018

xv. "Malware classification using dynamic features and hidden Markov model", M. Imran, M. T. Afzal, M. A. Qadir, **Journal of Intelligent and Fuzzy Systems (JIFS)**, 31 (2), pp. 837-847, 2016

xvi. "Twitter recommendation: Unary Metadata Features Evaluation with TF/IDF Using n-grams", N. Sharif, M. T. Afzal, U. Ahmed, **Published in 34th Information Systems Education Conference (ISECON)**, pp. 117-125, April 5-7, 2018, San Antonio, Texas.

xvii. "A comprehensive analysis of adverb types for mining user sentiments on amazon product reviews", UA Chauhan, MT Afzal, A Shahid, M Abdar, ME Basiri, X Zhou, **World Wide Web Journal,** 23, 1811-1829

10. *Recent professional development activities*

I. Keynote Speaker at ICETST2024: International Conference on Emerging Trends in Smart Technologies, 11th October 2024.

II. Chaired a session at ICETST2024: International Conference on Emerging Trends in Smart Technologies, 10th October 2024

III. Panel Moderator at International Conference on Computer Science and Engineering, Panel Title: *Artificial Intelligence and Future of Humanity*,
Panel members: "Mr. Ather Imran, CEO, Sybrid Pvt. Ltd.", "Mr. Asim Ghaffar, Vice President, 10 Pearls", "Mr. Ali Zain, CEO, Ideofuzion", "Mr. Salman Farooq, Head of Strategy, Smart Forum". September 26-27, 2024.

IV. Keynote Speaker at 2023 International Conference on IT and Industrial Technologies, FAST-CFD.

V. Computing Curriculum mapping on industry requirements in Pakistan especially for Masters in Data Science.

VI. Master trainer and program director for one of the largest and pioneer training program to officers of largest public sector organization on "Human Factors Engineering". This was executed on plant for 25 working days with great output.

VII. Trained CEOs, General Managers, Directors of 15 + companies on Data Analytics for taking leadership decisions, HR Analytics, marketing Analytics, Digital Transformation, Digital Twins and related areas. Got a chance to deal with very big corporate settings, brought the experience back in the class and solved industrial issues.

VIII. Learned latest tools for example KNIME, Tableau, Harvard Simulations etc and employed them in real industrial settings.

IX. Learned Business concepts (Leadership, HR, Sales, Marketing, supply chain from colleagues of LUMS who are gurus of management and connected my research area of

Data Science to develop, plan and successfully execute executive trainings and short courses for executives.

X.   Resource person for Faculty Orientation and Development Programs at Shifa Tameer-e-Millat University, Namal University Mianwali, Capital University of Science and Technology, and Mohammad Ali Jinnah University.

XI.   Participated and delivered talks on Outcome Based Education. Subsequently implemented OBE system at CUST, Namal and planned for STMU.

XII.   Designed and implemented strategies for eLearning, ranking researchers, journals and institutes and published in top venue such as: Scientometrics journal.

XIII.   Co-supervised a PhD where a new university ranking with name "Open Rank" has been developed and compared with QS World University Ranking and TIMES Higher Education ranking.

11.   *Memberships and Services*

Sr. No	Position	Organization
1	Editor-in-Chief	Journal of Universal Computer Science (Impact factor oldest journal) https://lib.jucs.org/board/274/
2	Member	Board of Studies, Faculty of Computer Science and Engineering, Ghulam Ishaq Khan Institute, Topi. KPK, Pakistan. https://giki.edu.pk/
3	Member	Board of Studies, Department of Computer Science, at National Textile University. Faisalabad, Pakistan https://ntu.edu.pk/index.php
4	Member	Board of Studies, Department of Computer Science and Software Engineering at International Islamic University, Islamabad, Pakistan, https://www.iiu.edu.pk/
5	Member	Board of Studies, Pak Austria Fachhochschule, Hari Pur, KPK, Pakistan https://paf-iast.edu.pk/
6	Member	Selection Board, Air University Islamabad, Pakistan https://www.au.edu.pk/
7	Member	Selection Board, Fauji Foundation University, Rawalpindi, Pakistan https://www.fui.edu.pk/
8	Former Honorary Professor	IICM, TUG, Graz, Austria
9	Expert	Promotion Cases including Tenured selection and promotions for various universities
10	PhD examiner	GIKI, NUST (SEECS), FAST, Quaid-i-Azam university, CUST, COMSATS, IIUI, TUG,

11	MS Examiner	GIKI, NUST (SEECS), FAST, Quaid-i-Azam university, CUST, CUI (Islamabad, Lahore, Attock, Wah Cantt), IIUI, UoG, UoS,
12	Reviewer	HEC research funded projects
13	Reviewer	For various top quality journals and conferences
14	Former Director	QEC at Namal Institute Mianwali
15	Former Convener	Grievance Committee at Namal Institute Mianwali
16	Former Convener	Appraisal Committee at Namal Institute Mianwali
17	Former Convener	Internal Project Fund Evaluations at Namal Institute Mianwali
18	Former Convener	Curriculum Review Committee, CS department at Namal Institute Mianwali
19	Former Member	Greenmetric Ranking With top management at Namal Institute Mianwali
20	Former Member	Admission Committee at Namal Institute Mianwali representing QEC
21	Former Member	Namal Dashboard committee
22	Former Member	DHoDs (Directors and HoDs forum)
23	Former Member	Web Rewamp Committee at Namal Institute Mianwali
24	Former Convener	BioMass project at Namal Institute Mianwali
25	Former Member	Academic Council at Namal Institute Mianwali
26	Former Patron	Center of Excellence and Skill Development, at Namal Institute Mianwali
27	Former Member	Executive Committee (equivalent to Senate) at Capital University of Science and Technology, Islamabad
28	Former Member	Board of Advanced Studies and Research (BASR) at Capital University of Science and Technology, Islamabad
29	Former Member	Board of Studies, Department of Computer Science, Capital University of Science and Technology, Islamabad
30	Supervisor	HEC Approved supervisor in Computer Science
31	Former Member	Board of Studies, Pak-Austria Fachhochschule (PAF_IAST), Haripur, Pakistan

32	Former Member	Board of Studies, Software Engineering Program, Capital University of Science and Technology, Islamabad
33	Member	IEEE
34	Member	ACM
35	Director	Department of Computing, Faculty of Computing, Shifa-Tameer-e-Millat University, Islamabad, Pakistan
36	Director Campus	Park Road Campus, Shifa-Tameer-e-Millat University, Islamabad, Pakistan
37	Disciplinary Committee	Shifa-Tameer-e-Millat University, Islamabad, Pakistan
38	Director	Information Systems, Shifa-Tameer-e-Millat University, Islamabad, Pakistan
39	Member	Inquiry Committee on the cases of Workplace Harassment
40	Member	Principal Forum, Shifa-Tameer-e-Millat University, Islamabad, Pakistan
41	Member	Syndicate, Shifa-Tameer-e-Millat University, Islamabad, Pakistan
42	Chair	Board of Studies, Shifa-Tameer-e-Millat University, Islamabad, Pakistan
43	Member	Academic Council, Shifa-Tameer-e-Millat University, Islamabad, Pakistan
44	Member	Graduate Studies and Research Management Council (GSRMC), Shifa-Tameer-e-Millat University, Islamabad, Pakistan.
45	Academia Consultant	Urdu IT Academy, imparting education for all, millions of users visits a month, IT education in local language (Urdu and Hindi)
46	Member	STMU Research Grant Committee (RGC). This committee evaluates proposals of internal research grants.

Section [2/4] – Teaching Profile

1. *Courses Taught*

Dr. Tanvir has taught different courses time to time in the departments of different universities. The list of the courses is listed here:

Courses taught by Dr. Tanvir

Digital Libraries	Introduction to Computing
Web based Knowledge Discovery	Computer Programming
Information Visualization	Introduction to Database Systems
Web Mining	Introduction to Programming
Information Retrieval	Introduction to Computer Science
Human Computer Interaction	UX/UI Design
Data Structures	

2. *Teaching Feedback*

Teaching reviews in the last 13 years at 4 different universities at PhD, Masters, and Bachelor's Level
Average Percentage of 13 years = 93%

Teaching reviews for courses taught at Shifa Tameer-e-Millat University, Islamabad, Pakistan (Feb-2022 to Now)

Sr. No	Course Title	# of Students	Level	Review Average
1	Human Computer Interaction	12	BS	96.70%
2	Information Retrieval	5	MS/PhD	99.23%
3	Information Visualization (currently teaching)	26	MS/PhD	
Average percentage				**98%**

Teaching reviews for courses taught at Namal University Mianwali, Punjab, Pakistan (July-2020 to January 2022)

Sr. No	Course Title	# of Students	Level	Review Average
4	Human Computer Interaction	35	BS	91.43%
5	Introduction to Computer Science	55	BS	91.07%

6	Database Systems	35	BS	89.76%
7	Information Retrieval	20	BS	94.03%
Average Percentage				**92%**

Teaching reviews for courses taught at Mohammad Ali Jinnah and Capital University of Science and Technology (July-2010 to June 2020)				
Sr. No	**Course Title**	**# of Students**	**Level**	**Review Average**
8	HCI – 171 (Section 2)	45	BS	4.73/5
9	HCI – 171 (Section 1)	51	BS	4.52/5
10	Information Visualization – 171	35	MS/PhD	4.50/5
11	Introduction to Programming – 173	44	BS	4.67/5
12	HCI – 173 (Section 1)	43	BS	4.38/5
13	HCI – 173 (Section 2)	48	BS	4.83/5
14	ITP – 181 (Section 1)	47	BS	4.11/5
15	HCI – 181 (Section 2)	45	BS	4.56/5
16	HCI – 183 (Section 2)	47	BS	4.49/5
17	HCI – 183 (Section 4)	49	BS	4.36/5
18	Web Mining - 163	35	MS/PhD	4.22
Average Percentage				**90%**

Some Colorful quotations from students in different subjects is given below:

"Awesome teacher in our university he should be the HOD of Computer Science at CUST ->Having great method adopted to teach this course, ->What a Great and friendly enviorment adopted in the class room, ->The Way of deliver the lectures are the best. Good way to manage all contents of this course.... ***Thanks Sir G.. God Bless You*** "Kiya Baat hai...."Sir ge apkii too"

"dr tanvir is best teacher of university who take care of future of students and teach the course with well structure"

"Sir you are a gem,a great Personality of our university.We all would love to study from you again."

"best teacher with a perfect and best cource"

"Our teacher has effective discipline skills and can promote positive behaviors and change in the classroom."

"DR.Tanvir is a 10/10 teacher.His work is good and his teaching stresses on the natural aptitude of the students, He encourages them to work hard and he makes an atmosphere for friendly competition and learning.s"

"The greatest teacher in this university, truly."

"Dr.Tanvir was always willing to help and I appreciated him for not just giving me the answers, but helping me find the answer on my own."

"One of my best teacher. Not only teaches the subject but also focus on our personality"

"best teacher ever. help in every sorts of issue in studies"

"no words for Dr. Tanvir Afzal.very good professo"

3. *Outstanding Feedback from Students*

Dr. Tanvir has established a unique place between students at university. The reviews of his postgraduate and undergraduate students are extra-ordinary in all of his courses. The courses taught by Dr. Tanvir have full student registration. Even at post graduate level elective courses, generally, more than 40 students kept on enrolling. According to one of the survey in social media (Facebook), Dr. Tanvir has been nominated among one of the favorite teachers from a list of teachers of the university. This can be viewed in the screenshot of the survey depicted below. The relevant comments have been highlighted in a rectangle with black border on the right side of the picture [picture deleted due to space limit…].

