

# Muhammad Imran (PhD)

## Assistant Professor

### Office Address

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[Google Scholar Profile](#)

- SUMMARY**
- Currently (Since January 2018); serving as **Assistant Professor of Computer Science** at the Institute of Computer Sciences and Information Technology, The University of Agriculture, Peshawar. <https://www.aup.edu.pk/>
  - Additionally, I am having the responsibility of member **Board of Studies** since February 2019.
  - Served as **Assistant Professor of Computer Science** at the Sarhad University of Science and Information Technology (2015-2018). Additionally, worked as Program Coordinator for MS-CS and PhD-CS programs.
  - **More than fourteen years of experience** in Research and Higher Education (8 years post-PhD experience), with intensive supervision and teaching experience of post grad and undergrad level students.
  - Professional experience; working as **software developer** and **quality assurance engineer**.
  - I played a lead role in the **design and implementation** of MS Data Science and PhD-Computer Science programs at the Institute of Computer Sciences and Information Technology, Peshawar, Pakistan.
  - Strong research and publication record. I have published multiple articles in well renowned internationally recognized web of science journals such as **Future Generation Computer Systems (FGCS), Computers and Electrical Engineering, Plos One, Journal of King Saud University-Computer and Information Sciences** etc.
  - Research experience in **Distributed Systems** (such as Grid and Cloud), **Artificial Intelligence** and **IoT** systems.

**RESEARCH INTERESTS** Distributed Computing, Cloud Computing, Provenance Data, Internet of Things, Services Oriented Architecture, Artificial Intelligence, and Machine Learning.

**EDUCATIONAL BACKGROUND** **University of Vienna**, Vienna, Austria.  
**Ph.D., Computer Science (with distinction), 2014** – Specialization: Cloud Computing  
Thesis title: Provenance in Cloud: Framework, Applications and Implication  
Supervisor: Prof. Dr. Helmut Hlavacs  
Funded by: Higher Education Commission of Pakistan (HEC)  
**Quaid-e-Azam University**, Islamabad, Pakistan.  
**Master., 2005** – Specialization: Computer Science  
Supervisor: Dr. Ghazanfar Farooq Siddiqui  
**University of Peshawar**, Peshawar, Pakistan.  
**Bachelor's., 2002** – Specialization: Mathematics & Statistics

**ACADEMIC EXPERIENCE** **Institute of Computer Sciences and Information Technology**, The University of Agriculture, Peshawar, Pakistan.

**Assistant Professor** **January 2018 – Present**  
Responsibilities included:

- Supervision of PhD, Master's thesis as well as Bachelors level FYPs (Final Year Projects)
- Teaching at PhD, Master and Undergraduate levels.
- Member Faculty Admission Committee (ICS/IT)
- Preparation of concepts notes and project proposal
- Active member for receiving NCEAC Accreditation
- Active member for adopting revised curriculum (NCRC 2017)
- Member Board of Studies
- Member rechecking committee (ICS/IT)
- Subject Expert for hiring of visiting faculty (ICS/IT)

**Department of Computer Science**, Sarhad University of Science and Information Technology, Peshawar, Pakistan.

**Assistant Professor**

**April 2015 – January 2018**

Responsibilities included:

- Preparation of concepts notes and project proposal
- Member Board of Studies (BS-CS & BS-SE programs)
- Committee member of International Organization for Standardization
- Supervision of PhD, Masters as well as Bachelors level thesis/reports.
- Teaching at PhD, Masters and Undergrad level

**University of Vienna, Vienna, Austria.**

**Research Associate**

**June 2008 – October 2014**

Scientific researcher, working on cross layered provenance framework for cloud systems. Apart from research related activities, I also worked as a Teaching Assistant to my thesis supervisor (Prof. Dr. Helmut Hlavacs).

## INDUSTRY EXPERIENCE

**Ultimus (Pakistan Division)**

**Quality Assurance Engineer**

**August 2006 – November 2007**

Responsibilities included:

- White box and black box testing
- Testing flow of processes using reactive and proactive approaches
- Documentation and management of bugs
- Maintenance of *Test Scenario Management* and communication with other teams.

**Goldmine Software**

**Software Developer**

**July 2005 – August 2006**

Responsibilities included:

- Designing and implementation of projects using standard practices
- Communication with customers for understanding their needs and requirements (Requirement Engineering)
- Documentation of various requirements required throughout a software lifecycle
- Member Organizing Committee: 1<sup>st</sup> International Conference on Computing Technologies, Tools and Applications. May, 2023.
- Member Organizing Committee: International Conference on Sustainable Agriculture and Food Security (27-31 August, 2023)
- Member Technical Program Committee: 11<sup>th</sup> IEEE International Conference on Emerging Technologies. December, 2015.

