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Employment History

- 2024–present  **Associate Research Professor**, Guangdong University of Petrochemical Technology
- 2022–2024  **Postdoc Research Fellow**, Yangtze Delta Region Institute (Huzhou), University of Electronic Science and Technology of China, Huzhou 313001, China.
- 2013 – 2016  **Computer Instructor**, Stems Education System Peshawar Pakistan.

Education





- 2018 – 2022  **PhD, Computer Science & Engineering**, Central South University, Hunan, China
Thesis title: *Research on complex networks key nodes and community structure mining*
- 2014 – 2017  **Master of Software Engineering**, Abasyn University Peshawar, Pakistan
Thesis title: *A Comparative Study for Software Cost Estimation Using COCOMO-II and Walston-Felix models.*
- 2008 – 2012  **Bachelor of Computer Science & Technology**, Gomal University KPK, Pakistan
Thesis title: *Distance Education System.*

Research Interests





-  I am interested in network mining/graph mining and social complex networks. As a researcher in this field, I am particularly interested in exploring complex systems and modelling novel problems, as well as proposing scalable algorithms for identifying influential nodes and detecting communities in real-world complex networks. One area of particular interest to me is the study of social systems, which provide an excellent example of complex networks.

Research Publications


Journal Articles

- 1 **A. Ullah**, S. U. Din, N. Khan, C. B. Mawuli, and J. Shao, “Towards investigating influencers in complex social networks using electric potential concept from a centrality perspective,” *Information Fusion*, vol. 109, p. 102 439, 2024, ISSN: 1566-2535.  DOI: <https://doi.org/10.1016/j.inffus.2024.102439>.
- 2 **A. Ullah**, J. Shao, Q. Yang, N. Khan, C. M. Bernard, and R. Kumar, “Lss: A locality-based structure system to evaluate the spreader’s importance in social complex networks,” *Expert Systems with Applications*, vol. 228, p. 120 326, 2023, IF: 8.5, ISSN: 0957-4174.  DOI: <https://doi.org/10.1016/j.eswa.2023.120326>.
- 3 **A. Ullah**, J. Sheng, B. Wang, S. U. Din, and N. Khan, “Leveraging neighborhood and path information for influential spreaders recognition in complex networks,” *Journal of Intelligent Information Systems*, 2023, IF: 3.4.  DOI: <https://doi.org/10.1007/s10844-023-00822-z>.
- 4 S. U. Din, **A. Ullah**, C. B. Mawuli, Q. Yang, and J. Shao, “A reliable adaptive prototype-based learning for evolving data streams with limited labels,” *Information Processing Management*, vol. 61, no. 1, p. 103 532, 2024, ISSN: 0306-4573.  DOI: <https://doi.org/10.1016/j.ipm.2023.103532>.