4. *Selection by Virtual University for most challenging course CS101: introduction to Computing*

Virtual University provides education to international students and is very competitive to select instructors for recording of lectures. Dr. Tanvir was selected to record the most demanding course on "Introduction to Computing" by the largest electronic learning university. Last time, this course was recorded 10 years ago. This course is not only offered to Computer Science students, instead it is being offered to many other departments including the management science department at Virtual University. This is the most challenging course, as it introduces the fresh students in first semester of their university degree with all major topics of Computer Science including: Algorithm, Databases, Networks, Search Engines, Software Engineering, Programming languages, and many other tools for hands on session. The recording of the course has been concluded and being used since the last 6 years and have 234 videos, some of them have over 300k views.

5. *Supervision of Undergraduate Students*

Following lists comprise of some of the undergraduate projects supervised by Dr. Tanvir at different national and international universities.

1. Nermin Kajtazovic, "Paper Classification Using Search Engines – J. UCS Reference Extraction", B.Sc final year project, at IICM, TU-Graz, Austria, 2007.

2. Ilir Ademi, "Extraction and processing of papers from CiteSeer", B.Sc final year project, at IICM, TUGraz, Austria, 2007.

3. Awais Khan, "Citation Sentiment Analysis", B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2011.

4. Farhan Khan, "Sentiment Analysis on Product News", B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2011.

5. Nadeem Khan, "Sentiment Analysis on Product News", B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2011.

6. Muhammad Nadeem: Twitter Analysis of Pakistani Top Stories, B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2012.

7. Fahad Jamshed: Relationship Finder between Individuals using Hybrid Approach, B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2012.

8. Sharukh Khan: Relationship Finder between Individuals using Hybrid Approach, B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2012.

9. Fakhar ud din: Visualization of Author-topics relationships for scientific community. B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2013.

10. Muhammad Noaman Sarwar: Hybrid Approach for vehicle Identification, B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2013.

11. Amir Ikram: Sentiment Analysis Service for Twitter, B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2013.

12. Muhammad Umair Sentiment Analysis Service for Twitter, B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2013.

13. Musaab Qamar: Faceted News Search, B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2013.

14. Ms. Sumyaa, "Educational Android Game", B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2014.

15. Ms. Maria, "Educational Android Game", B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2014.

16. Mr. Mudabbir Latif, "Contextualized Recommendations from Social Network for eLearning System", B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2014.

17. Mr. Faisal Jamil, "Contextualized Recommendations from Social Network for eLearning System", B.S final year project, Mohammad Ali Jinnah University, Islamabad, 2014.

18. Mr. Abdul Quddus Khan, Mr. Sohail Shan, : "Expert Finding in Social Network (Twitter)", B.S final year project, Capital University of Science and Technology, 2015.

19. Mr. Aftab Zafar, "(AIR) Add Information Retrieval", B.S final year project, Capital University of Science and Technology, 2015.

20. Mr. Waleed Mansoor, Usman Ghani, "OCR-Assistant", B.S final year project, Capital University of Science and Technology, 2016.
21. Mr. Hamdan Sultan and Umair Munawar Khokhar, "Weighted Citation Graph", B.S final year project, Capital University of Science and Technology, 2015.
22. Mr. Atir ur Rehman, Rehan Arshad, Tayyab Ahmed Ghauri, "Census Automation", B.S final year project, Capital University of Science and Technology, 2017.
23. Mr. Umar Naseer, "(SAET) Sentiment Analysis Evaluation Tool", B.S final year project, Capital University of Science and Technology, 2017.
24. Ms. Safa Awan, Maheen and Sahar, "Archery Hunting 3D Game", B.S final year project, Capital University of Science and Technology, 2017.
25. Mr. Jahanzeb Khalil, Adeel Mir, "Implementation of Section Wise Content Analysis to Recommend Relevant Research papers", B.S final year project, Capital University of Science and Technology, 2016.
26. Mr. Syed Saim Raza, M. Farhan Basharat, "Citation Proximity Analysis", B.S final year project, Capital University of Science and Technology, 2017.
27. Mr. Ahmad Kamal, Salman Mahmood, "Drop of Life", 3rd Position in Industrial Open House, 2017, B.S final year project, Capital University of Science and Technology, 2017.
28. Mr. M. Waseem Ullah Khan, Muhammad Saad Khan, Raja Hamza Fiaz, "Interactive PDF Viewer", scored 1st position in Industrial Open House 2018. B.S final year project, Capital University of Science and Technology, 2018.
29. Mr. Muhammad Suleman, Sami Malik, Dilnawaz, E-Fixit, B.S final year project, Capital University of Science and Technology, 2018.
30. Innovating Ordering for Aluminium Glass, 2019
31. Location Predictor on Twitter, 2019
32. (SnF) Similar News Finder, 2019
33. Faceted News Search, 2019
34. Zain Fareed, Stock Market prediction using Sentiment Analysis on World of Mouth
35. Muhammad Tabraiz Hassan, Speech recognition for Cerebral Palsy(CP) patients

6. *Awards Won by BS Students under my supervision*

1. Noor-e-Saba, Yasmeen Ali, Muhammad Tanvir Afzal, Hamid Rashid: Future Prediction of Avain Influenza Epidemiological Model of occurrence, Prevalence and Mortality. 2nd prize in 3rd International Bio-Informatics Workshop, 18th of June 2012, at Mohammad Ali Jinnah University, Islamabad, Pakistan.

2. Noor-e-Saba, Yasmeen Ali, Muhammad Tanvir Afzal, Hamid Rashid: Future Prediction of Avain Influenza Epidemiological Model of occurrence, Prevalence and Mortality. 3rd prize in Mohammad Ali Jinnah University Open House, 28th June 2012.
3. Mr. Ahmad Kamal, Salman Mahmood, "Drop of Life", 3rd Position in Industrial Open House out of 65 projects, 2017, B.S final year project, Capital University of Science and Technology, 2017.
4. Mr. M. Waseem Ullah Khan, Muhammad Saad Khan, Raja Hamza Fiaz, "Interactive PDF Viewer", scored 1st position in Industrial Open House 2018. B.S final year project, Capital University of Science and Technology, 2018.

7. *Proposed a New Specialization Stream*

Dr. Tanvir introduced new specializations for postgraduate students such as: **Web Information Systems** at Capital University of Science and Technology. Five new courses were developed and delivered to post graduate students such as: Information Visualization, Web based Knowledge Discovery, Web Mining, Information Retrieval and Digital Libraries. These courses were being taught by Prof. Tanvir in alternate semesters. Subsequently, MS Data Science degree program was designed by him and was approved by Higher Education Commission to be offered at STMU. MS data science program is being offered at Shifa Tameer-e-Millat university with focus on both latest tools and techniques and research work. Students from leading international and national corporates and academia have joined this program.

8. *Research Culture at Postgraduate Courses*

Dr. Tanvir has been teaching many innovative courses at post graduate level. Apart from imparting state-of-the-art knowledge of the domain, one of the focus of these courses is to engage students actively in research. Every student need to write a research paper either individually or in a group. Averagely, more than 10 papers are produced in every semester. MS students focus this research work later to pursue their theses. Some PhD students have set their research directions due to research in the courses. There were even some students from other departments who got good feedback and it helped them to define the problem statement and to pursue their PhDs in Engineering and Bio-Informatics domains.

9. *Course Outline Presentations*

Dr. Tanvir remained part of course outline presentations at Namal University Mianwali and Shifa Tameer-e-Millat University, Islamabad, Pakistan. In these presentations, faculty prepares their courses and benchmark it with the same course being offered at leading international universities (such as: Stanford, MIT, California Berkely and many other leading universities) and national universities (such as: NUST, FAST, GIKI and other

top universities). Faculty presents a comprehensive comparisons and highlights how the course will be taught and the assessments will be made. The relevant faculty adds their inputs too which helps to understand what students had already covered in pre-requisite courses and what would be covered in the upcoming semesters. This helps always to remain current and produce students who have great confidence and they can easily map themselves internationally.

10. *Coordination of Courses*

When courses have multiple sections, then department assigns the senior faculty member among them as the coordinator. Dr. Tanvir has acted the coordinator of all the courses in which he remained involved in the last 8 years. One of the major concern that arises in the last few years was that the department had a significant attrition rate. In the start of the studies, many students either leaves the university or leaves the department. The reasons were studied by two MS thesis students. It was identified that one of the reason is the programming in the first semester. Then the coordination meetings were held by Dr. Tanvir to all stake holders (around 16 professors teaching ITP) and it was made sure by him that students retain in the department and they should not feel it as a burden or difficult. Their petty issues were discussed in these coordination meetings held every week, and Alhamdulillah, students' attrition reduced significantly and they were satisfied about their career choice.

In this context, Dr. Tanvir also gave many presentations to the faculty members of how we should treat students, their assignments, quizzes, papers, relative marking etc. The condition really improved.

11. *Lab Manual*

Dr. Tanvir headed the team which was responsible to make the lab manual for the courses "Computer Programming", "Human Computer Interaction". Based on the students' feedback which were shared in written form with the dean of the faculty, shows that lab manual has helped a lot student to understand programming concepts. These lab manuals are continuously updated to remain aligned with the latest knowledge and tools.

Section [3/4] – University Services Profile

1. ***Pioneer Executive Training in Pakistan: "Human Factors Engineering Program"***

   Prof. Afzal developed first of its kind executive training program on "Human Factors Engineering (HFE)" and offered it to senior management of a public sector organization from 3rd march – 9th April 2021. This not only generated a revenue for university but also a great fame of becoming pioneer of Human Factors Engineering training program in Pakistan. This comprehensive training program comprised of 25 days onsite. It helped to identify many gaps which have now been focused to make intelligent Human-Machine Fit. Prof. Afzal served as Curriculum curator, Project Director, and Master trainer for the program.

2. ***Project Director and Master Trainer for Executive Trainings***

   Prof. Afzal identified a gap that people best at technology does not know much about corporates (Strategic leadership, Human Resource management, Marketing. Health etc), and Management team is not aware of technology that could transform their businesses. Therefore, Prof. Afzal studied Leadership, HR, Marketing, Supply Chain etc and linked his Data Science and Artificial Intelligence techniques to offer innovative executive trainings in these domains. This not only brought fame to the university, but also generated significant revenue. These trainings were attended by CEOs, Directors, General Managers, and senior management of more than 15 organizations in Pakistan.

3. ***Development of STMU-JUCS consortium***

   Prof. Afzal has established a link between Shifa Tameer-e-Millat University and Journal of Universal Computer Science (impact factor, old computer Science journal). With this collaboration STMU is publishing the journal in collaborations with other renowned partners from the World. Here Prof. Afzal is serving as Editor-in-Chief of the journal [https://lib.jucs.org/board/274/]

4. ***Development of CUST-JUCS consortium***

   Previously, the similar collaboration was established between Capital University of Science and Technology and was active from 2012 to 2020. This collaboration had made **CUST the only university in the Pakistan** which was publishing an impact factor journal in partnership. There were 8 top universities of the World who were running J.UCS journal. There was no financial burden on CUST, instead we were providing services to

them such as: developing their submission system and implementation of innovative features. Prof. Afzal had been providing services to J. UCS since 2012.

5. *Adjunct (Honorary) Professor at leading European University*

Based on successful collaborations, Graz University of Technology, Austria had appointed Prof. Afzal as honorary professor in the Institute for Information Systems to proceed for further research and development with the rainbow of Computer Science i.e., Prof. Dr. Hermann Maurer.

