Tanya Chowdhury

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Education

University of Massachusetts, Amherst 4.0/4.0
MS/Ph.D. in Computer Science *2020 – Present*

IIIT -Delhi 9.31/10
B.Tech in Computer Science and Engineering (with Honours) *2014 – 2018*

Research Interests

Mechanistic Interpretability, Scientific Discovery, Computational Biology, Information Retrieval

Experience

AI Research Intern June. 2022 – October. 2022
Genentech *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 Prostrate cancer discovery.

Software Engineer July 2018 – July 2019
Myntra Designs *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.

Software Engineering Intern May. 2017 – August. 2017
Google *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.

Research Intern Dec 2017 – May 2018
Indian Space Research Organisation *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.

Publications

Chowdhury, T., Zick, Y., Allan, J. (2024). RankSHAP: a Gold Standard Feature Attribution Method for the Ranking Task. To appear in *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., Allan, J. (2024). Probing Ranking LLMs: Mechanistic Interpretability in Information Retrieval. arXiv preprint arXiv:2410.18527. (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 — UMass Amherst
Responsible for curating and conducting discussion sessions, holding office hours and grading — *Sep. 2020 – Dec. 2020*

CS145 Representing, Storing, and Retrieving Information — UMass Amherst
Responsible for holding office hours and grading — *Jan. 2020 – May 2020*

MTH 310 Graph Theory — IIIT-Delhi
Responsible for conducting weekly discussion sessions, hosting quizes and grading — *Jan. 2018 – May. 2018*

CSE 121 Discrete Mathematics — IIIT-Delhi
Head TA, responsible for curating homeworks and exams, supervising grading. — *Aug. 2017 – Dec. 2017*

Achievements

1. Recipient of the Anuradha and Hanuma Kodavalla Graduate Scholarship in Computer Science.
2. Recipient of UMass Amherst Manning college thesis fellowship for Fall'24.
3. Selected for 2021 CRA-WP Grad Cohort Event.
4. Member of Dean's list for academic excellence at IIIT-Delhi for 3 academic years.
5. Received the TA award for Discrete Mathematics: usually conferred only to PhD students in IIIT-Delhi.
6. Recipient Invite and Travel grant, Google I/O 2017.
7. Received full scholarship from CBSE to pursue undergrad study in pure maths or science streams.
8. State Rank 2 (Gujarat) in Indian National Mathematics Olympiad (INMO) 2014 amongst 12th grade students.

Contact Information

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