

# Zohair Shafi

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## Education

### Northeastern University

PhD in Computer Sciences (Specializing in Machine Learning and Network Science) - CGPA 3.98/4

Boston, MA, U.S.

Sep. 2021 - Present

### Visvesvaraya Technological University

Bachelor of Engineering in Computer Sciences - CGPA 8.16/10

Bangalore, Karnataka, India

Aug. 2015 - Jun. 2019

## Publications

- [1] Shafi, Z., Savcisen, 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)**. [\[Link\]](#)
- [2] 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)**. [\[Link\]](#)
- [3] Shafi, Z., Chatterjee, A., and Eliassi-Rad, T., 2025. **Explaining Node Embeddings**. In **Transactions on Machine Learning Research (TMLR)**. [\[Link\]](#)
- [4] 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)**. [\[Link\]](#)
- [5] 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. [\[Link\]](#)
- [6] 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)** 2023. [\[Link\]](#)
- [7] 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. [\[Link\]](#)
- [8] 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, Cham.[\[Link\]](#)
- [9] 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). [\[Link\]](#)

## Work Experience

### Fidelity Investments

Data Scientist, Co-op - AI Center of Excellence

Boston, MA, U.S.

Jan. 2025 - Present

- Developing graph neural network-based embeddings for general mixed integer programs (MIPs) to enhance the efficiency of heuristic solution methods.

### Akamai Technologies

Performance Engineer II - Global Performance And Operations

Bangalore, India

Jul. 2019 - Jul. 2021

- Optimized platform performance metrics, including throughput, content offload, and latency, leading to enhanced overall system efficiency.
- Designed and implemented systems for efficient data mining and visualization from raw log data, 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

Intern - Platform & Delivery

Bangalore, India

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.
- 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.

## Certifications

### Reinforcement Learning Specialization

University of Alberta AMII

Coursera

Apr. 2020

- Courses - Fundamentals of Reinforcement Learning | Sample based Learning Methods | Prediction and Control with Function | A Complete Reinforcement Learning System (Capstone)