6. *Winner of World Level Challenge in A-rated conference by beating a state-of-the-art research lab from Canada*

Prof. Dr. Tanvir Afzal with his PhD student Mr. Riaz Ahmed, participated in a world renowned challenge held at A-rated conference ESWC 2016 in Greece. This is the prestigious conference of A-ranked in the area and has been placed by CORE rank in A-category. The acceptance rate is very low and accepted papers set forth the foundations in the area. They organize different challenges every year. One of such challenge was semantic publishing. The goal of the challenge was to build a technique that could extract un-structured or semi-structured information from PDF of scientific papers to enhance the future information retrieval indexes. We enthusiastically participated in this World challenge. Initially they shared a small dataset for letting our algorithm to learn, subsequently the developed tool was executed on unseen dataset by the organizers. We remained the winner by securing F-measure of 0.771 (1 being the maximum) followed by a team from semantic software lab from Canada which scored 0.632 F-measure. The task was too challenging as it is evident from the final statistics that the top 5th tool was just able to make it to 0.389. In this scenario, winning a prestigious competition with such a significant margin is an outstanding success from Pakistan. The results are shown in the Figure can also be accessed online at: https://github.com/ceurws/lod/wiki/SemPub2016

7. *Inclusion in Productive Scientist list by PCST for both under 40 years and complete list.*

Based on his outstanding research achievements, he had been acknowledged and added in the list of productive scientists by Pakistan Council for Science and Technology (PCST). The PCST generates two separate rankings such as: (1) scientists Under 40 years of age, and (2) and the complete list. The criteria for the selection was cumulative impact factor, citations, patents, PhD supervised, books, external research grants, applied research output, and awards.

Dr. Afzal is working in Computer Science Discipline, however, there is no separate ranking for Computer Science. The computer scientists need to compete with scientists from mathematics field. Even then, Dr. Afzal was ranked in top 39% in the ranking of under 40

years old from all Computer Scientists and mathematicians of the Pakistan and in the top 43.6% of the complete list irrespective of age group from all computer scientist and all mathematicians of Pakistan. The result of ranking produced under 40 years' age group can be found at:

https://www.pcst.org.pk/docs/PSP/listspsp2018/under40/math.pdf

and the ranking of all age groups (complete list) can be found at:

https://www.pcst.org.pk/docs/PSP/listspsp2018/overall/math.pdf

8. *ERASMUS project submission of 135 million as principal investigators and 11 national and internal partners*

Capacity building project was submitted on Data Science to ERASMUS Europe as principal investigator. This is first submission as principal investigator from Pakistan. Being the main coordinator, 11 partners joined us. One from leading university from Austria, one leading university from Germany, and remaining were the partners from all geographical locations of Pakistan including Punjab, Kashmir, Balochistan, KPK, Islamabad, Rawalpindi, and Karachi. Every partner including the foreigners had to convince their chancellors/Rectors/Vice Chancellors for participation to this project and have submitted us their consent for this project. The list of partners are as follows:

    I.   Principal Investigator: Capital University of Science and Technology, Islamabad, Pakistan represented by Dr. Muhammad Tanvir Afzal.

   II.   Program Country: Graz University of Technology, Graz, Austria represented by Prof. Dr. Hermann Maurer.

  III.   Program Country: Braunschweig University of Technology, Braunschweig, Germany represented by Prof. Dr. Wolf Tilo Balke.

  IV.   Partner: GIKI, Topic, KPK represented by Dr. Fawad Hussain

   V.   Partner: Balochistan University of Information Technology, Engineering and Management Sciences, Balochistan, Pakistan represented by Dr. Faisal Khan

  VI.   Partner: National Textile University, Faisalabad, Pakistan Dr. Muhammad Asif

 VII.   Partner: Kohat University of Science and Technology, KPK represented by Dr. Abdul Shahid

VIII.   Partner: Information Technology University, Lahore, Pakistan represented by Dr. Faisal Kamiran

  IX.   Partner: IQRA University Islamabad Campus, Pakistan represented by Prof. Dr. Basheer Ahmad Samim.

   X.   Partner: Mirpur University of Science and Technology, Mirpur, AJK, Pakistan

  XI.   Partner: IQRA University Karachi Campus, Karachi, Pakistan

9. *Individual Strong Collaborations*

Dr. Tanvir has strong collaborations with leading professors of the World, some of them are mentioned below: On the request of Dr. Tanvir, first two of them visited Pakistan as Keynote Speaker in ICET 2012, ICET 2013 and ICET 2016.

a) Prof. Hermann Maurer (https://www2.isds.tugraz.at/maurer)
b) Prof. Wolf Tilo Balke (http://www.ifis.cs.tu-bs.de/staff/balke)
c) Prof. Narayanan Kulathuramaiyer (https://expert.unimas.my/profile/130)
d) Dr. Muhammad Abulaish (http://www.abulaish.com/)
e) Prof. Denis Helic (https://courses.isds.tugraz.at/dhelic/)
f) Prof. Christian Guntel (https://www.tugraz.at/institute/isds/research/research-groups/cognitive-digital-science-lab/codis)
g) Prof. Heinz Dreher (https://0-scholar-google-com.brum.beds.ac.uk/citations?user=qfS0ozkAAAAJ&hl=en)
h) Prof. Andrews Keith (https://keithandrews.com/keith/)
i) Mr. Kashif Iqbal (https://www.linkedin.com/in/kashifiqbalcissp/)

10. *Approved PhD Supervisor*

Dr. Tanvir is approved PhD supervisor. In Pakistan, you need to be recognized by HEC as "PhD Approved Supervisor" for being able to supervise PhDs. The list of PhD students completed or working under his supervision are listed below.

11. *PhD Thesis supervision*

SN	Student	Title	Completion
1	Abdul Shahid	Recommending Relevant Papers using In-text Citation Frequencies and Patterns	June 2016
2	Muhammad Imran	Evaluation of Hidden Markov Model for Malware Behavioral Classification	October 2016
3	Riaz Ahmed	Research Paper Recommendation by Exploiting Co-citation Occurrences in Sections of Scientific Papers	August 2018
4	Naseer Ahmed Sajid	Multi-Label Classification of Computer Science Research Papers Using Papers' Metadata	September 2018

5	Raja Habib	Research Paper Recommendation Using Citation Proximity Analysis in Bibliographic Coupling	August 2018
6	Touseef Ikram	Identification of Citation Functions using Higher-Ordered N-Grams and Citation Context	August 2021
7	Nauman Sharif	Tweets Recommendation based on Learners' History, Profile, and Current Contexts	2019
8	Saboor Ahmed	A Novel Content-based Filtering Approach to Identify Important Citations	October 2022
9	Sajjad Haider	Tweet Location Prediction using Content and context of Tweets	November 2022
10	Waqas Ahmed Janjua	Machine Learning based Approach for the Extraction of Logical Layout and Metadata from PDF-based Research Documents using Physical Layout and Textural Features.	November 2022
11	Shahbaz Ahmed	Combining co-citation and metadata for recommending more related papers	Thesis submitted
12	Ibrar ahmad	Identification of Section Weights for Citation based Approaches	Thesis submitted
13	Faiza Qayyum	Identification of Important Citations using metadata and content	Visiting student at Korean university
14	Saqib Nazir	Structured Content based Similarity of Research Papers to Recommend Scientific Literature	Research student
15	Sahar Maqsood ul Hassan	A Framework for Identification of Quantitative Author Ranking Parameter to Estimate Qualitative Aspects	Synopsis defended
16	Ghulam Mustafa	Formulation of Novel author ranking index by learning hidden patterns	Synopsis defended
17	ILyas Ahmad	Systematic Analysis of Author Ranking Parameters and proposal of Novel Index	Synopsis defended
18	Imran Inayat Yousafzai	Evaluation of non-cognitive characteristics to Predictive Success of Nursing Admission	Synopsis preparations
19	Arshad Iqbal	Exploiting Word Embedding for Identification of Important Citations	Synopsis Defended
20	Shazia Maqsood	Assessing English language sentences readability using machine learning models	Synopsis Preparations

21	Muhammad Sajid Qureshi	Linked Open Data based Ranking of the Global higher Education Institutions	November 2022
22	Qurat ul Ain	Joined few months ago and exploring research directions	Research student
23	Bilal Ahmad	Researchers' Ranking Index using Multi-Domain Knowledge. Co-supervision and pursuing his PhD at China,	PhD thesis submission by September 2023

Following 35 PhD students have not been added into the above list

a) **Those who are in early stages of their course work [5 students]**
b) **Students who were not in my supervision, still were mentored in weekly research meetings, personal meetings, during course work [approximately 15 students]**
c) **Students who were mentored in different international universities in the last 13 years [5 students]**
d) **Students for whom I was in their research evaluation committees, external examiner etc [10 students]**

12. *MS Thesis supervision*

24	Muhammad Saud	Identifying Relationship Between Researchers Using Their Homepages	Jan-2014
25	Zafar Ullah	Identification of Sentiments from Twitter Using Language Structure (Senti-Lang)	Sep-2013
26	Muhammad Asif Raza Khan	Extending Concept Aggregation Framework for Organization Search in CAFSIAL	2011
27	Ajmal Shehzad Akbar	Network Monitoring and Network Attacks Detection using Visualization Technique	Dec 2013
28	Ammar Sohail	Modeling and Simulation of System for identifying and Recommending Medical Academicians and Researchers	2013
29	Kashif Irshad	Section based Content Similarity to Find Relevant papers	Jan 2015
30	Anser Mehmood Khan	Extending Bibliographic Coupling with Section Wise In-text Citation Frequencies	Jul-2014

31	Arjumand Yar Khan	Section-Wise Co-citation Analysis	Jun-2014
32	Madiha Javid Pandith	Analysis of Knowledge Diffusion Through Social Bookmarking (Tags)	Jun-2014
33	Misbah Masood	Comparative Study of Word Similarity Approaches for Grouping CAFSIAL Properties	Oct-2015
34	Qasim Jan	Exploiting the Role of Co-author Network for Ranking Scientists-A case Study of J. UCS	Jun-2014
35	Sajjad Haider	Finding Relevant Papers using Knowledge from Social Bookmarking	Jan-2015
36	Imama Syed	Evaluation of Authors' Ranking Parameters	Jan 2015
37	Kamran Razzaq	Evaluation of H-Index and It's Variants for Computer Scientists	Jun-2015
38	Rizwan Ghani	Evaluation of Researcher's Ranking-Indexes in Mathematics	Aug-2015
39	Syed Fahad Ali	Research Paper Recommendation by Combining In- text Citation Frequencies and Papers' Content	Jun-2015
40	Waqar Ali	Investigating Combinations of Metadata with In-text Citation Frequency to Recommend Research Papers	2015
41	Rifhat Hashim	Classification of LOD Properties using Word Sense Knowledge from WordNet	Oct-2015
42	Anika Kanwal	HMM based Feature Selection from API Calls for Malware Classification	Jan-2016
43	Salman Masih	Predicting Bollywood Movies Success using ZeeCine and IIFA Awards Awards	Jan-2016
44	Hasnain Tahir	Selection of Suitable Features from structural Components for the Classification of Web Pages	Jan-2016
45	Sumaira Akram	Research Papers Recommendation by Exploiting Patterns of Intext Citation Frequency and Patterns in papers' Sections	2016
46	Ayesha Noreen	Comparison of Sentiment evaluation using Sentiword and SenticNet	2016
47	Tahmeena Javaid	Exploration of Suitable Metadata Elements Combined with Co-citation Frequency to Recommend Research Papers	Jan-2016
48	Muhammad Junaid Iqbal	Development of Taxonomy and Extraction of Author's Profiles Using their Homepages	Jan-2016

