Sarkar Snigdha Sarathi Das

Contact Information

Department of Computer Science and Engineering (CSE)
The Pennsylvania State University
State College, PA - 16801
Email: sfd5525@psu.edu, sarathismg@gmail.com
Homepage: https://sarathismg.github.io/
+1-814-441-6214

Research Interests

Reasoning aware Automated Strategy and Prompt Optimization for LLMs, Multi-Agent LLM Systems, Optimization with limited continuous representations, LLM and LVLM Evaluation, Zero/Few-Shot Learning for diverse tasks, Parameter Efficient Fine-Tuning

Education

Ph.D. Candidate January 2021 - 2025 (Expected)
Department of Computer Science and Engineering (CSE)
The Pennsylvania State University, State College, PA
Advisor: Rui Zhang

B. Sc. in CSE February 2015 - April 2019
Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh
Advisor: Mohammed Eunus Ali
CGPA: 3.94/4.00

Work Experience

Student Researcher July 2025 - Present
Google, Sunnyvale, CA
Project: Optimization of LLM Agents
Mentors: Palash Goyal, Hamid Palangi, Mihir Parmar, Yiwen Song, Long T. Le

Research Intern May 2023 - August 2023
Microsoft Research, Redmond, WA
Project: Joint Dialogue Segmentation and State Tracking
Mentors: Tara Safavi, Jennifer Neville, Longqi Yang

Applied Scientist Intern May 2022 - August 2022
Amazon Alexa, Sunnyvale, CA
Mentor: Mina Ghashami

Graduate Research Assistant January 2021 - Present

Natural Language Processing Lab, Department of CSE,
Pennsylvania State University

Research Assistant May 2019 - December 2020
Data Science and Engineering Research Laboratory, BUET

Publications & Preprints

P1. Yusen Zhang, Wenliang Zheng, Aashrith Madasu, Peng Shi, Ryo Kamoi, Hao Zhou, Zhuoyang Zou, Shu Zhao, **Sarkar Snigdha Sarathi Das**, Vipul Gupta, Xiaoxin Lu, Nan Zhang, Ranran Haoran Zhang, Avitej Iyer, Renze Lou, Wenpeng Yin, Rui Zhang. HRScene: How Far Are VLMs from Effective High-Resolution Image Understanding?
ICCV 2025

P2. Ryo Kamoi, Yusen Zhang, **Sarkar Snigdha Sarathi Das**, Ranran Haoran Zhang, Rui Zhang.
VisOnlyQA: Large Vision Language Models Still Struggle with Visual Perception of Geometric Information
COLM 2025

P3. Wenliang Zheng, **Sarkar Snigdha Sarathi Das**, Yusen Zhang, Rui Zhang.
GREATERPROMPT: A Unified, Customizable, and High-Performing Open-Source Toolkit for Prompt Optimization
ACL 2025 Oral Demo

P4. Berk Atil, Vipul Gupta, **Sarkar Snigdha Sarathi Das**, Rebecca J. Passonneau.
Can LLMs Rank the Harmfulness of Smaller LLMs? We Are Not There Yet
WOAH 2025 (ACL Workshop on Online Abuse and Harms)

P5. Sarkar Snigdha Sarathi Das, Ryo Kamoi, Bo Pang, Yusen Zhang, Caiming Xiong, Rui Zhang.
GReaTer: Gradients over Reasoning Makes Smaller Language Models Strong Prompt Optimizers
ICLR 2025

P6. Chirag Shah, Ryen W. White, Reid Andersen, Georg Buscher, Scott Counts, **Sarkar Snigdha Sarathi Das**, Ali Montazer, Sathish Manivannan, Jennifer Neville, Xiaochuan Ni, Nagu Rangan, Tara Safavi, Siddharth Suri, Mengting Wan, Leijie Wang, Longqi Yang.
Using Large Language Models to Generate, Validate, and Apply User Intent Taxonomies

ACM Transactions on the Web, 2025

P7. Ryo Kamoi, **Sarkar Snigdha Sarathi Das**, Renze Lou, Jihyun Janice Ahn, Yilun Zhao, Xiaoxin Lu, Nan Zhang, Yusen Zhang, Ranran Haoran Zhang, Sujeeth Reddy Vummanthala, Salika Dave, Shaobo Qin, Arman Cohan, Wenpeng Yin, Rui Zhang.
Evaluating LLMs at Detecting Errors in LLM Responses
COLM 2024

P8. Sarkar Snigdha Sarathi Das, Chirag Shah, Mengting Wan, Jennifer Neville, Longqi Yang, Reid Andersen, Georg Buscher, Tara Safavi.
S3-DST: Structured Open-Domain Dialogue Segmentation and State Tracking in the Era of LLMs
Findings of ACL 2024

P9. Abdullah Al Ishtiaq, **Sarkar Snigdha Sarathi Das**, Syed Md Mukit Rashid, Ali Ranjbar, Kai Tu, Tianwei Wu, Zhezheng Song, Weixuan Wang, Mujtahid Al-Islam Akon, Rui Zhang, Syed Rafiul Hussain.
Hermes: Unlocking Security Analysis of Cellular Network Protocols by Synthesizing Finite State Machines from Natural Language Specifications
USENIX Security 2024