## ACADEMIC AFFILIATION

- Member Review Committee: International Conference on Future Intelligent Vehicular Technologies. October, 2017.
- Member National Curriculum Revision Committee (NCRC)
- Technical Expert at 4th Invention to Innovation Summit KP (2018), CECOS University, Peshawar.
- Session Chair, 1st International Conference on Electrical Communication and Computer Engineering. Organized by University of Buner, held on July 24<sup>th</sup> to 25<sup>th</sup> 2019

#### TEACHING

PhD & Master Level	<ol style="list-style-type: none"> <li>1. Advanced Topics in Cloud Computing</li> <li>2. Analysis of Algorithms</li> <li>3. Distributed Computing</li> </ol>
Undergraduate Level	<ol style="list-style-type: none"> <li>1. Software Engineering</li> <li>2. Design and Analysis of Algorithms</li> <li>3. Formal Methods in Software Engineering</li> <li>4. Computer Organization and Architecture</li> <li>5. Operating Systems</li> <li>6. Database Systems</li> <li>7. Object Oriented Programming using C++</li> </ol>

#### RESEARCH PROJECTS

	Title	Role	Status
i.	A study of pragmatic indoor positioning systems and techniques	Co-PI	Completed
ii.	Magnetohydrodynamic flow of casson fluid with nanoparticles over a vertical-plate, embedded in a porous-medium	Co-PI	Completed
iii.	Internet of Things (IoT) based smart platform to enhance productivity and protection of vegetable farms	PI	Submitted

#### INVITED TALKS/SEMINARS

- Containerization: The future of modern application development and deployment, International Conference on Computing Technologies, Tools and Applications. May, 2023.
- Intrusion detection in networks using cuckoo search optimization, research group entertainment computing, university of Vienna, Austria (2021).
- Designing and Implementation of Learning Management Systems, Agriculture University, Peshawar (2020)
- Provenance data collection, preservation and application in Cloud, SUIT, Peshawar (2015)
- Searching in Cloud Object Storage by Using a Metadata Model, 9<sup>th</sup> International Conference on Semantics, Knowledge and Grids (SKG2013), Beijing, China.
- Layering of the Provenance Data for Cloud Computing, 8<sup>th</sup> International Conference, GPC 2013 and Collocated Workshops, Seoul, Korea, 2013.
- Provenance in the Cloud: Why and How?, CLOUD COMPUTING 2012, The Third International Conference on Cloud Computing, GRIDs, and Virtualization: Nice, France.
- Using provenance data to increase the reliability of ubiquitous computing, University of Vienna, Austria (2009)

## HONOURS/ AWARDS

- 2021** **Ernst Mach Post-doctoral fellowship** by Austrian Federal Ministry of Science, Research and Economy (BMWFW).
- 2008** Open merit Scholarship awarded for PhD studies under the “**HEC Overseas Scholarships Scheme**” to Austria.
- 2009** **Certificate of appreciation** for significant contribution “On using provenance data to increase the reliability of ubiquitous computing”, IIWAS 2008, Linz, Austria
- 2012** **Best Paper Award** “Provenance in Cloud: Why and How”, Cloud computing 2012, Nice, France.
- 2013** **Certificate of appreciation** for significant contribution in the category A/B publication strategy, University of Vienna, Austria.

## REVIEWER JOURNALS/ CONFERENCES

- Multimedia Tools and Applications, Springer Journal.
- Computers and Electrical Engineering, Elsevier Journal.
- Transactions on Emerging Telecommunication Technologies, Wiley.
- Sustainable Cities and Society, Elsevier Journal.
- Future Generation Computer Systems, Elsevier Journal.
- International Conference on Future Intelligent Vehicular Technologies, Springer.