49	Ali Ahmad	A Hybrid Approach to Identify Citation Classes Using In-Text Citation Frequencies and Citation Content	Sep-2016
50	Bilal Ahmad	An Analysis of Co-relation between Citation Tweets; with H-Index and its Variants	2017
51	Muhammad Raheel	Evaluation of h-Index, its variants and extensions based on publication age and citation intensity in civil engineering field	Sep-2016
52	Shafaq Sattar	Evaluation of adjectives-types and verb-types for Sentiment Classification	Sep-2016
53	Ummara Ahmed	Impact Analysis of Adverbs for Sentiment Classification on Product Reviews	May-2016
54	Sana Sikander	Tracing And Visualizing Knowledge Diffusion	Apr-2017
55	Kinza Shabbir	Evaluation of Supervision and Association based Parameters for Researcher's Ranking	Jan-2016
56	Faiza Qayyum	Identification of Important Citations by Exploiting Research Articles' Metadata	Apr-2017
57	Nadeem Iqbal	Comprehensive Evaluation Of In-Text Citation Count, N-Gram Based Cue-Phrases And Similarity Measures For Citation Classification	Oct-2017
58	Sumbal Khan	Evaluation of Actors, Supporting Actors, and Directors' profiles from Social media and Awards to Predict Hollywood Movie Success	Oct-2017
59	Rizwan Yasin	Evaluation of Preferential Voting Methods in Bagging Classifier	Apr-2018
60	Saman Saeed	Role of Supervision and Association based parameters In the domain of Computer Science	Sep-2018
61	Aadil ur Rehman	Evaluation of various Features for Author name Disambiguation	Sep-2018
62	Qurat ul Ain	Evaluation of Researchers Ranking Parameters based on primitive, Citation Intensity and Publication Age	Spring 2019
63	Ahmer Rashid	Rule based Approach to Extract Metadata from Scientific Papers	Spring 2019
64	Madeeha Ameer	Finding patterns in Quantitative Authors' Ranking Parameters with Qualitative Judgments for Award Recipients	Spring 2019
65	Abdul Rauf	Identification of Important Citations Using Section-wise Similarities	June 2020
66	Umar Naseer	Lexicon Based Impact Analysis of Adverbs & Adjectives for Sentiment Analysis Evaluation	July 2020
67	Ghulam Mustafa	Research Paper Classification using Word Sense Knowledge	January 2020

68	Muhammad Usman	Finding a patterns in Quantitative Authors' Ranking Parameters with Qualitative Judgments for Award Recipients	January 2020
69	Muhammad Saqib	ST-index to rank awardees using machine learning algorithm	July 2020
70	Maryam Nawaz	A Novel Scheme to identify Similarity between short text	November 2020
71	Rehan Naveed Abbasi	Ranking of Researchers Using Venues and Metadata	Started January 2024
72	Shaban Qabil	Identifying Influential Researchers by exploiting Sentiments of their Citations	Started January 2024
73	Minahil Fatima	Employing Co-author Network Prestige to Identify Influential Scientists	Started January 2024

13. *Research Workshop for Twin Cities*

Dr. Tanvir had organized many research workshops with national and international workshops/sessions, one of such workshop was organized for research students from twin cities participated on 12-13 December 2013 at M.A.J.U. The workshop was chaired by **Prof. Wolf Tilo Balke**, Germany who is highly acclaimed scientist in the areas of Information Systems, Databases, and Digital Content Syndication. He is research fellow of California Berkeley. Dr. Tanvir selected PhD students from different universities of twin cities who presented their research and got outstanding feedback from the expert. This activity explored innovative directions for many students from different universities to pursue their research. The similar workshop was also conducted in December 2016 when **Prof. Dr. Hermann Maurer**, rainbow of Computer Science from Austria chaired the session.

14. *Established Collaborations of CUST-IICM*

Dr. Tanvir started an effort for the young faculty members of Computer Science department at Capital University of Science and Technology to engage them in an international PhD program uniquely. The uniqueness of this proposal was that the faculty member would need to spend half time abroad and half time in Pakistan to get a PhD degree from internationally acclaimed university. The PhD will be supervised by one supervisor from foreign university and Dr. Tanvir will act as a co-supervisor. One of our former faculty member, joined Prof. Denis Helic on this program and have completed his PhD thesis already.

15. *H-Index of Dr. Tanvir*

In a short span, Dr. Tanvir has achieved H-Index of 2, i10-Index of 54, citation count 1600+, and impact factor of 145+ in Computer Science. These parameters are fairly good for a computer scientist at this length of career [https://scholar.google.com/citations?user=f_QiTTgAAAAJ&hl=en&oi=ao]

He is also very active and followed by relevant colleagues from around the globe at LinkedIn and ResearchGate.

16. *Project Leader Innovative Features J.UCS, Austria*

Dr. Tanvir had been appointed as Project leader for the research and development of innovative features for Journal of Universal Computer Science (J. UCS) by Prof. Hermann Maurer since 2007. Five research oriented features have been incorporated and made available in JUCS such as:

a) **Links into the Future**
b) **Tags recommendations from Social Libraries**
c) **Expertise Finder Systems**
d) **Linking JUCS authors with Linked Open Data**
e) **Semantic Version of JUCS.**

J. UCS is a leading international computer science journal of good impact factor.

17. *Patron SPARK*

Dr. Tanvir served as Patron JSPARK at Mohammad Ali Jinnah University, Islamabad from 2010 to 2015. This is a student society which organizes dozens of events in every semester. Dr. Tanvir has initiated, planned, and executed diversified events in the university during this time. Dr. Tanvir conducted more than 100 curricular, co-curricular, and extra- curricular activities since 2010 including seminars, workshops, national competitions (ExcITeCup) and invited international and national speakers from Google (Sergio head of 23 Asian countries, Oracle, IICM (eminent professors from Austria), IFIS (eminent professors from Germany), SEGA Europe (Network Security head) etc. Then the society was handed over to another professor in Computer Science with a consultancy role.

18. *Gold Medal in M. Sc and highest distinction in PhD*

Dr. Tanvir Afzal earned his M. Sc from Quaid-i-Azam University, Islamabad in 2004 and secured Gold medal by meeting all set requirements by the university. He got a chance to work with leading scientist of the World: Prof. Dr. Hermann Maurer at Graz University of Technology, Austria from where he received PhD with highest distinction in 2010.

19. *International Letters of Appreciations*

i.   Letter of appreciation from Prof. Herman Maurer for implementing innovative features for Journal of Universal Computer Science.

ii. Letter of appreciation from Prof. Herman Maurer for incorporating topic L and topic M as an extended ACM classification for Journal of Universal Computer Science.

iii. Letter of appreciation from Prof. Narayanan Kulathuramaiyer for representing Graz University of Technology in Universiti Malaysia Sarawak for establishing collaborations between the mentioned universities.

20. *Psychology Expert*

Dr. Tanvir is an expert of human psychology, practicing Hypnosis and psychology therapies since the 1997. A number of human issues have been resolved since then. Dr. Tanvir is guiding students and faculty to overcome their limitations especially related to studies using psychology. A number of students have discussed their academic issues with Dr. Tanvir in the campus. Based on provided guidance, many critical issues have been resolved successfully.

21. *Convener ExcITeCup 2012-2016*

Dr. Tanvir has served as founder and convener of ExcITeCup 2012 and ExcITeCup 2013, ExcITeCup 2014, ExcITeCup 2015, and ExcITeCup 2016 and led a team of more than 20 faculty members and 60 volunteer students. This is national event in which around 500 participants come from different geographical regions of Pakistan and includes around 10 technology events.

22. *Coordinator Faculty Hiring Committee*

Dr. Tanvir remained coordinator, member and then head of hiring committees in different universities. In every semester, usually department offer job opportunities and recruits 2-3 outstanding faculty members. This task has been given to Dr. Tanvir by the department where around 500 applications were normally received in almost every semester. Top candidates were selected based on their academic records, sometime around 150 are interviewed by the team coordinated by Dr. Tanvir. Based on this activity around top 15-20 are re-invited for another interview with Dean and HoDs. Based on all this activity, 4-5 top persons were used to be recommended for university selection board almost in every semester.

23. *Coordinator PhD Oral exam committee*

Time to time, Dr. Tanvir is assigned different tasks by the university, one of such task is to be the coordinator/member of PhD oral exam committee formed by the university authorities in each semester.

24. *Top Positions achieved by his under-graduate supervised students*

The under-graduate students supervised by Dr. Tanvir were always admired by the examiners and audience of Open house. Some of the positions acquired by his students are mentioned here:

Positions in Industrial Open House

Sr. No	Position	Year	Project Title
1	1st out of 67	2018	Interactive PDF Viewer
2	3rd out of 65	2017	Drop of Life

25. *Development of Faculty Handbook*

One of the recent task assigned by the university administration was to come-up with the faculty handbook explaining the rules, conduct, discipline and privileges of faculty members of the university. This was a four-member committee, comprising of participation from Management Sciences, Computer Science, Mechanical Engineering and Electrical Engineering. From Computer Science, Dr. Tanvir participated to make this faculty handbook in summer of 2017.

26. *MoU between Shifa School of Computing and Bitnine*

Mr. Andrew Ko, visited Shifa School of Computing on 10th February 2022. MoU was signed between Shifa school of computing and Bitnine to extend collaborations on variety of mutual interests. All deans and HoDs from twin cities were also invited to attend this exciting gathering.

27. *MoU between CUST and IICM*

Dr. Tanvir Afzal singed an MoU between CUST and IICM officially with Prof. Dr. Hermann Maurer on 21st December 2016. The MoU was signed by Prof. Dr. Hermann Maurer representing TUG, and Dr. Muhammad Tanvir Afzal representing CUST. The MoU was further signed by Vice Chancellor of CUST, Prof. Dr. Muhammad Mansoor Ahmed and rector, Graz University of Technology, Austria, Prof. Dr. Harald Kainz. Prof. Maurer has been termed as rainbow of Computer Science as has initiated over 35 IT companies in Europe, supervised more than 65 PhDs, published over 700 publications, 25 influential books, and many more things. He is elected

Board of Director of prestigious European Academy of Science having 70 noble laureates. Dr. Tanvir was PhD student of Prof. Maurer and he has visited him Pakistan twice in 2012 and 2016 respectively. Both universities are already publishing a high impact factor journal known as: Journal of Universal Computer Science (http://www.jucs.org/) since 2012. According to the MoU, both universities agreed to extend further collaborations on number of mutual interests mentioned below:

a) Exchange of students and faculty
b) Co-supervision of MS thesis
c) Participation in ERASMUS+ program. The ERASMUS+ is an EU program for education, training, youth and sport. This program offers multiple opportunities of funding to an international partner in collaboration with European partner. On this program, number of joint collaborations can be established including mobility of faculty and students, capacity building, and joint Master degrees. The details of this program are available on the following URL: https://ec.europa.eu/programmes/erasmus-plus/node_en
d) Invitation to speakers for conferences, workshops, seminars and research visits.
e) Collaboration of research and publications.
f) Joint organizations of conferences, seminars, or other academic meetings.

Dr. Tanvir has many active relations with top professors and universities in the World and can invite them to collaborate on mutual interests to enhance faculty and university connections in the field that opens many different possibilities of joint funded projects, publications, and faculty/staff exchange programs.