- 5 A. Ullah, B. Wang, J. Sheng, J. Long, N. Khan, and M. Ejaz, "A novel relevance-based information interaction model for community detection in complex networks," *Expert Systems with Applications*, vol. 196, p. 116 607, 2022, ISSN: 0957-4174.  DOI: <https://doi.org/10.1016/j.eswa.2022.116607>.
- 6 A. Ullah, B. Wang, J. Sheng, J. Long, N. Khan, and Z. Sun, "Identifying vital nodes from local and global perspectives in complex networks," *Expert Systems with Applications*, vol. 186, p. 115 778, 2021, ISSN: 0957-4174.  DOI: <https://doi.org/10.1016/j.eswa.2021.115778>.
- 7 A. Ullah, B. Wang, J. Sheng, and N. Khan, "Escape velocity centrality: Escape influence-based key nodes identification in complex networks," *Applied Intelligence*, vol. 52, no. 14, pp. 16 586–16 604, 2022.  URL: <https://doi.org/10.1007/s10489-022-03262-4>.
- 8 A. Ullah, B. Wang, J. Sheng, J. Long, N. Khan, and Z. Sun, "Identification of nodes influence based on global structure model in complex networks," *Scientific Reports*, vol. 11, no. 1, p. 6173, 2021.  URL: <https://www.nature.com/articles/s41598-021-84684-x>.
- 9 A. Ullah, B. Wang, J. Sheng, J. Long, and N. Khan, "Identification of influential nodes via effective distance-based centrality mechanism in complex networks," *Complexity*, vol. 2021, pp. 1–16, 2021, IF: 2.8.  URL: <https://doi.org/10.1155/2021/8403738>.
- 10 A. Ullah, B. Wang, J. Sheng, J. Long, M. Asim, and Z. Sun, "Optimization of software cost estimation model based on biogeography-based optimization algorithm," *Intelligent Decision Technologies*, vol. 14, no. 4, pp. 441–448, 2020, IF: 1.0.  URL: <https://content.iospress.com/articles/intelligent-decision-technologies/idt200103>.
- 11 Z. Sun, Y. Sun, X. Chang, *et al.*, "Finding critical nodes in a complex network from information diffusion and matthew effect aggregation," *Expert Systems with Applications*, vol. 233, p. 120 927, 2023, ISSN: 0957-4174.  DOI: <https://doi.org/10.1016/j.eswa.2023.120927>.
- 12 N. Khan, Z. Ma, A. Ullah, and K. Polat, "Dca-iomt: Knowledge-graph-embedding-enhanced deep collaborative alert recommendation against covid-19," *IEEE Transactions on Industrial Informatics*, vol. 18, no. 12, pp. 8924–8935, 2022.  DOI: [10.1109/TII.2022.3159710](https://doi.org/10.1109/TII.2022.3159710).
- 13 N. Khan, Z. Ma, A. Ullah, and K. Polat, "Similarity attributed knowledge graph embedding enhancement for item recommendation," *Information Sciences*, vol. 613, pp. 69–95, 2022, ISSN: 0020-0255.  DOI: <https://doi.org/10.1016/j.ins.2022.08.124>.
- 14 N. Khan, Z. Ma, A. Ullah, and K. Polat, "Categorization of knowledge graph based recommendation methods and benchmark datasets from the perspectives of application scenarios: A comprehensive survey," *Expert Systems with Applications*, vol. 206, p. 117 737, 2022, ISSN: 0957-4174.  DOI: <https://doi.org/10.1016/j.eswa.2022.117737>.
- 15 N. Khan, Z. Ma, L. Yan, and A. Ullah, "Hashing-based semantic relevance attributed knowledge graph embedding enhancement for deep probabilistic recommendation," *Applied Intelligence*, vol. 53, no. 2, pp. 2295–2320, 2023.  URL: <https://link.springer.com/article/10.1007/s10489-022-03235-7>.
- 16 Z. Sun, J. Sheng, B. Wang, A. Ullah, and F. R. Khawaja, "Identifying communities in dynamic networks using information dynamics," *Entropy*, vol. 22, no. 4, 2020, ISSN: 1099-4300.  DOI: [10.3390/e22040425](https://doi.org/10.3390/e22040425).
- 17 J. Sheng, J. Hu, Z. Sun, *et al.*, "Community detection based on human social behavior," *Physica A: Statistical Mechanics and its Applications*, vol. 531, p. 121 765, 2019, ISSN: 0378-4371.  DOI: <https://doi.org/10.1016/j.physa.2019.121765>.
- 18 J. Dai, B. Wang, J. Sheng, *et al.*, "Identifying influential nodes in complex networks based on local neighbor contribution," *IEEE Access*, vol. 7, pp. 131 719–131 731, 2019.  DOI: [10.1109/ACCESS.2019.2939804](https://doi.org/10.1109/ACCESS.2019.2939804).
- 19 J. Sheng, K. Wang, Z. Sun, J. Hu, B. Wang, and A. Ullah, "Fluidc+: A novel community detection algorithm based on fluid propagation," *International Journal of Modern Physics C*, vol. 30, no. 04, p. 1 950 021, 2019.  URL: <https://doi.org/10.1142/S0129183119500219>.