## JOURNAL PAPERS IF Publication 20 Total Impact Factor: 50 plus Citations: 462 h-index: 12

1. **Imran, M.**, Anwar, H., Tufail, M., Khan, A., Khan, M., & D,A, Ramli (September 2022). Image-Based Automatic Energy Meter Reading Using Deep Learning. Computers, Materials & Continua (IF=3.772).
2. **Imran, M.**, Khan, S., Hlavacs, H., Khan, F. A., & Anwar, S (February 2022). Intrusion detection in networks using cuckoo search optimization. Soft Computing (IF=3.732).
3. Zaman, K., Hussain, T., **Imran, M.**, Sohail, M., Hussain, A. (September 2022). Cost Effective Data Replication Mechanism Modeling for Cloud Storage. International Journal of Grid and Utility Computing.
4. Khan, M. J., Ullah, F., **Imran, M.**, Khan, J., Khan, A., AlGhamdi, A. S., & Alshamrani, S. S. (August 2022). Identifying Challenges for Clients in Adopting Sustainable Public Cloud Computing. Sustainability (IF=3.889).
5. Khan, A., Bukhari, J., Bangash, J. I., Khan, A., **Imran, M.**, Asim, M., ... & Khan, A. (October 2020). Optimizing connection weights of functional link neural network using APSO algorithm for medical data classification. Journal of King Saud University-Computer and Information Sciences (IF=13.473).
6. Khan, F. A., Nawaz, M., **Imran, M.**, Rahman, A. U., & Qayum, F. (November 2020). Foreground detection using motion histogram threshold algorithm in high-resolution large datasets. Multimedia Systems (IF=1.935).
7. Khan, A., Chiroma, H., **Imran, M.**, Bangash, J. I., Asim, M., Hamza, M. F., & Aljuaid, H. (July 2020). Forecasting electricity consumption based on machine learning to improve performance: A case study for the organization of petroleum exporting countries (OPEC). Computers & Electrical Engineering (IF=3.818).
8. Khan, F. A., Ahmad, A., & **Imran, M.** (April 2020). Energy optimization of PR-LEACH routing scheme using distance awareness in internet of things networks. International Journal of Parallel Programming (IF=0.897).
9. Khan, F. A., Shaheen, S., Asif, M., Rahman, A. U., **Imran, M.**, & Rehman, S. U. (October 2019). Towards reliable and trustful personal health record systems: a case of cloud-dew architecture based provenance framework. Journal of ambient intelligence and humanized computing (IF= 1.423).

10. Khan, A., Shah, R., **Imran, M.**, Khan, A., Bangash, J. I., & Shah, K. (October 2019). An alternative approach to neural network training based on hybrid bio meta-heuristic algorithm. *Journal of Ambient Intelligence and Humanized Computing* (IF=1.423).
11. Khan, F. A., Khalid, A., Ali, M., **Imran, M.**, Nawaz, M., & Rahman, A. (September 2019). An intelligent data service framework for heterogeneous data sources. *Journal of Grid Computing* (IF=2.850).
12. Sheraz, A., Bangash, J. I., Khan, A. W., **Imran, M.**, Khan, A., Khan, A., ... & Khan, W. U. (August 2019). A dynamic swift association scheme for wireless body area networks. *Transactions on Emerging Telecommunications Technologies* (IF=2.681).
13. Ishaq, M., Khan, A., Khan, M., & **Imran, M.** (May 2019). Current trends and ongoing progress in the computational alignment of biological sequences. *IEEE Access* (IF=4.098).
14. Khalid, A., Khan, F. A., **Imran, M.**, Alharbi, M., Khan, M., Ahmad, A., & Jeon, G. (2019). Reference terms identification of cited articles as topics from citation contexts. *Computers & Electrical Engineering* (IF=1.570).
15. Iqbal, A., Ullah, F., Anwar, H., Kwak, K. S., **Imran, M.**, Jamal, W., & ur Rahman, A. (January 2018). Interoperable Internet-of-Things platform for smart home system using Web-of-Objects and cloud. *Sustainable Cities and Society* (IF=5.430).
16. **Imran, M.**, Hlavacs, H., Khan, F. A., Jabeen, S., Khan, F. G., Shah, S., & Alharbi, M. (November 2017). Aggregated provenance and its implications in clouds. *Future Generation Computer Systems* (IF = 3.997).
17. Khan, F. A., Ahmad, A., **Imran, M.**, Alharbi, M., & Jan, B. (November 2017). Efficient data access and performance improvement model for virtual data warehouse. *Sustainable cities and society*, 35, 232-240 (IF= 1.777).
18. Jan, B., Farman, H., Khan, M., **Imran, M.**, Islam, I. U., Ahmad, A., ... & Jeon, G. (December 2017). Deep learning in big data analytics: a comparative study. *Computers & Electrical Engineering*, 75, 275-287 (IF=1.570).
19. **Imran, M.**, Hlavacs, H., Haq, I. U., Jan, B., Khan, F. A., & Ahmad, A. (May 2017). Provenance based data integrity checking and verification in cloud environments. *PloS one* (IF = 3.540).
20. Khan, Z., Shah, R. A., Islam, S., Jan, B., **Imran, M.**, & Tahir, F. (October 2016). Steady flow and heat transfer analysis of Phan-Thein-Tanner fluid in double-layer optical fiber coating analysis with Slip Conditions. *Scientific Reports* (IF=4.610)
21. Khan, Z., Islam, S., Shah, R. A., Jan, B., & **Imran, M.** (October 2016). Analytical solution for mhd flow of unsteady second grade fluid arising in wire coating analysis. *Journal of Computational and Theoretical Nanoscience*, (IF = 0.498).
22. **Imran, M.**, & Hlavacs, H. (2013). Provenance Framework for the Cloud Infrastructure: Why and How?. *International Journal on Advances in Intelligent Systems*.

