Sumit Asthana

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Education

University of Michigan, Ann Arbor

PhD candidate, Computer Science And Engineering (GPA 4.0/4.0) *2019 – 2025 (August)*

Thesis committee: Nikola Banovic, Kevyn Collins Thompson, Xu Wang, Rich Gonzalez, Eric Horvitz

Indian Institute of Technology, Patna

Bachelor of Technology, Computer Science And Engineering (GPA 9.09/10) *2013 – 2017*

Experience

Research Intern 08/2023 - 12/2023

Google Deepmind, NY

- Designed a new NLP task to understand and measure readers' conceptual difficulties with expert-written text.
- Collected large-scale data for academic texts spanning 11 domains and conducted experiments with open source and proprietary LLMs to evaluate their capabilities for simplifying difficult concepts.

Research Intern 05/2022 - 08/2022

Microsoft, Office of Applied Research, Redmond

- Leveraged cognitive science theories of interaction to design an effective system for meeting recap.
- Conducted evaluations in people's real meeting contexts to "align" AI-generated recap with meeting participants' needs.

Research Intern 05/2021 - 07/2021

Microsoft Research, Redmond

- Studied the workflow of thousands of developers using bots for software engineering.
- Using quantitative and mixed-methods analysis, identified bot communication, developers' cognitive load, and managing Human-Bot teams as key opportunities for improving software quality.

Research Fellow 05/2018 - 07/2019

Microsoft Research, India

- Designed a system to recommend developers for code reviews and evaluated its large-scale impact on software engineering quality within Microsoft.

Software Engineer 07/2017 - 05/2018

Arista Networks, India

- Worked on adding VXLAN feature within the networkOS operating system that runs on data-center scale routers.

Software Engineering Intern 05/2015 - 07/2015

Wikimedia Foundation

- Designed an extension for Wikipedia's mobile version for low-latency content delivery in low-resourced internet regions.

Publications

Conference Full Papers

C.1 **Asthana S.**, Ghanate A., Ion M., Banovic N., Collins Thompson K. Understanding Admissions Processes to Inform the Design of Effective and Equitable Human-AI Collaborative Assessment Workflows in Higher Education - Under review at FAccT 2025.

C.2 **Asthana**, S., Hilleli, S., He, P., & Halfaker, A. (2025). Summaries, Highlights, and Action items: Design, implementation, and evaluation of an LLM-powered meeting recap system. To appear at Proceedings of the ACM on Human-Computer Interaction, CSCW 2025. DOI: 10.48550/arXiv.2307.15793

C.3 **Asthana, S**., Rashkin, H., Clark, E., Huot, F., & Lapata, M. (2024). Evaluating LLMs for Targeted Concept Simplification for Domain-Specific Texts. In Proceedings of the 2023 Conference on Empirical Methods in Natural Language Processing. ACL. DOI: 10.18653/v1/2024.emnlp-main.357

C.4 **Asthana, S.**, Im, J., Chen, Z., & Banovic, N. (2024, May). " I know even if you don't tell me": Understanding Users' Privacy Preferences Regarding AI-based Inferences of Sensitive Information for Personalization. In Proceedings of the CHI Conference on Human Factors in Computing Systems (pp. 1-21). DOI: 10.1145/3613904.3642180

C.5 Prabhudesai, S., Yang, L., **Asthana, S.**, Huan, X., Liao, Q. V., & Banovic, N. (2023, March). Understanding uncertainty: how lay decision-makers perceive and interpret uncertainty in human-AI decision making. In Proceedings of the 28th International Conference on Intelligent user Interfaces (pp. 379-396). DOI: 10.1145/3581641.3584033

C.6 Arif, T., **Asthana, S.**, & Collins-Thompson, K. (2024, July). Generation and assessment of multiple-choice questions from video transcripts using large language models. In Proceedings of the Eleventh ACM Conference on Learning@ Scale (pp. 530-534). DOI: 10.1145/3657604.3664714

