

Sumit Asthana

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EDUCATION

University of Michigan, Ann Arbor

PhD candidate, Computer Science And Engineering (GPA 4.0/4.0)

Aug. 2019 – Present

Indian Institute of Technology, Patna

Bachelor of Technology, Computer Science And Engineering (GPA 9.09/10)

July 2013 – July 2017

EXPERIENCE

Research Intern

September 2023 - December 2023

Google Deepmind

- Understanding how to make domain-specific documents more readable for wide audiences.
- Developed a graph-based evaluation method to identify high-quality LLM text generations for text simplification.
- Performed experiments with open source and proprietary LLMs to evaluate their capabilities for text difficulty simplifications.

Research Intern

June 2022 - August 2022

Microsoft, Office of Applied Research

- Developed a system to provide intelligent AI insights for group meetings over Microsoft Teams.
- Understood user requirements through interviews on the usability of the generated insights.
- Used the insights to build an annotation interface to gather more ‘aligned’ data collection by addressing the cognitive limitations of annotation of long meetings. The new interface was used to gather data to retrain LLMs for summarization to increase ‘alignment’.

Research Intern

May 2021 - August 2021

Microsoft Research, 1ES

- Modeling and understanding collaborations between developers and bots in the developer ecosystem of Microsoft
- Used semi-structured interviews and surveys to understand developers’ perceptions regarding developer bot recommendations and, along with a year’s worth of interaction data, formulated human-centered recommendations to improve the bot experience within Microsoft.

Graduate Research Assistant

August 2019 – Present

CompHCI Lab, University of Michigan

- Modeling in-home transmissions of COVID-19 using agent-based simulations leveraging Reinforcement Learning to simulate human-like in-home behaviors.
- Modeled edit activity of Wikipedia users through semantic intent labeling of edits and used them to train ML models to predict flaws in user-generated content.

Research Fellow

May 2018 - July 2019

Microsoft Research, India

- Applied ML to software engineering to improve various aspects of the development cycle like Builds, software development, and testing.
- Responsible for driving the research efforts on building a code review recommendation system for developers and improving it through continuous feedback.
- Used semi-structured interviews to understand the effects of the code-review recommendation system on developers.

Software Engineer

July 2017 – May 2018

Arista Networks, India

- Part of the software engineering team of Arista Networks - (a leader in Gigabit Ethernet market).
- Working on VXLAN and driving the project to make L2 Protocols transparent across service provider tunnel networks such as LDP Pseudowires, L2 Evpn.

Software Engineering Intern

May 2015 – August 2015

Google Summer of Code, Wikimedia Foundation

- Developed WikidataPageBanner extension for Wikivoyage project which was later adopted by Mobile Wikipedia to show its banners.
- Incorporated the banner within the MediaWiki engine and developed a testing library for the same.

PUBLICATIONS

CONFERENCE FULL PAPERS

- **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 - In preparation for FAccT 2025
- **Asthana, S.**, Hilleli, S., He, P., & Halfaker, A. (2023). Summaries, Highlights, and Action items: Design, implementation, and evaluation of an LLM-powered meeting recap system. *Proceedings of the ACM on Human-Computer Interaction*, 5(CSCW2).
- **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.
- **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).
- 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).
- 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).
- **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).
- **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.
- **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).
- 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).
- **Asthana, S.**, Halfaker, A. (2018). With few eyes, all hoaxes are deep. *Proceedings of the ACM on Human-Computer Interaction*, 2(CSCW), 1-18.

WORKSHOP PAPERS

- **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
- **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)*.

TEACHING

Graduate Student Instructor, EECS 493, Winter 2022 - supported the learning outcome of 234 undergraduate students as a GSI for the course User Interface Development.

Women in Science and Engineering (WiSE) 2023, 2024 summer camp - Introduced K-12 students to basic STEM concepts through interactive exercises and demonstrations.

Computational interaction summer school 2023, University of Michigan - Teaching and organization assistant

PROFESSIONAL SERVICES AND AWARDS

Area chair Serving as area chair for the organization of **CSCW 2025** for driving peer reviewers of paper submissions by recruiting reviewers and facilitating reviews.

Conference papers peer-review CSCW 2023, CSCW 2022, UIST 2022, CHI 2022

Social chair Human-Centered Computing group at University of Michigan, CSE - organizing social events to bring together researchers and share ideas

Student volunteer Assisted in organizing ACM IUI 2023 in Sydney, Australia as a student volunteer.

New PhD application reviews Reviewed applications for PhD admissions in CSE to address a fair review of the enormous applicant pool.

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

Org-Admin Google Summer of Code, Wikimedia Foundation, 2016, 2017 - coordinated the internship program about 25 students Wikipedia in the two years

Wikimedia travel scholarship Recipient of Wikimedia travel scholarship for contributions to mobile Wikipedia

Google Code-In mentor Wikimedia Foundation, 2016

Co-ordinator Training and Placement Cell of IIT Patna, 2016-17

Co-ordinator Creatives & design team of Anweshya '16 - Techno-cultural club of IIT Patna, 2015

COURSES AND SKILLS

Relevant courses: HCI, Machine Learning, Advanced Data Mining, NLP, Artificial Intelligence, Network Theory, Computational and Data-driven methods in Engineering

Skills: C/C++, Python, Java, Git, Systems, Statistics, Network Analysis

UNDERGRADUATE MENTORED STUDENTS

Zhe Che, Sabrina Tobar Thommel, Shareni Ortega, Daniel Ramirez, Tsedeniya Amare, Bruktawit Amare