P10. Sarkar Snigdha Sarathi Das, Haoran Ranran Zhang, Peng Shi, Wenpeng Yin, Rui Zhang.
Unified Low-Resource Sequence Labeling by Sample-Aware Dynamic Sparse Finetuning
EMNLP 2023

P11. Sarkar Snigdha Sarathi Das, Arzoo Katiyar, Rebecca J. Passonneau, Rui Zhang.
CONTaiNER: Few-Shot Named Entity Recognition via Contrastive Learning
ACL 2022

P12. Sarkar Snigdha Sarathi Das, Subangkar Karmaker Shanto, Masum Rahman, Md. Saiful Islam, Atif Rahman, Mohammad Mehedy Masud, Mohammed Eunus Ali.
BayesBeat: A Bayesian Deep Learning Approach for Atrial Fibrillation Detection from Noisy Photoplethysmography Data
UbiComp 2022 (IMWUT Article 8, Vol. 6, March 2022)

P13. Sarkar Snigdha Sarathi Das, Mohammed Eunus Ali, Yuan-Fang Li, Yong-Bin Kang, Timos Sellis.
Boosting House Price Predictions using Geo-Spatial Network Embedding
Data Mining and Knowledge Discovery (2021)

P14. Md. Ashraful Islam, Mir Mahathir Mohammad, **Sarkar Snigdha Sarathi Das**, Mohammed Eunus Ali.
A Survey on Deep Learning Based Point-Of-Interest (POI) Recommendations
Neurocomputing (2022)

P15. Sarkar Snigdha Sarathi Das, Syed Md Mukit Rashid, Mohammed Eunus Ali.
CCCNet: An Attention Based Deep Learning Framework for Categorized Counting of Crowd in Different Body States
International Joint Conference on Neural Networks (IJCNN), IEEE 2020

* Preprints

Preprint 1. Ryo Kamoi, Yusen Zhang, Nan Zhang, **Sarkar Snigdha Sarathi Das**, Rui Zhang.
Training Step-Level Reasoning Verifiers with Formal Verification Tools
arXiv:2505.15960

Preprint 2. Yusen Zhang, **Sarkar Snigdha Sarathi Das**, Rui Zhang.
VERBOSITY $\neq$ VERACITY: Demystify Verbosity Compensation Behavior of Large Language Models
arXiv:2411.07858

PATENTS

Structured Dialogue Segmentation and State Tracking Inventors: Tara Lynn Safavi, **Sarkar Snigdha Sarathi Das**, Chirag Shah, Jennifer Lynay Neville, Mengting Wan, Longqi Yang, Reid Marlow Andersen, Georg Ludwig Wilhelm Buscher *US Patent Application 18/368,491, Published on March 20, 2025*

Generating and Using Intent Taxonomies to Identify User Intent Inventors: Longqi Yang, Chirag Shah, Mengting Wan, Jennifer Lynay Neville, Tara Lynn Safavi, Scott Joseph Counts, Siddharth Suri, Ryen William White, Reid Marlow Andersen, Georg Ludwig Wilhelm Buscher, Sathish Kumar Manivannan, Leijie Wang, **Sarkar Snigdha Sarathi Das**, Ali Montazeralghaem *US Patent Application 18/465,742, Published on March 13, 2025*

Honors and Awards

Vice Provost and Dean of the Graduate School Student Persistence Award 2025
Dr. Tse-Yun Feng Graduate Student Award, CSE Dept., Penn State University 2022
Champion, Seeds for the Future (Huawei Travel Grant) 2019
Graduation with Honours
Higher Secondary Board Merit Scholarship
Junior Merit Scholarship
Primary Merit Scholarship

Technical Skills

Programming Languages: Python, C, C++, Java, Assembly Language (Intel x86, MIPS)
Deep Learning Frameworks: PyTorch, TensorFlow, Keras
Scripting Languages: HTML, LaTeX, Bash
SQL Databases: Oracle SQL, MySQL, PostgreSQL, SQLite

Professional Services

Review Committee EMNLP 2022,2023; ACL 2023; ACL ARR 2024,2025; COLM 2025, AI4Research@IJCAI 2024
Organizing Committee 12th Mid- Atlantic Student Colloquium on Speech, Language and Learning (MASC-SLL 2025)
Additional Reviewer ACM SIGSPATIAL, 2019-2020
Sub-Reviewer AAAI 2020, ICDE 2021
Reviewer NSysS 2020

Professional Reference

Rui Zhang
Assistant Professor
Department of Computer Science and Engineering
The Pennsylvania State University
W329 Westgate Building
University Park, PA 16802
Email: rmz5227@psu.edu

Rebecca J. Passonneau
Professor
Department of Computer Science and Engineering
The Pennsylvania State University
W318 Westgate Building
University Park, PA 16802
Email: rjp49@psu.edu