C.7 **Asthana, S.**, Sajnani, H., Voyloshnikova, E., Acharya, B., & Herzig, K. (2023, November). A case study of developer bots: motivations, perceptions, and challenges. In Proceedings of the 31st ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (pp. 1268-1280). DOI: 10.1145/3611643.3616248

C.8 **Asthana, S.**, Tobar Thommel, S., Halfaker, A. L., & Banovic, N. (2021). Automatically labeling low-quality content on Wikipedia by leveraging patterns in editing behaviors. Proceedings of the ACM on Human-Computer Interaction, 5(CSCW2), 1-23. DOI: 10.1145/3479503

C.9 **Asthana, S.**, Kumar, R., Bhagwan, R., Bird, C., Bansal, C., Maddila, C., ... & Ashok, B. (2019, August). Whodo: Automating reviewer suggestions at scale. In Proceedings of the 2019 27th ACM joint meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (pp. 937-945). DOI: 10.1145/3338906.3340449

C.10 Mehta, S., Bhagwan, R., Kumar, R., Bansal, C., Maddila, C., Ashok, B., **Asthana S**... & Kumar, A. (2020). Rex: Preventing bugs and misconfiguration in large services using correlated change analysis. In 17th USENIX Symposium on Networked Systems Design and Implementation (NSDI 20) (pp. 435-448). ISBN: 9781939133137

C.11 **Asthana, S.**, & Halfaker, A. (2018). With few eyes, all hoaxes are deep. Proceedings of the ACM on Human-Computer Interaction, 2(CSCW), 1-18. DOI: 10.1145/3274290

Workshop papers

W.1 **Asthana, S.**, & Thompson, K. C. Towards Educational Theory of Mind for Generative AI: A Review of Related Literature and Future Opportunities - CHI 2024 Theory of Mind Workshop. DOI: link

W.2 **Asthana, S.**, Arif, T., & Thompson, K. C. (2023). Field experiences and reflections on using LLMs to generate comprehensive lecture metadata. In NeurIPS'23 Workshop on Generative AI for Education (GAIED). DOI: link

W.3 Ion, M. **Asthana, S.**, Jiao F., Wang T., & Thompson, K. C. (2024). Adaptive Knowledge Assessment in Simulated Coding Interviews. In AAAI 24' Workshop on Innovation and Responsibility in Education (iRAISE). DOI: link

Teaching

Graduate Student Instructor, Human-Computer Interaction 2022

Women in Science and Engineering (WiSE) instructor and lecture development 2023-24

Professional Services

Associate Chair (AC) / Program Committee (PC) Member

CSCW 2025 2024-25

CHI 2025 Late Breaking Work Committee 2025

ICLR Worksop on Bi-directional Human-AI alignment 2025

Organizing committees

The 7th Summer School on Computational Interaction (CIX2023) 2023

Org-admin, Google Summer of Code internship, Wikimedia Foundation 2017

Mentor, Google Code-In internship, Wikimedia Foundation 2016

External reviewer

CHI (2022-24), CSCW (2021-24), IMWUT (2024), JDIQ (2024)

Departmental services

New PhD application reviewer, University of Michigan 2023

Social chair, Human-Centered Computing group, University of Michigan, 2022-24

Towner Prize committee for Engineering Research Symposium at University of Michigan 2022

Awards and honors

Rackham travel award 2022, 2023

FSE travel award 2022

Google summer of code travel scholarship 2017

Wikimedia travel scholarship 2016

ACM ICPC regional finalist 2016

Regional mathematics olympiad finalist 2011

Invited talks

Cognitive models of behavior for effective Human-AI interaction 2024
Linguistic Diversity PhD programme guest speaker, Penn State

Automatically Labeling Low Quality Content on Wikipedia 2022
Wikimedia Research Showcase

Applications of Human-Computer Interaction 2022
Intro to Computer Science, CSC101

Undergraduate Mentored Students

Zhe Che, Sabrina Tobar Thommel, Shareni Ortega, Daniel Ramirez, Tsedeniya Amare, Bruktawit Amare, Tianyi Wang, Fengquan Jiao.