


Aman Ullah, Ph.D.

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 Google Scholar

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Employment History

- 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. 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.  DOI: <https://doi.org/10.1007/s10844-023-00822-z>.
- 3 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>.
- 4 **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>.

- 5 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>.
- 6 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>.
- 7 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>.
- 8 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.  URL: <https://doi.org/10.1155/2021/8403738>.
- 9 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.  URL: <https://content.iospress.com/articles/intelligent-decision-technologies/idt200103>.
- 10 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>.
- 11 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).
- 12 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>.
- 13 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>.
- 14 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>.
- 15 Z. Sun, J. Sheng, B. Wang, A. Ullah, and F. 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).
- 16 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>.
- 17 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).
- 18 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>.
- 19 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.  DOI: [10.3390/diagnostics12102539](https://doi.org/10.3390/diagnostics12102539).

- 20 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.compbimed.2024.108646>.





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**, "An integrated mechanism for influential nodes identification in social complex network," 202211544190.4, 2022.
- 2 S. Uddin and **A. Ullah**, "An adaptable human activity recognition framework in sensory data streams," 202311544190.5, 2023.

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"
- 2018  Presenter: Malicious Code Detection: Image Processing Using Deep Learning: International Conference on Computing and Artificial Intelligence (ICAAI), Chengdu, China, March 2018.
- 2019  Presenter: Artificial Intelligence challenges and implantation to the current trends, AI Seminar in UESTC, 2019.
- 2021  Latex and other research tools: Invited talk at Sichuan University. Seminar in UESTC, 2019.
- 2022  An Excellent team man with Effective Communication skills in CSU
 Key Node Identification in social complex networks, overview in YDRI
- 2023  The recent problems in social complex networks, overview in YDRI

Professional Activities

Journal Reviewer



- Journal  IEEE Transactions on Network Science and Engineering
 Expert Systems with Applications

Professional Activities (continued)

- 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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