Section [4/4] – Research Profile

1. *Research statistics*

Dr. Tanvir remained very actively involved in research. Here are few statistics followed by the details:

Total Publications = **136**

Peer reviewed Impact Factor Journal papers = **74**

Peer reviewed Total Journal papers: **90**

Peer reviewed conference publications = **42**

Cumulative Impact factor = **188.073**

Books authors = **2**

Book edited = **2**

Book Chapters = **2**

2. *Journal Publications*

JOURNAL PAPERS (IF: 188.073)	
136	G. Mustafa, M. S. Khattak, S. Ishfaq, M. T. Afzal, Q. Mahmood, Y. N. Khalid: "Interpretable genetic programming with SHAP-guided multi-objective optimization for scientific impact modeling", Evolutionary Intelligence, **19**, 14 (2026). https://doi.org/10.1007/s12065-025-01125-8 (IF: 2.6)
135	Mustafa, G., Khattak, M.S., Afzal, M.T. Afzal, A. Akhunzada, M. Konecki, and N. Ivković: "Combining Citation and Productivity Metrics through Harmonic Mean Enhances Researcher Ranking Accuracy. *Scientific Report* **16**, 992 (2026). https://doi.org/10.1038/s41598-025-30432-4 (IF: 3.9)
134	Mustafa, G., Afzal, M.T. & Khalid, Y.N. Knowledge discovery through interpretable decision rules: a framework for ranking researchers from bibliometric data. *Knowledge Information System* **67**, 12405–12434 (2025). https://doi.org/10.1007/s10115-025-02597-x (IF: 3.1)
133	G. Mustafa, M. T. Afzal: "Formulating rules to identify key researchers in computer science : A quantitative approach", COLLNET Journal of Scientometrics and Information Management, 19(1) June 2025, pp. 91–122, DOI : 10.47974/CJSIM-2024-11007 (IF: 1.6)
132	Mustafa, G., Rauf, A. & Afzal, M.T. Enhancing author assessment: an advanced modified recursive elimination technique (MRET) for ranking key parameters and conducting statistical analysis of top-ranked parameter. Int J Data Sci Anal 20, 1461–1483 (2025). https://doi.org/10.1007/s41060-024-00545-6, (IF: 2.8)

131	Mukhtiar, H.Z., Mustafa, G. & Afzal, M.T. Enhancing researcher evaluation in computer science: a novel index for impact assessment. *Knowl Inf Syst* **67**, 9987–10004 (2025). https://doi.org/10.1007/s10115-025-02522-2 (IF: 3.1)
130	G. Mustafa, M. T. Afzal, A. Rauf, M. Abdullah: "Beyond Publication Numbers: A Novel Approach to Academic Ranking Using Evolutionary Programming", Evolutionary Computation, accepted, 2025 **(IF: 2.3)**
129	B Ahmed, L Wang, W Hussain, G Mustafa, MT Afzal: "Investigating scholarly indices and their contribution to recognition patterns among awarded and non-awarded researchers", International Journal of Data Science and Analytics, 2025 **(IF: 3.4)**
128	G Mustafa, A Rauf, M. T. Afzal: "MRET: Modified Recursive Elimination Technique for ranking author assessment parameters", PLOS One, 2024 **(IF: 2.9)**
127	G Mustafa, A Rauf, AS Al-Shamayleh, MT Afzal, A Waqas, A Akhunzada: "Defining quantitative rules for identifying influential researchers: Insights from mathematics domain", Heliyon 10 (9), 2024 **(IF: 3.4)**
126	G. Mustafa, R. Abid, M.T. Afzal: "GK Index: Bridging Gf and K Indices for Comprehensive Author Evaluation", Knowledge and Information Systems, accepted 1st April 2024, **(IF: 2.7)**
125	G. Mustafa, R. Abid, M.T. Afzal: "Enhancing Author Assessment: An Advanced Modified Recursive Elimination Technique (MRET) for Ranking Key Parameters and Conducting Statistical Analysis of Top Ranked Parameter. Int J Data Sci Anal March, 2024. **(IF: 3.4)**
124	G. MUSTAFA, A. RAUF, A. S. AL-SHAMAYLEH, B. AHMED, W. ALRAWAGFEH, M. T. AFZAL, A. AKHUNZADA: "Exploring the Significance of Publication Age-Based Parameters for Evaluating Researcher Impact", IEEE ACCESS, August 2023. **(IF: 3.9)**
123	B. AHMED,L. WANG, G. MUSTAFA, M. T. AFZAL,A. AKHUNZADA: "Evaluating the Effectiveness of Author-Count Based Metrics in Measuring Scientific Contributions", IEEE ACCESS, September 2023. **(IF: 3.9)**
122	G. Mustafa, A. Rauf, A. S. Al-Shamayleh, M. Sulaiman, W. Alrawagfeh, M. T. Afzal, A. Akhunzada: "Optimizing Document Classification: Unleashing the Power of Genetic Algorithms", IEEE ACCESS – 11, 2169-3536, 2023 **(IF: 3.9)**
121	B.AHMED, L. WANG,A.S. AL-SHAMAYLEH,M. T. AFZAL, G. MUSTAFA, W. ALRAWAGFEH, A. AKHUNZADA: "Machine Learning Approach for

	Effective Ranking of Researcher Assessment Parameters", IEEE ACCESS, November 2023. **(IF: 3.9)**
120	M. Waqas, N. Anjum, M. T. Afzal: "A hybrid strategy to extract metadata from scholarly articles by utilizing support vector machine and heuristics", Scientometrics, **128**, pp 4349–4382 (2023), June 2023 **(IF: 3.9)**
119	G. Mustafa, A. Rauf, A. S. Al-Shamayleh, M. Sulaiman, W. Alrawagfeh, M. T. Afzal, A. Akhunzada: "Optimizing Document Classification: Unleashing the Power of Genetic Algorithms", IEEE ACCESS – 11, 2169-3536, 2023 **(IF: 3.476)**
118	G. Mustafa, A. Rauf, B. Ahmed, M. T. Afzal, A. Akhunzada, S. Z. Alharthi: "Comprehensive Evaluation of Publication and Citation Metrics for Quantifying Scholarly Influence", IEEE ACCESS – 11, 65759 – 65774, 2023 **(IF: 3.476)**
117	A. A. Alshdadi, M. Usman, M. O. Alassafi, M. T. Afzal & R. AlGhamdi: "Formulation of rules for the scientific community using deep learning", Scientometrics, 128, pages 1825–1852 (2023) **(IF: 3.801)**
116	F. Qayyum, H. Jamil, N. Iqbal, D. Kim, M. T. Afzal: "Toward potential hybrid features evaluation using MLP-ANN binary classification model to tackle meaningful citations", Scientometrics, **127**, pages6471–6499, October 2022 **(IF: 3.801)**
115	S. Haider, A. Mahmood, S, Khatoon, M. Alshamari, M. T. Afzal: "Automatic Classification of Eyewitness Messages for Disaster Events Using Linguistic Rules and ML/AI Approaches", Applied Sciences, accepted September 2022 **(IF: 2.838)**
114	G. Mustafa, M. Usman, L. Yu, M. T. Afzal, M. Sulaiman and A. Shahid "Multi-label Classification of Research Articles using Word2Vec and Identification of Similarity Threshold" in Scientific Report 2021**(IF:4.3)**
113	G. Mustafa, M. Usman, M. T. Afzal, A. Shahid and A. Koubaa, "A Comprehensive Evaluation of Metadata-Based Features to Classify Research Paper's Topics," in IEEE Access, vol. 9, pp. 133500-133509, 2021**(IF:3.23)**
112	S. Maqsood, R. Jin, A. Shahid, M.T Afzal, and M. Roman, Assessing English Language Sentences Readability Using Machine Learning Models, accepted in Complexity **(IF: 2.462)**
111	A. Shahid, M. T. Afzal, A. Alharbi, H. Aljuaid and S. Al-Otaibi: In-text citation's frequencies-based recommendations of relevant research papers, PeerJ Computer Science, 2021 **(IF: 3.09)**

110	M. Salman, M. M Ahmed, M. T. Afzal: "Assessment of Author Ranking Indices Based on Multi-authorship", Mar, 2021 Scientometrics **(IF: 2.867)**
109	K. Irshad, M. T. Afzal, SS Rizvi, A. Shahid, R. Riaz, T. Chung: "SwCS: Section-wise Content Similarity approach to exploit Scientific Big Data", accepted in Computers, Materials & Continua **(IF: 4.89)**
108	M. S. Qureshi, A. Daud, M. K. Hayat, M. T. Afzal: "OpenRank - A Novel Approach to Rank Universities Using Objective and Publicly Verifiable Data Sources", accepted Library Hi Tech, November 2020, **(IF: 1.218)**
107	A. Shahid, M. T. Afzal, M. Q. Saleem, M. S. E. Idrees, M. K. Omer: "Extension and Validation of Direct Citation Model Using Least Square Approximation by Quadratic Polynomial", in Computers, Materials & Continua, 66(3), 3121-3138, 2020 **(IF: 4.89)**
106	M. Usman, M. T. Afzal: "Ranking of author assessment parameters using Logistic Regression", accepted Scientometrics, October 2020 **(IF: 2.867)**
105	M. S. Ahmed, M. T. Afzal: "Exploiting Structural Similarities to Classify Citations", 2020, CMC: Computers, Materials & Continua **(IF: 4.89)**
104	H. Aljuaid, R. Iftikhar, S. Ahmad, M. Asif, M. T. Afzal: "Important citation Identification using Sentiment Analysis of In-text citations", accepted in Telematics and Informatics, July 2020 **(IF: 4.139)**
103	S. Haider, M. T. Afzal: "Autonomous eyewitness identification by employing linguistic rules for disaster events," Computers, Materials & Continua, vol. 66, no.1, pp. 481–498, 2021. **(IF: 4.89)**
102	I. Ahmad, M. T. Afzal: "A Systematic Approach to Map the Research Articles' Sections to IMRAD", published on 15th July 2020, IEEE ACCESS **(IF: 3.745)**
101	W. Ahmad, M. T. Afzal: "FLAG-PDFe: Features oriented metadata extraction framework for scientific publications", accepted on 29th May 2020, IEEE ACCESS **(IF: 4.098)**
100	S. Maqsood, M. A. Islam, M. T. Afzal, N. Masood: "A comprehensive author ranking evaluation of network and bibliographic indices", Malaysian Journal of Library & Information Science, 25(1), pp. 31-45, April, 2020. ISSN 1394-6234. Available at: <https://mjlis.um.edu.my/article/view/23243> **(IF: 1.0)**
99	S. Nazir, M. Asif, S. Ahmad, F. Bukhari, M. T. Afzal, HA. Juaid: "Important Citation Identification by Exploiting Content and Section-Wise In-text Citation Count", accepted in Plos One on 22nd Feb 2020. **(IF: 2.776)**

98	U. A. Chauhan, M. T. Afzal, A. Shahid, M. Abdar, M. E. Basiri, X. Zhou: "A Comprehensive Analysis of Adverb types for Mining User Sentiments on Amazon Product Reviews", accepted in the World Wide Web, accepted on 13th January 2020. **(IF: 1.77)**
97	S. Ahmad, M. T. Afzal: "Combining metadata and co-citation for recommending related Papers", Turkish Journal of Electrical Engineering and Computer Science, (2020) 28: 1519 – 1534. **(IF: 0.625)**
96	N. Ikram, M. A. Qadir, M. T. Afzal: "SimExact – An Efficient Method To Compute Function Similarity Between Proteins Using Gene Ontology", Current BioInformatics, 15 (4), pp. 318-327 **(IF: 1.189)**
95	A. Shahid, M. T. Afzal, M. Abdar, M. E. Basiri, X. Zhou, N. Y. Yen, J. Chang: "Insights into relevant knowledge extraction techniques: a comprehensive review", The Journal of Supercomputing, 76, pages1695–1733(2020) **(IF: 2.157)**
94	A. M. Khan. A. Shahid, M. T. Afzal, F. Nazar, F. Alotaibi, K. Alyoubi: "SwICS: Section-Wise In-Text Citation Score", IEEE ACESS 7 (1), 137090-137102, 2019 **(IF: 4.098)**
93	M. Ameer, M. T. Afzal: "Evaluation of h-index and its qualitative and quantitative variants in Neuroscience", accepted in Scientometrics, Published online August 2019 **(IF: 2.770)**
92	M. Usman, H. Waqas, M. T. Afzal: "Pre-Production Box-Office Success Quotient Forecasting", accepted in Soft Computing, Published online August 2019 **(IF: 2.784)**
91	M. T. Ikram, M. T. Afzal: "Aspect based citation sentiment analysis using linguistic patterns for better comprehension of scientific knowledge", Scientometrics, 119 (1), pp. 73-95, 2019 (IF: 2.173)
90	R. Ghani, F. Qayyum, M. T. Afzal, H. Maurer: "Comprehensive evaluation of h-index and its extensions in the domain of mathematics", Scientometrics, 118(3), pp. 809-822, 2019 **(IF: 2.173)**
89	R. Habib, M. T. Afzal: "Sections-based bibliographic coupling for research paper recommendation", Scientometrics, 119(2), pp. 643-656, 2019 **(IF: 2.173)**
88	Q. Ain, H. Riaz, M. T. Afzal: "Evaluation of h-index and its citation intensity based variants in the field of mathematics", Scientometrics, 119 (1), pp. 187-211, 2019 **(IF: 2.173)**
87	F. Qayyum, M. T. Afzal: "Identification of Important Citations by Exploiting Research Articles' Metadata and Cue-Terms from Content", Scientometrics, 118 (1), pp. 21-43, 2019 **(IF: 2.173)**

