

Deepak Nathani

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About Me

I am currently a 3rd year Ph.D Student at *University of California, Santa Barbara*, advised by Dr. William Yang Wang. My research interests revolve around Reasoning in Language Models and Language Model Agents for Code.

Education

- 2022–Present **PhD, Computer Science**
University of California Santa Barbara
Advisor: [Dr. William Yang Wang](#).
- 2015–2019 **B.Tech, Mechanical Engineering**
Indian Institute of Technology Hyderabad.
- 2017–2019 **B.Tech, Computer Science and Engineering (Second Major)**
Indian Institute of Technology Hyderabad
Advisor: [Dr. Manohar Kaul](#).

Publications

Selected Publications

- [1] **Deepak Nathani**, David Wang, Liangming Pan, and William Yang Wang. Maf: Multi-aspect feedback for improving reasoning in large language models. EMNLP, 2023.
- [2] **Deepak Nathani**, Jatin Chauhan, Charu Sharma, and Manohar Kaul. Learning attention-based embeddings for relation prediction in knowledge graphs. In *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics*. Association for Computational Linguistics, 2019.

Other Publications

- [3] Madhurima Vardhan, **Deepak Nathani**, Swarnima Vardhan, Abhinav Aggarwal, and Filippo Simini. Large language models as synthetic electronic health record data generators. In *2024 IEEE Conference on Artificial Intelligence (CAI)*, pages 804–810, 2024.
- [4] Liangming Pan, Michael Saxon, Wenda Xu, **Deepak Nathani**, Xinyi Wang, and William Yang Wang. Automatically correcting large language models: Surveying the landscape of diverse automated correction strategies. *Transactions of the Association for Computational Linguistics*, 12:484–506, 05 2024.
- [5] Madhurima Vardhan, Narayan Hegde, **Deepak Nathani**, Emily Rosenzweig, Alan

Karthikesalingam, and Martin Seneviratne. Infusing behavior science into large language models for activity coaching. *medRxiv*, 2023.

- [6] Madhurima Vardhan, Narayan Hegde, Srujana Merugu, Shantanu Prabhat, **Deepak Nathani**, Martin Seneviratne, Nur Muhammad, Pranay Reddy, Sriram Lakshminarasimhan, Rahul Singh, Karina Lorenzana, Eshan Motwani, Partha Talukdar, and Aravindan Raghuvier. Walking with pace - personalized and automated coaching engine. In *Proceedings of the 30th ACM Conference on User Modeling, Adaptation and Personalization*, UMAP '22. Association for Computing Machinery, 2022.
- [7] Kalpesh Krishna, **Deepak Nathani**, Xavier Garcia, Bidisha Samanta, and Partha Talukdar. Few-shot controllable style transfer for low-resource multilingual settings. In *Proceedings of the 60th Annual Meeting of the Association for Computational Linguistics*. Association for Computational Linguistics, May 2022.
- [8] Jatin Chauhan, **Deepak Nathani**, and Manohar Kaul. Few-shot learning on graphs via super-classes based on graph spectral measures. In *International Conference on Learning Representations*, 2020.
- [9] Sumit Bhatia, Bapi Chatterjee, **Deepak Nathani**, and Manohar Kaul. A persistent homology perspective to the link prediction problem. In *Complex Networks and Their Applications VIII*, 2020.
- [10] Charu Sharma, **Deepak Nathani**, and Manohar Kaul. Solving partial assignment problems using random clique complexes. In *Proceedings of the 35th International Conference on Machine Learning, ICML 2018*, 2018.

Professional Experience

2024-2024 **Research Scientist Intern**, *Meta GenAI*, London

Advisors: [Roberta Raileanu](#)

- Built MLGYM, a framework for building and benchmarking LM agents on Computational Research tasks.
- Released MLGYM-BENCH, a benchmark for testing LM Agents on computational research tasks from diverse domains such as Reinforcement Learning, Computer Vision, Language Modeling, Data Science, Game Theory, and SAT solver optimization.

2023-2023 **Applied Scientist Intern**, *AWS Translate*, New York

Advisors: [Xing Niu](#), [Shuoyang Ding](#), [Prashant Mathur](#)

Worked on improving the stability of Text2Text Simultaneous Translation systems.

2020-2022 **Pre-Doctoral Researcher**, *Google Research India*, Bengaluru

Advisor: [Dr. Partha Talukdar](#)

Worked towards creating a Conversational Health Assistant and improving Text Style Transfer models.

2019-2020 **Software Engineering AMTS**, *Salesforce.com*, Hyderabad

2018-2018 **Summer Research Intern**, *IBM Research Labs*, New Delhi

Advisor: Dr. Sumit Bhatia, Dr. Bapi Chatterjee

Used Persistent Homology to learn shape and structure of the neighborhood of a data item(node) and predict further links.

████████ Awards & Scholarships

2022 **Academic Excellence Fellowship**, *University of California*, Santa Barbara

████████ Academic Service

Reviewer ARR 2024, SoCal NLP 2022, ICLR 2021-2023, NeurIPS 2021, EMNLP 2021

Sub-Reviewer NeurIPS 2020

████████ Technical Skills

Programming C, C++, Python, MATLAB/Octave

Framework Tensorflow, PyTorch, Scikit-Learn

———— Miscellaneous

2017-2019 Coordinator, Inero - Programming Club, IIT Hyderabad

2018 Rank 30/250 teams, ACM-ICPC Amritapuri Regional