Ashish Sharma

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Education

- **University of Washington, Seattle** — September 2019 - Present
  PhD student in Computer Science
- **Indian Institute of Technology, Kharagpur** — July 2013 - June 2018
  Dual Degree in Computer Science (Bachelor and Master of Technology) — *GPA: 9.72/10 (Dep. Rank: 2/44)*

Research Experience

- **Research Assistant, University of Washington** — UW Behavioral Data Science & UW NLP Group
  Advisor: Prof. Tim Althoff — *September 2019 - Present*
  - **Facilitating empathic conversations:** Developing natural language generation methods for converting low empathy conversations to higher empathy in text-based mental health support. [EMNLP'20] [WWW'21]
- **Research Fellow, Microsoft Research, India** — NLP Group
  Advisor: Dr. Monojit Choudhury — *July 2018 - Aug 2019*
  - **Patterns of conversational engagement:** Worked on understanding engagement in peer-to-peer support conversations. Designed a generative model for automated discovery of 11 distinct, interpretable patterns of conversational engagement like *mutual discourse*. Empirical analysis of these patterns provided novel insights on user retention rates on two popular mental health platforms. [ICWSM'20]
- **Master's Thesis, Indian Institute of Technology, Kharagpur**
  Advisor: Prof. Niloy Ganguly — *July 2017 - May 2018*
  - **Verified tweet detection:** Proposed a novel unsupervised model for disentangling content and styles of expression of tweets. Modeled tweet-reply structure using Tree-LSTMs. *3-13%* gain in verified tweet detection.
  - **Verified summary generation of tweet streams:** Generated disaster-specific tweet summaries having exceptionally high proportion of verified content (*27-111%* gain) without trading-off content richness. [CIKM'19]
- **Research Intern, University of Illinois at Urbana-Champaign** — Data & Information Systems Lab
  Advisor: Prof. Hari Sundaram — *May 2017 - July 2017*
  - **Improving latent user models in online social media:** Developed a multi-faceted topic model for statistically profiling user activity on social networking platforms, addressing two prominent challenges, *sparsity and skewness*, posed by real-world datasets. *10-15%* gain obtained in downstream recommendation tasks. [CIKM'18a]
  - **Robust neural recommendation systems:** Developed a novel adversarial training strategy for enhancing long-tail recommendations made by neural recommendation systems. *20%* gain over long-tail recall of state-of-the-art neural models without trading-off overall recommendation performance. [CIKM'18b]
- **Research Intern, Adobe Systems, India** — BigData Experience Lab
  Advisor: Dr. Sunav Choudhary — *May 2016 - July 2016*
  - Developed a system for evaluation of smartphone apps leveraging low-dimensional representation of app workflows.

Selected Publications [Google Scholar]

- *Towards Facilitating Empathic Conversations in Online Mental Health Support: A Reinforcement Learning Approach*
  Ashish Sharma, Inna Lin, Adam S. Miner, David C. Atkins, and Tim Althoff
  The Web Conference 2021 [WWW'21] [pdf]
- *A Computational Approach to Understanding Empathy Expressed in Text-Based Mental Health Support*
  Ashish Sharma, Adam S. Miner, David C. Atkins, and Tim Althoff
  The 2020 Conference on Empirical Methods in Natural Language Processing [EMNLP'20] [pdf] [project page]
- *Engagement Patterns of Peer-to-Peer Interactions on Mental Health Platforms*
  Ashish Sharma, Monojit Choudhury, Tim Althoff, and Amit Sharma
  14th International AAAI Conference on Web and Social Media [ICWSM'20] [pdf]

- *Going Beyond Content Richness: Verified Information Aware Summarization of Crisis-Related Microblogs*
  Ashish Sharma, Koustav Rudra, and Niloy Ganguly
  28th ACM International Conference on Information and Knowledge Management [CIKM'19] [pdf].

- *Insights from the Long-Tail: Learning Latent Representations of Online User Behavior in Presence of Skew & Sparsity*
  Adit Krishnan, **Ashish Sharma**, and Hari Sundaram
  27th ACM International Conference on Information and Knowledge Management [CIKM'18a] [pdf] [code].

- *An Adversarial Approach to Improve Long-Tail Performance in Neural Collaborative Filtering* [Short Paper]
  Adit Krishnan, **Ashish Sharma**, Aravind Sankar, and Hari Sundaram
  27th ACM International Conference on Information and Knowledge Management [CIKM'18b] [pdf] [code].

- *CommBox: Real-Time Cricket Shot Identification & Commentary Generation using sensors* **[Best Academic Demo]**
  Ashish Sharma, J. Arora, P. Khan, S. Satapathy, S. Agarwal, S. Sengupta, S. Mridha, and N. Ganguly
  Demo & Exhibits Session, 9th Intl. Conf. on Communication Systems & Networks [COMSNETS'17] [link] [video].

Achievements & Awards

- **Student Par-Excellence Award** by Computer Science Department, IIT Kharagpur.
- **Goralal Syngal Memorial Scholarship** for academic excellence during 2015-2016.
- **Best Academic Demo Award** for *CommBox* at COMSNETS 2017.
- **S.N. Bose Scholarship** for summer internship at UIUC in 2017. *One of the 50 scholars* from India.

Technical Skills

- **Programming Languages**: C, C++, Python
- **Machine Learning / Data Science Tools**: NumPy, Pandas, Scikit-Learn, Gensim, Matlab, Tensorflow, PyTorch
- **Database Systems**: MySQL, PostgreSQL, Hadoop, Spark, Snowflake
- **Web Technologies**: HTML, CSS, PHP, JavaScript, jQuery, Django

Relevant Coursework

- **AI-Related:** Speech & Natural Language Processing, Machine Learning, Deep Learning, Artificial Intelligence
- **Web Search & Social Media**: Information Retrieval, Social Computing, Economic & Financial Network Analysis
- **Systems:** Distributed Systems, Database Management Systems, Scalable Data Mining, Cloud Computing
- **Others:** Big & Small Data for Health, Smartphone Computing & Applications, Image Processing, Probability & Statistics, Operations Research

Teaching Experience

- Head TA, *CSE547: Machine Learning for Big Data*. UW, Spring 2020 – Prof. Tim Althoff
- TA, *CS29003: Algorithms Laboratory*. IIT KGP, Spring 2018 – Prof. Abhijit Das & Prof. Aritra Hazra
- TA, *CS31003: Compilers*. IIT KGP, Autumn 2017 – Prof. Animesh Mukherjee & Prof. Pralay Mitra