86	R. Ahmad, M. T. Afzal: "CAD: an algorithm for citation-anchors detection in research papers", Scientometrics, 117 (3), pp. 1405-1423, 2018 **(IF: 2.173)**
85	A.Y. Khan, A. Shahid, M. T. Afzal: "Extending co-citation using sections of research articles", Turkish Journal of Electrical and Computer Sciences, 26 (6), pp. 3345-3355, 2018. **(IF: 0.580)**
84	S. Haider, M.T. Afzal, M. Asif, H. Maurer, A. Ahmad, A. Abuarqoub: "Impact Analysis of Adverbs for Sentiment Classification on Twitter Product Reviews", Concurrency and Computation: Practice and Experience, Online published on 29th August 2018 **(IF: 1.114)**
83	N. Noureen, S. Fazal, M. A. Qadir, M. T. Afzal: "HCVS: Pinpointing Chromatin States through Hierarchical Clustering and Visualization Scheme", Current Bioinformatics, 14 (2), pp. 148-156, 2019 **(IF: 0.54)**
82	M.T.Khan, S. I. Iqbal, S. Ali, N. Masood, T. Nadeem, A. S. Khan, M. T. Afzal: "Pyrazinamide resistance and mutations in pncA among isolates of Mycobacterium tuberculosis from Khyber Pakhtunkhwa, Pakistan", BMC Infectious Diseases, 19 (2), pp. 116-122, 2019 **(IF: 2.62)**
81	M. T. Ikram, M. T. Afzal, N.A. Butt: "Automated citation sentiment analysis using high order n-grams: a preliminary investigation", Turkish Journal of Electrical Engineering and Computer Sciences, 26 (4), pp. 1922-1932, 2018 **(IF: 0.580)**.
80	M. T. Khan, S. I. Malik, S. Ali, A. S. Khan, T. Nadeem, M. T. Zeb, N. Masood, M. T. Afzal: "Prevalence of Pyrazinamide Resistance in Khyber Pakhtunkhwa, Pakistan", Microbial Drug Resistance, 24 (9), pp. 1417-1421, 2018 **(IF: 2.344)**.
79	Q. Mahmood, M. A. Qadir, M. T. Afzal: "Application of COReS to Compute Research Papers Similarity", IEEE Access, 2017 (5), pp. 26124 - 26134, 2017 **(IF: 3.244)**.
78	R. Ahmad, S. Ayaz, M. T. Afzal: "Evaluation of H-index, its variants and extensions based on publication age & citation intensity in Civil engineering", Scientometrics, 114 (3), pp. 1107-1127, 2017 **(IF= 2.173**).
77	R. Ahmad, M. T. Afzal, M. A. Qadir: "Pattern Analysis of Citation-anchors in Citing documents for Accurate Identification of In-text Citations", IEEE Access, 2017(5), pp.5819-5828, 2017 **(IF: 3.244)**.
76	N. Ikram, M. A. Qadir, M. T. Afzal: "Investigating Correlation between Protein Sequence Similarity and Semantic Similarity Using Gene Ontology Annotations", IEEE/ACM Transactions on Computational Biology and Bioinformatics, 15 (3), pp. 905-9012, 2018 **(IF: 2.428)**

75	A. Shahid, M. T. Afzal: "Section-Wise Indexing and Retrieval of Research Articles", Cluster Computing – The Journal of Networks, Software Tools and Applications, 21 (1), pp. 481-492, 2018 **(IF: 1.601)**.
74	S. A. Khan, M. A. Qadir, M. A. Abbas, M. T. Afzal: "OWL2 Benchmarking for the Evaluation of Knowledge Based Systems", PLoS ONE 12 (6): pp. 1-13, 2017 **(IF: 2.766)**.
73	R. Habib, M. T. Afzal: "Paper recommendation using citation proximity in bibliographic coupling", Turkish Journal of Electrical Engineering and Computer Sciences, 25 (4), pp. 2708-2718, 2017 **(IF: 0.578)**
72	M. Imran, M. T. Afzal, M. A. Qadir: "A comparison of feature extraction techniques for malware analysis", Turkish Journal of Electrical Engineering and Computer Sciences, 25 (2), pp. 1173-1183, 2017 **(IF: 0.578)**
71	S. Ayaz, M. T. Afzal: "Identification of conversion factor for completing-h index for the field of mathematics", Scientometrics, 109 (3), pp. 1511-1524, 2016 **(IF= 2.147)**.
70	M. Imran, M. T. Afzal, M. A. Qadir: "Malware classification using dynamic features and hidden Markov model", Journal of Intelligent and Fuzzy Systems (JIFS), 31 (2), pp. 837-847, 2016 **(IF: 1.261)**.
69	N. A. Sajid, M. T. Afzal, M. A. Qadir: "Multi-label Classification of Computer Science Documents using Fuzzy Logic", Journal of the National Science Foundation of Sri Lanka (JNSF), 44 (2), pp. 155-165, 2016 **(IF: 0.420)**
68	M. T. Ikram, N. A. Butt, M. T. Afzal: "Open source software adoption evaluation through feature level sentiment analysis using Twitter data", Turkish Journal of Electrical Engineering and Computer Sciences, 24 (5), pp. 4481-4496, 2016 **(IF: 0.578)**.
67	A. Shahid, M. T. Afzal, M. A. Qadir: "Lesson learned: The Complexity of Accurate Identification of in-Text Citations", International Arab Journal of Information Technology, 12 (5), pp. 481-488, 2015 **(IF: 0.065)**.
66	M. Ahmad, S. Gruner, M. T. Afzal: "Computational Analysis of Medieval Manuscripts: a new Tool for Analysis and Mapping of Medieval Documents to Modern Orthography", Journal of Universal Computer Science. 18(20), pp. 2750-2770, 2012 **(IF: 0.762)**.
65	A. Latif, M. T. Afzal, H. Maurer: "Weaving Scholarly Legacy Data into Web of Data", Journal of Universal Computer Science, 18 (16), pp. 2301-2318, 2012 **(IF: 0.762)**.

64	M. T. Afzal, H. Maurer: "Expertise Recommender System for Scientific Community" Journal of Universal Computer Science. 17 (11), pp. 1529-1549, 2011 **(IF: 0.398).**
63	M.T. Afzal, N. Kulathuramaiyer, H. Maurer: "Creating Links into the Future", Journal of Universal Computer Science, 13 (9), pp. 1234-1245, 2007 **(IF: 0.488)**.
62	A. M. Hashmi, F. Qayyum and M. T. Afzal: "Insights to the State-of-the-Art PDF Extraction Techniques", Transaction on Internet Research, Special Issue: "Digital Heritage and Related Tools, guest editor: Hermann Maurer", vol. 16, issue 1, January 2020.
61	M. Glatz, H. Maurer, M. T. Afzal: "Finding Reliable Information on the Web Should and Can Still Be Improved", CIT- Journal of Computing and Information Technology vo.26., no. 1 (2018), 1-6. **SCOPUS Indexed.**
60	A. Hussain, S. Sattar, M. T. Afzal, "Literature Review on Feature Identification in Sentiment Analysis", International Journal of Computer Applications, No: 3, Pages: 22-27, 2015 **(indexed in UlrichWeb)**
59	N. Sharif, M. T. Afzal, D. Helic: "Learning Management Systems – A Need for Specialized Systems", Transaction on Internet Research, Special Issue: "Different topics require different portal servers, guest editor: Hermann Maurer", vol. 10, issue 2, pp. 44-47, July 2014.
58	S. UrRehman, A. F. Haider, M. T. Afzal, S. Asghar: "Measuring the Relevance Between Tags and Citations in Social Web", accepted in Research journal of Applied Science, Engineering and Technology 2014 **(HEC Recognized).**
57	M. Naeem, M.B. Khan, M.T. AFzal: Expertise Discovery – A Web Mining Approach, Journal of AI and Data Mining, pp. 35-47, 2013
56	N. A. Sajid, M. T. Afzal, M. A. Qadir, S. A. Khan, ―The Insights of Classification Schemes Sind University Research Journal (SURJ 2013), (Science Series) ISSN 1813-1743, Volume 46 June 2013 (**HEC Recognized).**
55	M. W. Hussain, M. T. Afzal, M. Waqas: "Finding Semantic Relationship among Associated Medical Terms", International Journal of Emerging Sciences (IJCSIS), pp. 300-309, June 2012.
54	S. A. Khan, M. T. Afzal, M. A. Qadir: Metadata based classification of Scientific Documents, International Journal of Information Studies, 4 (4), pp. 184-193, 2012.
53	S. A. Khan, M. T. Afzal, A. B. Nawab, M. A. Qadir, A. Shahid: "Discoveries of Contextualized Research Areas for Scientific Community", Australian Journal of Basic and Applied Science, 5 (6), 1641- 1647, 2011 **(HEC Recognized).**

52	A. Shahid, M. T. Afzal, M. T. Afzal: "Discovering Semantic Relatedness between Scientific Articles through Citation Frequency", Australian Journal of Basic and Applied Science, 5 (6), 1599-1604, 2011 **(HEC Recognized).**
51	M. T. Afzal, W. Balke, N. Kulathuramaiyer, H. Maurer, "Rule based Autonomous Citation Mining with TIERL" Journal of Digital Information Management, 8 (3), 196—204 (June 2010) **(Indexed in DBLP)**
50	A. Ussaeed, M.T. Afzal, A. Latif, K. Tochtermann, "Disseminating knowledge through Tags: Recommending Tags for scientific Resources", Journal of IT in Asia, Vol 3 (2010).
49	S. N. Ahsan, M.T.Afzal, C. Gutel, "Mining Program File Bug Fix Effort Data to Construct the Developers' Activity Log-Book, Journal of IT in Asia, Vol 3 (2010)
48	M. T. Afzal, "Information Supply of Related Papers from the Web for Scholarly e-Community", Lecture Notes in Business Information Processing, vol. 45, pp. 61-72 (2010) **(Indexed in EI).**
47	A. Latif, M. T. Afzal, A. Us Saeed, P. Hoefler, K. Tochtermann, "Harvesting Pertinent Resources from Linked Open Data" Journal of Digital Information Management. Vol. 8 (3). Pp. 205-212 (2010) **(Indexed in DBLP).**

