Zohair Shafi

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Education

Northeastern University — *Boston, MA, U.S.*
PhD in Computer Sciences (Specializing in Machine Learning and Network Science) - CGPA 3.98/4 — Sep. 2021 - Present

Visvesvaraya Technological University — *Bangalore, Karnataka, India*
Bachelor of Engineering in Computer Sciences - CGPA 8.16/10 — Aug. 2015 - Jun. 2019

Publications

[1] **Shafi, Z.** and Kadioglu, S., 2025. **FORGE: Foundational Optimization Representations from Graph Embeddings**. arXiv preprint arXiv:2508.20330. [Link]

[2] **Shafi, Z.**, Savcisens, G., and Eliassi-Rad, T., 2025. **REGE: A Method for Incorporating Uncertainty in Graph Embeddings**. In Proceedings of the 2025 SIAM International Conference on Data Mining (SDM). [Link]

[3] **Shafi, Z.**, Miller, B.A., Eliassi-Rad, T. and Caceres, R. S., 2025. **Accelerated Discovery of Set Cover Solutions via Graph Neural Networks**. In International Conference on the Integration of Constraint Programming, Artificial Intelligence, and Operations Research (CPAIOR). [Link]

[4] **Shafi, Z.**, Chatterjee, A., and Eliassi-Rad, T., 2025. **Explaining Node Embeddings**. In Transactions on Machine Learning Research (TMLR). [Link]

[5] Miller, B.A., **Shafi, Z.**, Ruml, W., Vorobeychik, Y., Eliassi-Rad, T. and Alfeld, S., 2025. **Defense Against Shortest Path Attacks**. In Proceedings of the 2025 SIAM International Conference on Data Mining (SDM). [Link]

[6] Miller, B.A., **Shafi, Z.**, Ruml, W., Vorobeychik, Y., Eliassi-Rad, T. and Alfeld, S., 2023. **Attacking Shortest Paths by Cutting Edges**. ACM Trans. Knowl. Discov. Data (TKDD) 18, 2, Article 35 (February 2024), 42 pages. [Link]

[7] **Shafi, Z.**, Miller, B.A., Chatterjee, A., Eliassi-Rad, T. and Caceres, R. S., 2023. **GRASP: Accelerating Shortest Path Attacks via Graph Attention**. In Deep Learning on Graphs Workshop, Knowledge Discovery and Data Mining (KDD) [Link]

[8] Chatterjee, A., Walters, R., **Shafi, Z.**, Ahmed, O.S., Sebek, M., Gysi, D., Yu, R., Eliassi-Rad, T., Barabási, A.L. and Menichetti, G., 2023. **Improving the generalizability of protein-ligand binding predictions with AI-Bind**. Nature Communications, 14(1), p.1989. [Link]

[9] Miller, B.A., **Shafi, Z.**, Ruml, W., Vorobeychik, Y., Eliassi-Rad, T. and Alfeld, S., 2021, September. **PATHATTACK: Attacking Shortest Paths in Complex Networks**. In Joint European Conference on Machine Learning and Knowledge Discovery in Databases (ECML-PKDD) (pp. 532-547). Springer. [Link]

[10] Liu, D.*, **Shafi, Z.***, Fleisher, W., Eliassi-Rad, T. and Alfeld, S., 2021, July. **RAWLSNET: Altering Bayesian Networks to Encode Rawlsian Fair Equality of Opportunity**. In Proceedings of the 2021 AAAI/ACM Conference on AI, Ethics, and Society (AIES) (pp. 745-755). [Link]

[11] Mishra, S., **Shafi, Z.** and Pathak, S. 2019. **Time Series Event Correlation with DTW and Hierarchical Clustering Methods**. PeerJ Preprints No. e27959v1. [Link]

Work Experience

Fidelity Investments — *Boston, MA, U.S.*
Co-op - Data Scientist - AI Center of Excellence — Jan. 2025 - Jul. 2025

- Developed a foundational model to represent general mixed integer programs (MIPs) instances [1].
- Developed a foundational architecture for customer representation for use across various business units.

Akamai Technologies — *Bangalore, Karnataka, India*
Performance Engineer II - Global Performance And Operations — Jul. 2019 - Jul. 2021

- Optimized platform performance metrics, including throughput, content offload, and latency, leading to enhanced system efficiency.
- Designed & implemented systems for efficient data mining from raw server logs, providing actionable insights and improved decision-making.
- Scaled and prepared the Akamai platform for critical events, such as the IPL cricket league and Apple WWDC keynote, successfully handling up to 10 Tbps of traffic in a single country.
- Mentored and guided two interns through the development of their projects and presentations, ensuring successful completion.

Akamai Technologies — *Bangalore, Karnataka, India*
Intern - Platform & Delivery — Jan. 2019 - May 2019

- Developed an efficient system for root cause analysis by performing correlation across multiple streams of time series data, improving the accuracy and speed of issue identification. [11]
- Developed tools to visualize network traffic demand across the Akamai network at various levels of granularity, including by country or specific server sets, improving capacity planning and resource allocation.

Academic Services

Instructor	Machine Learning and Data Mining - DS 4400, Northeastern University, Spring 2026
Reviewer	KDD '24, ECAI '25, NeurIPS '25, AI Magazine '25, DiffCoALG@NeurIPS '25, ICLR '26
Program Committee	IAAI '26