REFEREED  
CONFERENCE  
PUBLICATIONS

1. M.Imran, S. Awais, A. Khan, "Designing a Cost-efficient Model for Replicating Data in Cloud Storage", *International Conference on Computing Technologies, Tools and Applications*.
2. M.Imran and H.Hlavacs, "Searching in Cloud Object Storage by Using a Metadata Model", *9<sup>th</sup> International Conference on Semantics, Knowledge and Grids (SKG2013)*. IEEE

3. M.Imran and H.Hlavacs, "Layering of the Provenance Data for Cloud Computing", 8<sup>th</sup> International Conference, GPC 2013 and Collocated Workshops, Seoul, Korea, May 9-11, 2013. Springer
4. M.Imran and H.Hlavacs, "Applications of Provenance Data for Cloud Infrastructure", 8<sup>th</sup> International Conference on Semantics, Knowledge and Grids (SKG2012), IEEE Computer Society.
5. M.Imran and H.Hlavacs, "Provenance Framework for the Cloud Environment (IaaS)", CLOUD COMPUTING 2012, The Third International Conference on Cloud Computing, GRIDs, and Virtualization: Nice, France, 2012.
6. M.Imran and H.Hlavacs, "Provenance in the Cloud: Why and How?", CLOUD COMPUTING 2012, The Third International Conference on Cloud Computing, GRIDs, and Virtualization: Nice, France.
7. M.Imran and K.A. Hummel, "On using provenance data to increase the reliability of ubiquitous computing environments", Proceedings of the 10th International Conference on Information Integration and Web-based Applications & Services (iiWAS), 2008, Linz, Austria. ACM

## SUPERVISION

### PhD Students (Under Supervision)

1. Muhammad Janas Khan (PhD), "Solution model for Client's in the Adoption of Sustainable Public Cloud".
2. Muhammad Shahid (PhD), "Resource Allocation in Cloud using Intelligent Techniques".

### MS Students Supervised

1. Fawad Khan (MS-IT), "Crow Search Functional Link Neural Network Model for Data Classification"
2. Jahangir Khan (MS-CS), "Ornament Segmentation from Page Images Using Deep Learning"
3. Muhammad Tufail (MS-CS), "Image Based Automatic Energy Meter Reading Via Text Localization And Recognition"
4. Muhammad Hassan Rahat Shah (MS-IT), "Software Defined Network Based Quality Of Service For Healthcare Systems"
5. Muhammad Yousaf Jamal (MS-IT), "Smart Sensor Based Indoor Air Quality Monitoring System"
6. Sangeen Khan (MS-IT), "Intrusion Detection In Cloud Network Using Cuckoo Artificial Neural Network"
7. Syed Awais Ali Shah (MS-IT), "Modelling A Cost Effective Data Replication Mechanism For Cloud Storage"
8. Fazal Hayan (MS-CS), "Iot Based Monitoring Framework For Diabetes Mellitus"
9. Jafar Usman (MS-IT), "Toyota Vehicle Classification Using Vgg-16 Based Support Vector Machine"
10. Razia Ghulam Muhammad (MS-CS), "An Effective Auto Scaler For Resource Scaling In Cloud Environment"
11. Mansoor Amir (MS-CS), "Network Traffic Classification Using Bat Artificial Neural Network"
12. Junaid Bakhsh (MS-CS), "Group Task Classification In Cultural Activity Attan Using Long Short-Term Base Convolutional Neural Network"