3. *Conference Publications*

CONFERENCE PUBLICATIONS	
46	N. Sharif, M. T. Afzal, U. Ahmed: "Twitter recommendation: Unary Metadata Features Evaluation with TF/IDF Using n-grams", Published in 34th Information Systems Education Conference (ISECON), pp. 117-125, April 5-7, 2018, San Antonio, Texas [CORE Ranking-B]
45	N. Sharif, M. T. Afzal: "Metadata Features Evaluation for Twitter based e-learning Recommendation", Published in 34 the Information Systems Education Conference (ISECON), pp. 109-116, April 5-7, 2018, San Antonio, Texas, [CORE Ranking-B].
44	L. Zafar, M. T. Afzal, U Ahmed (2017): "Exploiting Polarity Features for Developing Sentiment Analysis Tool ", In: Proceedings of the 3rd International Workshop on Emotions, Modality, Sentiment Analysis and the Semantic Web, co-located with 14th ESWC 2017, Portroz, Slovenia, May 28, 2017.
43	R. Ahmad, M. T. Afzal, M. A. Qadir: "Information Extraction from PDF Sources Based on Rule based System Usig Integrated Formats", bookTitle="Semantic Web Challenges: Third SemWebEval Challenge at ESWC 2016, Heraklion, Crete, Greece, May 29 - June 2, 2016, Revised Selected Papers", publisher="Springer International Publishing", pp. 293--308, isbn="978-3-319-46565-4", doi="10.1007/978-3-319-46565-4_23", url="http://dx.doi.org/10.1007/978-3-319-46565-4_23

42	M. Imran, M. T. Afzal, M. A. Qadir, "Similarity-based Malware Classification using Hidden Markov Model", The Fourth International Conference on Cyber Security, Cyber Warfare, and Digital Forensic (CyberSec2015), Jakarta, Indonesia Sampoerna University, 2015
41	M. Imran, M. T. Afzal, M. A. Qadir, "Using Hidden Markov Model for Dynamic Malware Analysis: First Impressions", 12th International Conference on Fuzzy Systems and Knowledge Discovery (FSKD'15), Zhangjiajie, China , 2015
40	N. Sharif, M. T. Afzal, "Recommendation Approaches for e-Learners– A survey", The 7th International Conference on Management of computational and collective IntElligence in Digital EcoSystems (MEDES'15), 2015
39	N. I. Qazi, M. A. Qadir, M. T. Afzal, "Investigating Protein Semantic Similarity measurement and its correlation with Sequence Similarity", PhD Symposium at 13th International Conference on Frontiers of Information Technology, 2015
38	R. Ahmad, M. T. Afzal, "Research Paper Recommendation by exploiting co-citation occurrences in Generic Sections of Scientific Papers", PhD Symposium at 13th International Conference on Frontiers of Information Technology, 2015
37	Q. Mahmood, M. A. Qadir, M. T. Afzal: "Finding Relatedness between Research Papers Using Similarity and Dissimilarity Scores", 2014, 15th international Conference Web-Age Information Management (WAIM), vol. 8485, eds: Li, Feifei and Li, Guoliang and Hwang, Seung-won and Yao, Bin and Zhang, Zhenjie, Springer International Publishing, 707-710, Macau, China, June 16-18, 2014.
36	S. Tahir, M. T. Afzal: "A novel phylogenetic tree data visualization application for researchers", Science and Information Conference (SAI), 2014, pp. 93-99, on 27-29 Aug. 2014, London, UK, DOI: 10.1109/SAI.2014.6918177
35	M.B. Bashir; T. Malik; M. T. Afzal: "SSTCSC: A Semantic Structure of Test Cases and Source Code," Frontiers of Information Technology (FIT), 2013, 11th International Conference on, vol., no., pp.241, 246, 16-18 Dec. 2013, doi: 10.1109/FIT.2013.5
34	Q. Mahmood, M. A. Qadir and M. T. Afzal: "Document Similarity Detection using Semantic Social Network Analysis on RDF Citation Graph", ICET 2013, Islamabad, Pakistan (IEEE).
33	R. Mehmood, M. T. Afzal and H. Maurer: "Knowledge Discovery in Hash tags#", ICET 2013, Islamabad, Pakistan (IEEE).
32	A. Sohail, M. T. Afzal and J. Ahmad: "Discovery of Medical Experts", ICET 2013, Islamabad, Pakistan (IEEE).
31	S. Gillani; Sheneela, Naz; M. Naeem; M. T. Afzal; A. Qayyum, "ERRAGMap: Visualization tool," Information Science and Digital Content Technology (ICIDT), 2012 8th International Conference on , vol.3, no., pp.736,740, 26-28 June 2012

30	S. Naz, M. T. Afzal, M. Naeem: Expertise Identification and Visualization, accepted in IEEE Conference ICCNT 2012 - 8th ICCNT2012 International Conference on Computing and Networking Technology
29	S. A. Khan, M. T. Afzal, M. A. Qadir: Exploiting Title-Keywords Relation to Develop Concept Classifier for Scientific Community, Communications in Computer and Information Science, Volume 293, 2012, DOI: 10.1007/978-3-642-30507-8, Networked Digital Technologies 4th International Conference, NDT 2012, eds (Rachid Benlamri) Dubai, UAE, April 24-26, 2012. Part II,
28	N. Sharif, M. T. Afzal, D. Helic: A Framework for Resource Recommendations for Learners using Social Bookmarking, accepted in IEEE Conference ICCNT 2012 - 8th ICCNT2012 International Conference on Computing and Networking Technology.
27	A. Shahid, M. T. Afzal, M. A. Qadir, "Does Citation Frequency Discover Semantic Relatedness", International Conference on Computers and Emerging Science (ICCET 2011), April 22-23, 2011, Khair pur, Pakistan
26	N. A. Sajid, T. Ali, M. T. Afzal, M. A. Qadir: "Exploiting Reference Section to Classify Paper's Topics", The International Conference on Management of Emergent Digital EcoSystems (MEDES'11), Nov. 21- 23, 2011, San Francisco, California, Publisher: ACM.
25	M. A. Raza, M. T. Afzal, A. Khanum: "Discovering. Structuring and Visualizing Organizations from Linked Open Data", ICCIT, 2011, Nov. 29 – Dec. 1, 2011, Jeju, Korea, Publisher: IEEE
24	A. Khan, M. T. Afzal, M. A. Qadir: "Citation Network Visualization of CiteSeer Dataset", ICCIT, 2011, Nov. 29 – Dec. 1, 2011, Jeju, Korea, Publisher: IEEE.
23	M. Naqvi, A. U. Mailk, S. Razzaq, M. T. Afzal, : Extraction and Visualization of Citation Network, ICCNIT, 205-209, 11-13 July 2011, Abbottabad, Pakistan
22	M. Naqvi, A. Usman, S. Batool, M. T. Afzal : "Finding scientific experts of ACM categories based on temporal association rule mining", ICCNIT, pp 273-277, 11-13 July 2011, Abbottabad, Pakistan
21	A. Latif, M. T. Afzal, K. Tochtermann, Constructing Experts Profiles from Linked Data, 6th International Conference on Emerging Technologies (ICET 2010), October 18-19, 2010, Islamabad, Pakistan.
20	M. T. Afzal, A. Latif, D., Helic, K. Tochtermann, H. Maurer, "Discovery and Construction of Authors' Profile from Linked Data (A case study for Open Digital Journal)", accepted in LDOW at World Wide Web conference 2010, April 24-30, 2010, Raleigh, North Carolina
19	S. Nazir, M. T. Afzal, COAWL-SAI: Context Aware OWL based Semantic Association Inference, accepted in NCM 2010, Seoul, Korea.

18	M. T. Afzal, H. Maurer, W. Balke, N. Kulathuramaiyer, "Improving Citation Mining", published in 1st International Conference on Networked Digital Technologies (NDT 2009), Ostrava, Czech Republic, July 28-31, 2009.
17	M. T. Afzal, "Applying Ontological Framework for finding Links into the Future from Web", published in I-Semantic, Graz, Austria, Sep. 2-4, 2009.
16	M. T. Afzal "Discovering Links into the Future on the Web", published in Fifth International Conference on Web Information Systems and Technologies (WEBIST 2009), pp. 123-129, Lisbon, Portugal, March 23-26, 2009.
15	M. T. Afzal, A. Latif, A. US Saeed, K. Andrews, H. Maurer, "Discovery and Visualization of Expertise in Scientific Community", accepted in International Conference on Frontiers of Information Technology, Abbottabad, Pakistan, Dec. 16-18, 2009.
14	A. Latif, M. T. Tanvir, P. Hoefler, A. Us Saeed, K. Tochtermann, "Translating Keywords into URIS", accepted in the 2nd International Conference on Interaction Sciences: Information Technology, Culture and Human, Seoul, Korea, 24-26 Nov. 2009.
13	A. Latif, M. T. Afzal, A. Us Saeed, P. Hoefler, K. Tochtermann, "CAF-SIAL: Concept Aggregation Framework for Structuring Informational Aspects of Linked Open Data", published in 1st International Conference on Networked Digital Technologies (NDT 2009), Ostrava, Czech Republic, July 28-31, 2009.
12	A. Us Saeed, M. T. Afzal, A. Latif, K. Tochtermann, "Citation rank prediction based on bookmark counts: Exploratory case study of WWW06 papers", published in IEEE International Mutitopic Conference, pp. 392-397, Karachi, Pakistan, Dec. 23-24, 2008.
11	A. UsSaeed, M.T. Afzal, A. Latif, A. Stocker and K. Tochtermann, "Does Tagging indicate Knowledge Diffusion? An Exploratory Case Study", published in International Conference on Convergence and Hybrid Information Technology (ICCIT), pp.605 – 610, Busan, Korea, Nov. 11-13, 2008.
10	M.T. Afzal, N. Kulathuramaiyer and H. Maurer "Expertise finding for a digital journal", published in I-know 2008, Sep. 3-5, 2008, Graz, Austria.
9	M.T. Afzal and M. Abulaish "Ontological Representation for Links into the Future", published in ICCIT 2007, Nov. 21-23, 2007, Gyeongju, Korea.
8	B. Shehzad, M.T. Afzal "Enhanced Shellsort Algorithm", published in 21st International Conference on Computer, Information, System Science and Engineering (ICCISSE 2007) May 25-27, 2007, Vienna – Austria.
7	B. Shehzad, M.T. Afzal "Enhanced shortest job first by eliminating starvation", published in 6th Jordanian International Electrical & Electronics Engineering Conference 2005, March 14-16, 2006, Amman - Jordan

6	B. Shehzad, M.T. Afzal "Enhanced risk analysis and relative impact factorization", published in 1st international conference on information and communication technology, IBA Karachi, Pakistan August 28-29, 2005
5	B. Shehzad, M.T. Afzal, R. Irfan "Risk Analysis-Relative Impact Ratio", published in 1st workshop on research in computing. April 29, 2005. Abbottabad, Pakistan.

4. *Books Edited*

Dr. Tanvir edited two books on the hot research area of Semantics. Dr. Tanvir was appointed as an Editor for these books by internationally renowned open access publisher such as: InTech. More than 45 chapters were submitted from more than 50 countries. Authors are considered experts in the area of Semantics by the research community. Dr. Tanvir critically reviewed all chapters and suggested modifications, minor/major revision guidelines. Finally, 20 best chapters were selected by Dr. Tanvir. One of the book is on the theoretical backgrounds and models for semantics whereas the other book is based on state-of-the-art applications of Semantics. Books can be downloaded freely from the following link. Since their availability, both books have achieved high downloads.
http://www.intechopen.com/profiles/108253/muhammad-tanvir-afzal.

[4] Edited the book "Semantics-Advances in Theories and Mathematical Models", published by In-tech Open Access, ISBN: 978-953-51-0535-0, [downloads = 21.2k]
https://www.intechopen.com/books/1960

[3] Edited the book "Semantics in Action – Applications and Scenarios", published by In-tech
Open Access, ISBN: 978-953-51-0536-7, [Downloads = 22k]
https://www.intechopen.com/books/2966

These books were downloaded by the scientific community in a large number.

Stats- Edited books by Dr. Tanvir

Book Title	Total downloads	Citations
Semantics in Actions: Applications and Scenarios	22,074	30
Semantics: Advances in Theories and Mathematical Models	21,246	52

5. *Book Chapters*

[2] M. Ahmad, M. A. Qadir, T. Ali, M.A. Abbas, M. T. Afzal: book chapter "Semantic Cache System, in the book Semantics, eds. (M. T. Afzal), ISBN: 979-953-307-613-2, 2012.