- 20 R. U. Khan, S. Almakdi, M. Alshehri, *et al.*, “Probabilistic approach to covid-19 data analysis and forecasting future outbreaks using a multi-layer perceptron neural network,” *Diagnostics*, vol. 12, no. 10, 2022, ISSN: 2075-4418.  URL: <https://www.mdpi.com/2075-4418/12/10/2539>.
- 21 R. Kumar, C. M. Bernard, **A. Ullah**, *et al.*, “Privacy-preserving blockchain-based federated learning for brain tumor segmentation,” *Computers in Biology and Medicine*, vol. 177, p. 108 646, 2024, ISSN: 0010-4825.  DOI: <https://doi.org/10.1016/j.combiomed.2024.108646>.
- 22 S. U. Din, Q. Yang, J. Shao, C. B. Mawuli, **A. Ullah**, and W. Ali, “Synchronization-based semi-supervised data streams classification with label evolution and extreme verification delay,” *Information Sciences*, vol. 678, p. 120 933, 2024, ISSN: 0020-0255.  DOI: <https://doi.org/10.1016/j.ins.2024.120933>.
- 23 Y. M. A. U. Faiza Riaz Zuping Zhang, “Exploring community detection methods and their diverse applications in complex networks: A comprehensive review,” *Social Network Analysis and Mining*, vol. 14, 2024.  DOI: <https://doi.org/10.1007/s13278-024-01274-1>.





Conference Proceedings

- 1 **A. Ullah**, B. Wang, J. Sheng, J. Long, M. Asim, and F. Riaz, “A novel technique of software cost estimation using flower pollination algorithm,” in *2019 International Conference on Intelligent Computing, Automation and Systems (ICICAS)*, 2019, pp. 654–658.  DOI: [10.1109/ICICAS48597.2019.00142](https://doi.org/10.1109/ICICAS48597.2019.00142).
- 2 **A. Ullah**, A. Salam, A. Khan, and S. Baseer, “A comparative study for software cost estimation using cocomo-ii and walston-felix models,” in *The 1st International Conference on Innovations in Computer Science & Software Engineering (ICONICS 2016)*, 2016, pp. 15–16.







Patents

- 1 **A. Ullah**, “A method for identifying influential nodes in complex social networks based on electric potential and local neighborhood nodes,” 202311394238.2, 2023.
- 2 **A. Ullah**, “A community detection method based on effective distance information in socially complex internet of things,” 202311407384.4, 2023.
- 3 S. Uddin and **A. Ullah**, “An adaptable human activity recognition framework in sensory data streams,” 202311544190.5, 2023.
- 4 **A. Ullah**, “Method and system for identifying key participants in intelligent enterprise networks based on analytical hierarchical process,” 202410476749.7, 2024.
- 5 **A. Ullah**, “A method and system for identifying key bus stops in a complex bus network,” 202410476753.3, 2024.
- 6 U. R. Khan and **A. Ullah**, “A method and system for identifying key nodes in complex networks based on machine learning,” 202410782176.0, 2024.
- 7 U. R. Khan and **A. Ullah**, “Interoperability methods and systems between heterogeneous and untrusted devices in the ecosystem after verification, the state intellectual property office confirmed receipt of the following documents,” 202410782042.9, 2024.

Skills







Languages	 Reading, writing and speaking competencies for English, Urdu, Pashto .
Coding	 Python, PHP, Matlab MySQL, PostgreSQL, HSQL.
Published Code	 Identifying vital nodes from local and global perspectives in complex networks (https://codeocean.com/).
Misc.	 Academic research, teaching, training, and publishing.

Talks

- 2019  Presenter: A Novel Technique of Software Cost Estimation Using Flower Pollination Algorithm, “in Chongqing, China”
- 2021  Latex and other research tools: Invited talk at University. Seminar in YDRI UESTC.
- 2022  An Excellent team man with Effective Communication skills at CSU
 Key Node Identification in social complex networks, overview at YDRI
- 2023  The recent problems in social complex networks, overview at YDRI
- 2024  General overview of social network analysis with AI at GDPUT



Professional Activities

Journal Reviewer

- Journal  IEEE Transactions on Network Science and Engineering
-  Expert Systems with Applications
-  Information Sciences
-  Applied Intelligence
-  Information Processing & Management
-  Journal of Intelligent Information Systems

Miscellaneous Experience


Awards and Achievements

- 2021  **Outstanding international student** . Central South University Huan, China.
- 2018  **CSC Scholarship**. Chinese Government Scholarship.

References

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