

Tanya Chowdhury

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EDUCATION

University of Massachusetts, Amherst

MS/Ph.D. in Computer Science

4.0/4.0

2020 – May, 2026 (expected)

IIIT -Delhi

B.Tech in Computer Science and Engineering (with Honours)

9.31/10

2014 – 2018

RESEARCH INTERESTS

Mechanistic Interpretability, Scientific Discovery, Computational Biology, Information Retrieval

EXPERIENCE

Data Science Intern

Bristol Myers Squibb

May 2025 – Aug 2025

Lawrenceville, NJ / Remote

- Designed and implemented an agentic framework to address complex clinical trial queries by integrating advanced reasoning techniques.
- Benchmarked multiple LLMs to evaluate cost-time-accuracy tradeoffs across RAG, chain-of-thought, and hierarchical decomposition tasks using both the LangChain framework and a custom recursive reasoning pipeline.

AI Research Intern

Genentech

June. 2022 – October. 2022

South San Francisco/Remote

- Worked within the Early Clinical Discovery organization towards developing specialized feature attribution methods for domain knowledge infused feed forward and graph neural networks.
- Validated attributions axiomatically as well as experimentally against known literature, for genes linked to Prostate cancer discovery.

Software Engineer

Myntra Designs

July 2018 – July 2019

Bengaluru, India

- Worked on improving user intent understanding in ambiguous search queries. Implemented architectures to enable content AB testing to improve conversion.
- Built grpc services and apache-storm topologies. Used Solr and Elastic Search enterprise search engine.

Research Intern

Indian Space Research Organisation

Dec 2017 – May 2018

Hyderabad, India

- Improved classification from multi-resolution Panchromatic & Multi-spectral payloads using spectral and textural features. Used self organizing maps on five channels to map data into Water, Land, Cultivation, Habitat etc.

Software Engineering Intern

Google

May. 2017 – August. 2017

Bengaluru, India

- Built a Topically bundled view of Gmail and Inbox, to coexist with the existing date-wise sorted view. Experimented with different feature selections and clustering methods to determine best way to bundle mails into topically related clusters.
- Based on the clusters, recommended users to take bundle level collective action such as : Mark as Read, Move to Spam, Assign a label, filter etc.

PUBLICATIONS

Nijasure, A., **Chowdhury, T.**, Allan, J. (2025). How Relevance Emerges: Interpreting LoRA Fine-Tuning in Reranking LLMs. *WExIR workshop at SIGIR (2025)*.

Chowdhury, T., Nijasure, A., Allan, J. (2025). Probing Ranking LLMs: A Mechanistic Analysis for Information Retrieval. *Proceedings of ICTIR (2025)*.

Chowdhury, T., Zick, Y., Allan, J. (2025). RankSHAP: Shapley Value Based Feature Attributions for Learning to Rank. *Proceedings of ICLR (2025)*.

Chowdhury, Tanya, Razieh Rahimi, and James Allan. "Rank-lime: local model-agnostic feature attribution for learning to rank." Proceedings of the 2023 ACM SIGIR International Conference on Theory of Information Retrieval. *ICTIR (2023)*.

Tanya Chowdhury, Razieh Rahimi James Allan (2022, June). Equi-explanation Maps: Concise and Informative Global Summary Explanations. In 2022 ACM Conference on Fairness, Accountability, and Transparency (pp. 464-472). *FAccT (2022)*

Dey, Alvin, **Tanya Chowdhury**, Yash Kumar Atri, and Tanmoy Chakraborty. "Corpora Evaluation and System Bias Detection in Multi-document Summarization." In *Proceedings of Findings of EMNLP (2020)*.

Chowdhury, Tanya, Sachin Kumar, and Tanmoy Chakraborty. "Neural Abstractive Summarization with Structural Attention." In *Proceedings of IJCAI (2020)*.

Chowdhury, Tanya, and Tanmoy Chakraborty. "CQASUMM: Building references for community question answering summarization corpora." In *Proceedings of the ACM India Joint International Conference on Data Science and Management of Data*, pp. 18-26. 2019.

Mukherjee, Arpan, Shubhi Tiwari, **Tanya Chowdhury**, and Tanmoy Chakraborty. "Automatic Curation of Content Tables for Educational Videos." In *Proceedings of the 42nd International ACM SIGIR Conference on Research and Development in Information Retrieval*, pp. 1329-1332. 2019.

Chowdhury, Tanya, Aashay Mittal, and Tanmoy Chakraborty. "VIZ-Wiki: Generating visual summaries to factoid threads in community question answering services." In *Companion Proceedings of the The Web Conference 2018*, pp. 231-234. 2018.

ONGOING WORK

Chowdhury, T., Nijasure, A., Zick, Y., Allan, J. (2025). Hedonic Neurons: A Mechanistic Mapping of Latent Coalitions in Transformer MLPs. (In submission)

Madaan, A., **Chowdhury, T.**, Rana, N., Allan, J., Chakraborty, T. (2023). Uncertainty in Additive Feature Attribution methods. arXiv preprint arXiv:2311.17446.

TEACHING EXPERIENCE

CS220 Programming Methodology <i>Responsible for curating and conducting discussion sessions, holding office hours and grading</i>	UMass Amherst <i>Sep. 2020 – Dec. 2020</i>
CS145 Representing, Storing, and Retrieving Information <i>Responsible for holding office hours and grading</i>	UMass Amherst <i>Jan. 2020 – May 2020</i>
MTH 310 Graph Theory <i>Responsible for conducting weekly discussion sessions, hosting quizzes and grading</i>	IIIT-Delhi <i>Jan. 2018 – May. 2018</i>
CSE 121 Discrete Mathematics <i>Head TA, responsible for curating homeworks and exams, supervising grading.</i>	IIIT-Delhi <i>Aug. 2017 – Dec. 2017</i>

ACHIEVEMENTS

1. Invited talk at Microsoft Research India IR reading group.
2. Recipient of the Anuradha and Hanuma Kodavalla Graduate Scholarship in Computer Science.
3. Recipient of UMass Amherst Manning college thesis fellowship for Fall'24.
4. Selected for 2021 CRA-WP Grad Cohort Event.
5. Member of Dean's list for academic excellence at IIIT-Delhi for 3 academic years.
6. Received the TA award for Discrete Mathematics: usually conferred only to PhD students in IIIT-Delhi.
7. Recipient Invite and Travel grant, Google I/O 2017.

8. Received full scholarship from CBSE to pursue undergrad study in pure maths or science streams.
9. State Rank 2 (Gujarat) in Indian National Mathematics Olympiad (INMO) 2014 amongst 12th grade students.

CONTACT INFORMATION

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