[1] M.A. Abbas, M. A. Qadir, M. T. Afzal: book chapter "Semantic Cache Reasoners", in the book Semantics, eds. (M. T. Afzal), ISBN: 979-953-307-613-2, 2012.

6. *Funded Research Projects*

Title of Research Project	Project duration (in months)	Funding Agency	Amount of Funds (PKR)	Status
A Machine Translation from English written text to Saudi Sign Language for Communication & Education of Deaf & Mute People, submitted as Co-PI	12	KSA-Ministry of Education, University of Jeddah	5.9 millions	Approved and started in Jan 2021
LORAWAN based Mesh Network for Outdoor Localization	12	King Abdulaziz University	11.9 millions	Approved and Started in May 2021
Mutations in quinolones resistance Mycobacterium tuberculosis isolates and their computational analysis, submitted as Co-PI	12	KSA-Ministry of Education, University of Jeddah	5.9 millions	Approved
Query Scholar: Intelligent Extraction of Metadata from Scientific PDFs to support Advanced User Queries, submitted as PI	24	National Centre for Artificial Intelligence	14.914 millions	Under Review
LCF: SaaS Based Framework for Universities Automation, submitted as Co-PI	24	LCF-HEC	23.9 millions	Under Review
Effective Method for Normalization of SCRNA-SEQ Data, submitted as Co-PI	12	KSA-Ministry of Education, University of Jeddah	5.9 millions	Under Review

Citation Recommendation System: A novel approach to identify meaningful citations, submitted as Co-PI	24	Looking for suitable venue	15 millions	Prepared and ready for submission
A Novel Index to rank researchers, as PI	12	Looking for suitable venue	1.5 million	Under preparations

7. *Active Research Group: CRDS*

Prof Dr. Muhammad Tanvir Afzal has been Director along with Prof. Dr. Abdul Qadir for an active research group such as: Centre for Research in Data Science, Semantics, and Scientometrics at Capital University of Science and Technology, Islamabad, Pakistan. Research group used to organize weekly meetings where PhD/ MS students presented their work and received useful feedbacks. Dr. Tanvir remained research supervisor and director for the group from 2010 to 2020.

8. *Scientific Services*

a) *Editorial Board of Journals*

1. Editor-in-chief, Journal of Universal Computer Science (J. UCS, IF=1.066)
2. Reviewer: Journal of Information Science (IF= 1.939)
3. Reviewer: Scientometrics (IF = 2.147)
4. Editor of AJSE (IF = 1.092)

b) *Committee Member*

5. Program Chair, International Conference on Emerging Trends (ICET 2016), *Publisher: IEEE.*
6. Reviewer: Frontier of Information Technology (FIT 2014, 2015, 2016, 2017, 2018), *Publisher: IEEE*
7. Reviewer: International Conference on Data Science (ICDS 2019)
8. Reviewer: 12th International Conference on Open Source Software and Technologies, 2018.
9. PhD Symposium chair, Frontier of Information Technology (FIT 2015, 2016, 2017, 2018).
10. Reviewer: International Conference on Advancements in Computational Sciences (ICACS 2019).
11. Reviewer: International Conference on Convergence and Hybrid Information Technology (ICCIT2008, 2009, and 2010), *Publisher: IEEE-CS and ACM.*

12. International Conference on Adaptive and Self-Adaptive Systems and Applications (Adaptive 2009 and 2010, 2011, 2012, 2013, 2014, 2015, 2016), *Publisher: IEEE-CS.*

13. International Conference on Networked Computing and Advancement Information Management (NCM 2009 and 2010), *Publisher: IEEE-CS.*

14. International Conference on networked Computing (INC 2009 and 2010), *Publisher: IEEE-CS.*

15. International Conference on Advanced Information Management and Service (IMS 2009 and 2010), *Publisher: IEEE-CS.*

16. International Conference on New Trends in Information and Service Science (NISS 2009 and 2010), *Publisher: IEEE-CS.*

17. International Conference on Digital Content, Multimedia Technology and its Applications (IDC 2009 and 2010), *Publisher: IEEE-CS.*

18. International Conference on Interaction Sciences: Information Technology, Culture and Human (ICIS 2009 and 2010). *Publisher: IEEE-CS and ACM.*

19. International Conference on Emerging Trends, Finance Chair, Islamabad, Pakistan 2013, Publisher IEEE

9. *Research Visits*

1. Spent one month (October 2008) with Prof. Wolf Tilo Balke at Technical University Braunschweig, Germany for research collaborations.

2. Represented Graz University of Technology (Jan. 2010) in Malaysia (Universiti Malaysia Sarawak) for establishing research collaborations between the mentioned universities.

10. *Invited Talks*

1. Invited Speaker at PIMA/FIMA International Scientific Convention, 29th – 30th October 2022, "Human Factors Engineering for medical Doctors", Jinnah Convention Centre Islamabad, Pakistan.

2. Keynote Speaker at AI Healthcare Summit, 5th January 2023, "AI enabled Medical Visualizations", FAST NUCES, Islamabad

3. Keynote Speaker at Innovative Healthcare Technologies Summit, 26th October 2022, "Medical Dashboards to make Quick Strategic Decisions". Allama Iqbal Open University Main Hall

4. Keynote speaker at RACSIT, 25th November 2020 chaired by honorable chairman PHEC. Titled: "Scientometrics: Scientific notions to measure scientific output of individuals"

5. Invited talk at Imam Abdulrahman Bin Faisal University | Dammam | Kingdom of Saudi Arabia, on 28th October 2020, Titled: "Research Opportunities and Challenges in Selected Areas of Data Science"

6. National Seminar on Challenges and Opportunities for Libraries in Pakistan, 5th January 2015 at National Library of Pakistan, Islamabad, organized by: Pakistan Library Association (HQ & FB) in collaboration of Department of Libraries, Government of Pakistan. The talk was attended a large number of librarians from all regions of the Pakistan.

7. Context Aware Information Discovery for Digital Journals, 28th Jan. 2010 at Universiti Malaysia Sarawak.

8. Assessment of Scientists' Ranking Parameters, 19th May 2016, Bahria University Islamabad.

9. Autonomous Citation Mining, 1st Feb 2010 at Universiti Malaysia Sarawak.

10. Discovery and Visualization of Expertise, 2nd Feb. 2010 at Universiti Malaysia Sarawak.

11. Linking Digital Journals with Social Bookmarking, 3rd Feb. 2010 at Universiti Malaysia Sarawak.

12. Harvesting Pertinent Resources from Linked Data 29th Jan. 2010 at Universiti Malaysia Sarawak.

11. *Presentations/Conferences Attended*

1. Chaired a session at PIMA/FIMA International Scientific Convention, 29th – 30th October 2022, topic: Health Innovations.

2. PhD symposium chair at FIT, Islamabad every year since 2014.

3. Presented a paper titled "Improving Citation Mining", at 1st International Conference on Networked Digital Technologies (NDT 2009), Ostrava, Czech Republic, July 28-31, 2009.

4. Presented a paper titled "Applying Ontological Framework for finding Links into the Future from Web", in I-Semantic, Graz, Austria, Sep. 2-4, 2009."

5. Presented a paper titled "Discovering Links into the Future on the Web", in Fifth International Conference on Web Information Systems and Technologies (WEBIST 2009), Lisbon, Portugal, March 23-26, 2009.

6. Presented a poster with title "Expertise finding for a Digital Journal" in I-Know, Sep. 3-5, 2008, Graz, Austria.

7. Presented a paper with title "Ontological Representation for Links into the Future", in ICCIT, Nov. 21-23, 2007, Gyeongju Korea.

8. Attended the conference I-Know, Sep, 5-7, 2007.
9. Presented a paper with title "Enhanced risk analysis and relative impact factorization", in 1st international conference on information and communication technology, IBA Karachi, Pakistan August 28-29, 2005.
10. Attended 1st workshop on research in computing (CWRC). April 29, 2005. Abbottabad, Pakistan.
11. Attended 4th International Workshop on Frontiers of Information Technology. FIT '2006, Islamabad, Pakistan.
12. Attended and actively participated in the organization of International Conference on Emerging Technologies, Islamabad, Pakistan, 2012.
13. Attended and actively participated in the organization of International Conference on Emerging Technologies, Islamabad, Pakistan, 2013.
14. Attended and actively participated in the organization of International Conference on Emerging Technologies, Islamabad, Pakistan, 2014.
15. Attended and actively participated in the organization of International Conference on Emerging Technologies, Islamabad, Pakistan, 2015.
16. Attended and actively participated in the organization of International Conference on Emerging Technologies, Islamabad, Pakistan, 2016.
17. Attended and actively participated in the organization of International Conference on Frontier of Information Technology (FIT), Islamabad, Pakistan, 2015.
18. Attended and actively participated in the organization of International Conference on Frontier of Information Technology (FIT), Islamabad, Pakistan, 2016.
19. Attended and actively participated in the organization of International Conference on Frontier of Information Technology (FIT), Islamabad, Pakistan, 2017.
20. Attended and actively participated in the organization of International Conference on Biological and Computer Sciences, 17th December, 2016.

12. *Collaborations with other Universities*

Dr. Tanvir has strong collaborations with many international and national universities and industry.

1) Faculty Selection Board Member Air University, Islamabad.
2) Faculty Selection Board member at Foundation University Rawalpindi.

3) Collaboration with Journal of Universal Computer Science as one of the Editor-in-Chief among other leading scientists of the World to publish the journal.
4) Graz University of Technology (TU Graz), Austria for joint research funding proposals.
5) TU Braunschweig, Germany (TUBS) for joint research funding proposals.
6) Capital University of Science and Technology, Islamabad, Pakistan (CUST) for joint research funding proposals.
7) Ghulam Ishaq Khan Institute of Engineering Sciences and Technology (GIK) for joint research funding proposals.
8) Information Technology University ITU, Lahore for joint research funding proposals.
9) National Textile University (NTU) for joint research funding proposals.
10) Balochistan University of IT, Engineering and Management Sciences (BUITEMS) for joint research funding proposals.
11) Mirpur University of Science and Technology, MUST, Mirpur for joint research funding proposals.
12) Kohat university of Science and Technology (KUST) for joint research funding proposals.
13) Collaboration with Urdu IT Academy as "Academic Consultant" and helped them to build URDU IT Quiz Engine and arrangements of resources to record great sessions.
14) Placement of graduates at Teradata Pakistan.
15) Placement of graduates at Bentley Pakistan.
16) Placement of graduates at Zong Pakistan.
17) Placement of graduates at PK2100.
18) Providing consultancy to Ghulam Ishaq Khan Institute as member board of studies.
19) Providing consultancy to Pak-IAST as member board of studies.
20) Providing consultancy to International Islamic University Islamabad as member board of studies.
21) Providing consultancy to National Textile University as member board of studies.
22) Tenure Track case review for University of Baltistan, Skardu.
23) Collaboration with COMSATS University Islamabad for organizing PhD Symposium at International conference on Frontier of Information Technology since 2014.
24) PhD supervision at Capital University of Science and Technology, Islamabad
25) MS supervision at Capital University of Science and Technology, Islamabad.
26) PhD examiner at Graz University of Technology, Austria for PhD thesis.
27) PhD examiner at GIKI, NUST (SEECS), QAU, FAST, SZABIST
28) MS examiner at GIKI

29) MS examiner at various campuses in COMSATS (Campuses: Islamabad, Wah Cantt, Attock, Sahiwal, Lahore)
30) MS examiner at FAST
31) MS examiner at University of Gujrat
32) MS examiner at University of Sargodha
33) MS examiner at PMAS-UIIT
34) TTS evaluations in different universities
35) Reviewer for Funding proposal for different funding agencies.