

# Sarkar Snigdha Sarathi Das

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CONTACT INFORMATION	Department of Computer Science and Engineering (CSE) The Pennsylvania State University State College, PA - 16801 Email: <a href="mailto:sfd5525@psu.edu">sfd5525@psu.edu</a> , <a href="mailto:sarathismg@gmail.com">sarathismg@gmail.com</a> Homepage: <a href="https://sarathismg.github.io/">https://sarathismg.github.io/</a> +1-814-441-6214
RESEARCH INTERESTS	LLM Post Training, Reasoning, Strategy and Prompt Optimization for LLMs, Zero/Few-Shot Learning for diverse tasks, Parameter Efficient Fine- Tuning
EDUCATION	<b>Ph.D. Candidate</b> January 2021 - 2025 (Expected) Department of Computer Science and Engineering (CSE) The Pennsylvania State University, State College, PA Advisor: <a href="#">Dr. Rui Zhang</a>  <b>B. Sc. in CSE</b> February 2015 - April 2019 Bangladesh University of Engineering and Technology (BUET), Dhaka, Bangladesh Advisor: <a href="#">Dr. Mohammed Eunus Ali</a> CGPA: 3.94/4.00
WORK EXPERIENCE	<b>Research Intern</b> May 2023 - August 2023 Microsoft Research, Redmond, WA Project: Joint Dialogue Segmentation and State Tracking Mentors: Tara Safavi, Jennifer Neville, Longqi Yang  <b>Applied Scientist Intern</b> May 2022 - August 2022 Amazon Alexa, Sunnyvale, CA Mentor: Mina Ghashami  <b>Graduate Researcher</b> January 2021 - Present Natural Language Processing Lab, Department of CSE, Pennsylvania State University  <b>Research Assistant</b> May 2019 - December 2020 Data Science and Engineering Research Laboratory, BUET

**P1. 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*

**P2.** 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*

**P3. 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*

**P4. 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*

**P5.** 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*

**P6. Sarkar Snigdha Sarathi Das**, Arzoo Katiyar, Rebecca J. Passonneau, Rui Zhang. CONTAINER: Few-Shot Named Entity Recognition via Contrastive Learning *ACL 2022*

**P7. 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)*

**P8. 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)*

**P9.** 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)*

**P10. 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*

**Preprint 1.** 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 *arXiv 2309.13063*

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

**Preprint 3.** 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 4.** 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, Ryen William White, Reid Marlow Andersen, Georg Ludwig Wilhelm Buscher, Sathish Kumar Manivannan, Leijie Wang, **Sarkar Snigdha Sarathi Das**, Ali Montazer alghaem *US Patent Application 18/465,742, Published on March 13, 2025*

HONORS AND AWARDS	Dr. Tse-Yun Feng Graduate Student Award, CSE Dept., Penn State University	2022
	Champion, <a href="#">Seeds for the Future</a> (Huawei Travel Grant)	2019
	Graduation with Honours	
	Higher Secondary Board Merit Scholarship	
	Junior Merit Scholarship	
	Primary Merit Scholarship	
TECHNICAL SKILLS	<b>Programming Languages:</b> Python, C, C++, Java, Assembly Language (Intel x86, MIPS)	
	<b>Deep Learning Frameworks:</b> PyTorch, TensorFlow, Keras	
	<b>Scripting Languages:</b> HTML, $\text{\LaTeX}$ , Bash	
	<b>SQL Databases:</b> Oracle SQL, MySQL, PostgreSQL, SQLite	
PROFESSIONAL SERVICES	<b>Review Committee</b> EMNLP 2022,2023; ACL 2023; ACL ARR 2024,2025; COLM 2025, AI4Research@IJCAI 2024	
	<b>Additional Reviewer</b> ACM SIGSPATIAL, 2019-2020	
	<b>Sub-Reviewer</b> AAAI 2020, ICDE 2021	
	<b>Reviewer</b> NSysS 2020	
PROFESSIONAL REFERENCE	<b>Rui Zhang</b> Assistant Professor Department of Computer Science and Engineering The Pennsylvania State University W329 Westgate Building University Park, PA 16802 Email: <a href="mailto:rmz5227@psu.edu">rmz5227@psu.edu</a>	
	<b>Rebecca J. Passonneau</b> Professor Department of Computer Science and Engineering The Pennsylvania State University W318 Westgate Building University Park, PA 16802 Email: <a href="mailto:rjp49@psu.edu">rjp49@psu.edu</a>	