

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, 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: Dr. Rui Zhang B. Sc. in CSE February 2015 - April 2019 Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh Advisor: Dr. Mohammed Eunus Ali CGPA: 3.94/4.00
WORK EXPERIENCE	Student Researcher (Incoming) July 2025 - Google Research, Sunnyvale, CA Project: Computer Use Agents Mentors: Palash Goyal, Hamid Palangi 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. 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 Demo

P2. 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

P3. **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

P4. 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

P5. **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

P6. 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

P7. 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

P8. Sarkar Snigdha Sarathi Das, Arzoo Katiyar, Rebecca J. Passonneau, Rui Zhang.

CONTAINER: Few-Shot Named Entity Recognition via Contrastive Learning

ACL 2022

P9. 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)

P10. 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)

P11. 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)

P12. Sarkar Snigdha Sarathi Das, Syed Md Mukit Rashid, Mohammed Eunus Ali.

CCNet: 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. 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?

arXiv:2504.18406

Preprint 2. 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 3. Yusen Zhang, **Sarkar Snigdha Sarathi Das**, Rui Zhang.

VERBOSITY \neq VERACITY: Demystify Verbosity Compensation Behavior of Large Language Models

arXiv:2411.07858

Preprint 4. 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

arXiv:2412.00947

Preprint 5. Berk Atil, Vipul Gupta, **Sarkar Snigdha Sarathi Das**, Rebecca J. Passonneau.

Can LLMs Rank the Harmfulness of Smaller LLMs? We Are Not There Yet

arXiv:2502.05291

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, Ryan William White, Reid Marlow Andersen, Georg Ludwig Wilhelm Buscher, Sathish Kumar Manivannan, Leijie Wang, **Sarkar Snigdha Sarathi Das**, Ali Montazeri Alghaem *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	