

Nidhi Piyush Vakil

Boston, MA, USA

(Green Card holder; no visa sponsorship needed.)

Contact Information

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Interest Natural Language Processing, Health Informatics, Machine Learning, Graph Neural Network

**Academic
Service**

- Reviewer for COLING 2024
- Reviewer for ARR 2024
- Reviewer for EMNLP 2023
- Served as a on-site volunteer for ACL 2023

Publications

- **Nidhi Vakil**, and Hadi Amiri. "Controlled Transformation of Text-Attributed Graphs" (**EMNLP 2024**).
- Hadi Amiri, **Nidhi Vakil**, Mohamed Elgaar, Jiali Cheng, Mitra Mohtarami, Adrian Wong, Mehrnaz Sadrolashrafi, Leo Anthony G Celi. "Analysis of Race, Sex, and Language Proficiency Disparities in Documented Medical Decisions" (**MedRxiv 2024**).
- Jiali Cheng, Mohamed Elgaar, **Nidhi Vakil**, Hadi Amiri "CogniVoice: Multimodal and Multilingual Fusion Networks for Mild Cognitive Impairment Assessment from Spontaneous Speech" (**INTERSPEECH 2024**)
- Mohamed Elgaar, Jiali Cheng, **Nidhi Vakil**, Hadi Amiri, Leo Anthony Celi. "MedDec: A Dataset for Extracting Medical Decisions from Clinical Narratives" (**ACL 2024**)
- **Nidhi Vakil**, and Hadi Amiri. "Complexity-Guided Curriculum Learning for Text Graphs" (**EMNLP 2023**).
- **Nidhi Vakil**, and Hadi Amiri. "Curriculum Learning for Graph Neural Networks: A Multiview Competence-based Approach" (**ACL 2023**).
- **Nidhi Vakil**, and Hadi Amiri. "Generic and Trend-aware Curriculum Learning for Relation Extraction in Graph Neural Networks" (**NAACL 2022**).

Education

Ph.D. in Computer Science 2020 - present
Advisor: [Dr. Hadi Amiri](#),
[Computational Language Understanding \(CLU\) Lab](#)
University of Massachusetts, Lowell, United States
GPA: 3.95/4.0

Master of Science 2014 - 2016
Major in Electrical Engineering
California State University, Fullerton, California, United States
GPA: 3.57/4 (*First Class with Distinction*)

Bachelor of Engineering 2009 - 2013
Major in Electronic and Communication Technology
Gujarat Technological University, Gujarat, India

GPA: 7.49/10 (*First Class with Distinction*)

Certifications	<ul style="list-style-type: none">• Oxford Machine Learning Summer School (OxML 2021)• Machine Learning, Stanford University and Coursera (2020)	
Courses Completed	<ul style="list-style-type: none">• Algorithms• Machine Learning for Graphs• Foundations in Digital Health• Linear Algebra• Mutli-Variable Calculus• C Programming• Digital Signal Processing• Machine Learning• Probability	<ul style="list-style-type: none">• Operating Systems• Social Computing• Optimization• Calculus I and II• Object Oriented Concepts and Programming• Fundamental of Image Processing• Programming Methodologies in Python• Statistics
Technical Skills	<ul style="list-style-type: none">• Deep Learning Framework: PyTorch, PyTorch-Geometric• Programming Language: Python, C, C++, Visual Basic• Machine Learning Packages: Numpy, SciPy, Pandas, NTLK toolkit, HuggingFace, spaCy• Database Language: SQL• IDE: Jupyter Notebook, PyCharm• Operating Systems: Ubuntu (Linux/Unix), Windows	
Projects	<p>Curriculum Learning for Graph Neural Networks: A Multiview Competence-based Approach</p> <ul style="list-style-type: none">• Explored the task node classification and edge prediction from general domain and medical domain• Designed and implemented curricula to support better supervision of the model• Improved the model to achieve at least improvement of 5 points in F1 score and Accuracy• Used Deep Learning package: PyTorch-Geometric <p>Generic and Trend-aware Curriculum Learning for Relation Extraction in Graph Neural Networks</p> <ul style="list-style-type: none">• Explored the task of detecting the relation between genes and phenotypes (diseases)• Modeled this task as a supervised link prediction task in a network of genes and phenotypes• Developed a graph representation learning technique to learn gene-phenotype relations• Used Curriculum Learning• Achieved an average of 8.6 points improvement in F1 score• Used Deep Learning package: PyTorch-Geometric <p>Large scale Graph Multiclass Classification</p> <ul style="list-style-type: none">• Developed an algorithm for node classification using an English Wikipedia hyperlink network• Used Wikipedia articles as nodes and hyperlinks between the articles as edges• Used textual description of the articles• Trained using Glove and BERT embeddings• Used 20k training instances, 10k validation instances, 60k testing instances• Trained GraphSAGE on 13k class labels• Obtained Accuracy of 32.21%	

- Used Deep Learning package: PyTorch-Geometric

Taxi Price Prediction Problem

- Solved regression problem to predict price based on source and destination of the user
- Used feature like distance in KM, time of the day, latitude and longitude of the locations, passenger count
- Implemented two layer regularized neural network
- Python packages: Numpy, Pandas
- Deep Learning Package: PyTorch
- Used multiple objective functions to learn parameter
- Achieved Mean Square Error of 0.25

Movie Sentiment Classifier

- Used multi-classifier to predict sentiment score
- Prepared data from the sentiment-score set
- Tools used: Numpy, Pandas, Deep Learning Package: PyTorch

References

Prof. Hadi Amiri

E-mail: hadi@cs.uml.edu

Assistant Professor

Department of Computer Science at University of Massachusetts, Lowell

Department of Biomedical Informatics at Harvard University

Massachusetts, USA.

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