Sai Munikoti

E-mail: saimunikoti@ksu.edu Mob: 7853709027
github.com/saimunikoti linkedin.com/in/sai11

Education

Ph.D. at Kansas State University, Manhattan, USA.
Aug 2019 to present; Electrical and Computer Engineering; GPA 3.9/4.0.
M.Tech at Indian Institute of Technology Gandhinagar, India.
2016 to 2018; Electrical Engineering; CPI 9.00/10.0.
Bachelor of Technology at Birsa Institute of Technology, Sindri, India.
2011 to 2015; Electrical Engineering; Vinoba Bhave University; CPI 8.10/10.0.

Research Interests

Graph theory, Deep learning, Complex networks, Optimization, Reinforcement learning.

Research Experience

Graph Meta Reinforcement learning for scalable Influence maximization.
A Deep Q learning algorithm with Graph Neural Network for quick identification of influential/critical users in large scale complex networks for effective viral marketing; Achieved an accuracy of 95% with a reduced computation complexity of 1.

A Generic framework for data/model uncertainty in Graph Neural Networks.
Incorporated GNN uncertainties via Bayesian belief network & Monte-Carlo sampling. Accurately quantified uncertainties in actual social/product networks for noise levels upto 12%.

Graph Neural Network based identification of COVID-19 from radiography images
Leveraged graph machine learning operations for exploiting stationarity and pixel locality; Attained an accuracy of more than 90 % in classifying 4 diseases.

A Deep learning based Disaggregation of large time series data of home appliances.
A convolutional/recurrent neural network based distributed framework for disaggregation of residential electricity consumption data, including Solar, EV and home appliances; Obtained an identification accuracy of 85 % in the Big (approx 1TB) data.

Selected Publications

S.Munikoti, D.Agarwal, L.Das, B.Natarajan "A General Framework for quantifying Aleatoric and Epistemic uncertainty in Graph Neural Networks" (*under review in ICML 2022*)

S.Munikoti, B.Natarajan, M Halappanavar "GraMeR: Graph Meta Reinforcement Learning for Multi-Objective Influence Maximization" (*under review in SIGKDD 2022*)

S.Munikoti, L. Das, B.Natarajan. "Scalable graph neural network-based framework for identifying critical nodes and links in complex networks. Neurocomputing, 468, 211-221." (*Impact factor: 6.52*)

S.Munikoti, L. Das, B.Natarajan. "Bayesian Graph Neural Network for Fast identification of critical nodes in Uncertain Complex Networks" 2021 IEEE SMC conference, pp. 3245-3251.

S.Munikoti, K.Lai and B.Natarajan. "Robustness Assessment of Hetero-Functional Graph Theory Based Model of Interdependent Urban Utility Networks"

"Reliability engineering and system safety ", 2021. (*Impact factor: 7.24*)

Das, L.,**Munikoti, S.**, Natarajan, B., & Srinivasan, B. (2020). Measuring smart grid resilience: Methods, challenges and opportunities. Renewable and Sustainable Energy Reviews, 130, 109918. (*Impact factor: 16.52*)

R. Madbhavi, A. Joshi, **S. Munikoti**, L. Das, P. K. Mohapatra and B. Srinivasan, " Sensor Placement for Leak Localization in Water Distribution Networks using Machine Learning" 2020 IEEE GUCON, India, 2020, pp. 95-100.

S.Munikoti, L. Das, B. Natarajan and B. Srinivasan, "Data-Driven Approaches for Diagnosis of Incipient Faults in DC Motors" in IEEE Transactions on Industrial Informatics, vol. 15 no. 9, pp. 5299-5308, Sept. 2019. (*Impact factor: 11.92*)

S.Munikoti, D. Agarwal, L. Das, M. Halappanavar, B.Natarajan "Deep Reinforcement Learning with Graph Neural Networks: A review of methods, challenges and oppurtunities" (*Under preparation for Neurocomputing*)

Work Experience

Data Science consultant for Textron Aviation *Jan 2022 - May 2022*
Leading a team of 3 data science graduates to develop AI powered procurement strategy for aircraft inventories. Deliverable improves turn in time and cost estimations.

Data Science intern at PNNL. *May 2021 - Aug 2021*
Developed Deep Reinforcement learning based algorithm for scalable Influence Maximization. Collaborate with Labs computational/data-science team for demonstration.

Data Scientist at eclerx Services Ltd. *Aug 2018 - July 2019*
Led a team of 3 Data scientists for ML-based News recommendation engine (targets Top 1 % Stakeholders), Web scraping, Fraud detection, People analytics (saves 120 hours time/week).

Graduate Teaching assistant at IIT Gandhinagar. *Aug 2017- May 2018*
Supervised 30 people in Applied Statistics course and Electrical Systems lab.

Relevant Course Work

Probability theory & random process
Pattern recognition and Machine learning
Reinforcement Learning
Mathematics of Data and Networks.
Optimization for data science.
Big Data Analytics

Skill Set

Programming languages
Python, R, Matlab, C++

Presentation
Tableau, LaTeX, MS-Project.

Data science tools
Deep learning, Graph analytics, Tensorflow, Pytorch, PySpark, SQL, Databricks, Github.

Achievements

Assist supervisor in writing 2 AI/ML based proposals for NSF EPSCoR and U.S. DOE.
Accomplished 99 percentile in Graduate Aptitude Test for Engineering.
Participated in 3^{rd} National PMT/IIT Olympiad contest and secured All India rank 2.