Anwar Said

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About

I am a postdoctoral research scholar at Vanderbilt University, TN. My research belongs to the area of graph machine learning (GML), an emerging field of research with extensive applications in various fields, including recommendation, forecasting, drug discovery & development, and optimization. Specifically, I work on the design of GML approaches to improve their performance and then apply them to solve different real-world problems. I have developed several GML approaches and applied them to problems such as circuit design completion, link prediction in Ethereum data, and fraud detection in social networks. Furthermore, I also work in data science, graph theory, and network science. More recently, I have expanded my research to include GML applications in electronic design automation and graph transformers.

Education

Postdoctoral Research Scholar

- Institute for Software Integrated Systems,
  Department of Computer Science, Vanderbilt University, TN March 2021-present
- Advisor: Prof. Xenofon Koutsoukos
- Area: Graph Machine Learning and its applications

Ph.D. Computer Science

- Information Technology University, Lahore, Pakistan Nov. 2021
- Advisors: Dr.Saeed-Ul Hassan, Dr.Mudassir Shabbir
- *Dissertation:* Novel Graph Representations for Machine Learning Applications

M.Phil. Computer Science

- Quaid-i-Azam University, Islamabad, Pakistan Aug. 2016
- *Dissertation:* Discovering Community Structure of Complex Networks
- Major Area of Study: Social Network Analysis, Graph Theory
- Minor Area of Study: Artificial Intelligence

M.Sc. Computer Science

- University of Swat Dec. 2013

Industry Experience

- **C++ Programmer**
  Shaheen Foundation, Islamabad Jul 2014 - Sep. 2017
- **Graph ML Scientist**
  BUILD & CODE Germany Jan. 2021 - Mar. 2022
  Build & Code is a new startup that aims to design AI-powered automated systems to process large documents, enhance matching and search, and provide recommendations. My responsibility at Build & Code was to develop graph machine learning models for the completion of a knowledge graph containing over 10 billion data points. We built machine learning frameworks that could predict links with promising accuracy.

Research Experience

Institute for Software and Integrated Systems, Vanderbilt University
Postdoctoral Research Scholar Mach 2023-present
Research Interests: Graph Machine Learning, Graph Descriptors, Circuit Design Completion, Data Science, Graph Theory

PhD Student at Information Technology University, Lahore (Sep 2017-Oct 2022)
Projects: Graph Machine Learning, Social Network Analysis, Altmetrics, Ethereum Network Analysis, Call Data Record Analysis, Federated Learning

Master Student: Quaid-i-Azam University, Islamabad Sep 2014 - Sep 2016
Research areas: Social network analysis, Graph theory, Machine Learning

Awards and Honors

- Recipient of the Vanderbilt University, *Postdoctoral research scholar fellowship*
- Recipient of the *travel grant* for attending the "Youth in High-dimensions: Machine Learning, High-dimensional Statistics and Inference for the New Generation" Conference, 2020, ICTP, Trieste, Italy.
- Recipient of the Information Technology University, *Ph.D. Fellowship* 2017-2021
- Recipient of the *Gold Medal* from University of Swat for achieving highest academic ranking

Programming Tools

- Python, Networkx, TensorFlow, Scikit-learn, PyTorch-Geometric, PyTorch, Deep Graph Library, Multiprocessing, SQL, Neo4J, C++, AWS, Jira, iGraph, Message Passing Interface (MPI), Socket Programming

Research Impact

Number of citations: 226
Impact factor: 43

Publications

1. Sandborn, M., Olea, C., **Said, A.**, Shabbir, M., Volgyesi, P., Koutsoukos, X., White, J., What a drag! Streamlining the UAV design process with design grammars and drag surrogates, the 2022 International Conference on Computational Science & Computational Intelligence (CSCI'22)
2. Ullah, A., Abbasi, R A., Khattak, A. and **Said, A.** Identifying Misinformation Spreaders: A Graph-Based Semi-Supervised Learning Approach, Multimedia Evaluation Benchmark Workshop 2022 (under review)
3. **Said, A.**, Shabbir, M., Broll, B, Volgyesi, P, Abbas, W, & Koutsoukos, X., "Circuit Design Completion Using Graph Neural Networks", journal of Neural Computing and its applications (under review).
4. **Said, A.**, Ahmad, U, Abbas, W., Shabbir, M., & Koutsoukos, X. Network Controllability Perspectives on Graph Representation, IEEE Transaction on Knowledge and Data Engineering (TKDE) (under review).
5. **Said, A.**, Shabbir, M., Hassan, S. U., Hassan, Z. R. & Ahmed, A. On Augmenting Topological Graph Representations for Attributed Graphs, Applied Soft Computing journal, Elsevier (under review).
6. Athar, A, Abbasi, R. A., Saeed Z., **Said A.**, ASBiNE: Dynamic Bipartite Network Embedding for Incorporating Structural and Attribute Information, expert system with application journal (under review).

7. Mian, A., Shah, S, Ullah, S., **Said, A.**, Heimerl, K., & Crowcroft, J. A Value-Added IoT Service For Cellular Networks using Federated Learning, computer networks (2022).
8. **Said, A.**, Janjua, M. U., Hassan, S. U., Muzammal, Z., Saleem, T., Thaipisutikul, T., ... & Nawaz, R. (2021). Detailed analysis of Ethereum network on transaction behavior, community structure and link prediction. PeerJ Computer Science, 7, e815.
9. **Said, A**., Hassan, S. U., Tuarob, S., Nawaz, R., & Shabbir, M. (2021). DGSD: Distributed graph representation via graph statistical properties. Future Generation Computer Systems, 119, 166-175.
10. **Said, A.**, Hassan, S. U., Abbas, W., & Shabbir, M. (2021). NetKI: A kirchhoff index based statistical graph embedding in nearly linear time. Neurocomputing, 433, 108-118.
11. Hassan, S. U., Shabbir, M., Iqbal, S., **Said, A.**, Kamiran, F., Nawaz, R., & Saif, U. (2019). Leveraging Deep Learning and SNA approaches for Smart City Policing in the Developing World. International Journal of Information Management, 102045.
12. **Said, A.**, Bowman, T. D., Abbasi, R. A., Aljohani, N. R., Hassan, S. U., & Nawaz, R. (2019). Mining network-level properties of Twitter altmetrics data. Scientometrics, 120(1), 217-235.
13. **Said, A.**, Shah, S., Farooq, H., Mian, A., Imran, A., & Crowcroft, J. (2018). Proactive Caching at the Edge Leveraging Influential User Detection in Cellular D2D Networks. Future Internet, 10(10), 93.
14. Imran, M., Akhtar, A., **Said, A.**, Safder, I., Hassan, S. U., & Aljohani, N. R. (2018, September). Exploiting Social Networks of Twitter in Altmetrics Big Data. In 23rd STI 2018 conference, September 12-14, 2018, Leiden, The Netherlands. Centre for Science and Technology Studies (CWTS).
15. **Said, A.**, Abbasi, R. A., Maqbool, O., Daud, A., & Aljohani, N. R. (2018). CC-GA: A clustering coefficient based genetic algorithm for detecting communities in social networks. Applied Soft Computing, 63, 59-70.

Referee Services Conferences

- International Conference on Machine Learning (ICML)
- Neural Information Processing Systems (NeurIPS)

Referee Services Journals

- Swarm and Evolutionary Computation (Elsevier)
- IEEE Access
- IEEE Transactions on Computational Social Systems
- ACM Transaction on Social Computing
- Journal of Ambient Intelligence and Humanized Computing