Ishika Agarwal

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Education

PhD, University of Illinois, Urbana-Champaign   **Aug 2024 - May 2027 (expected)**
- Specialization: Conversational AI
- Advisor: Dr. Dilek Hakkani-Tur

MS, University of Illinois, Urbana-Champaign   **Aug 2022 - May 2024**
Major: Computer Science   GPA: 3.88/4.00
- Relevant courses: Applied ML, Info Retrieval, Generative Models, Computer Vision, ML+Data Systems, Adv. NLP

BS, Purdue University   **July 2019 - May 2022**
Major: Computer Science (concentration in ML)   GPA: 3.88/4.00
- Relevant courses: Data Mining and ML (Python), Web Information Search and Management (Python)

Research Projects/Publications

1. [Submitting to ICLR 2025] **I. Agarwal**, Krishna Killamsetty, Lucian Popa, Marina Danilevsky: Optimal Data Selection of Instructing Tuning Data for Efficient Language Model Fine-Tuning
2. [Submitted to EMNLP 2024] P. Kargupta*, **I. Agarwal***, Dilek Hakkani-Tur, Jiawei Han: Instruct, Not Assist: LLM-based Multi-Turn Planning and Hierarchical Questioning for Socratic Code Debugging
3. [Master's Thesis, 2024] **I. Agarwal**, H. Tong: Active Graph Anomaly Detection
4. [ICLR 2024] Y.Ban, **I. Agarwal**, Z.Wu, Y.Zhu, K.Weldemariam, H.Tong, J.He: Neural Active Learning Beyond Bandits
5. [CS598 2023] **I. Agarwal**, P. Kargupta, B. Jin, A. Joshi: Generative Transformers for Diverse Text Generation
6. [AI-ML Systems 2023] **I. Agarwal**, S. Sehgal, V. Goyal, P. Sonawane: QuickAns - A Virtual Teaching Assistant
7. [SafeAI @ AAAI 2021] Z. Xiong, I. Agarwal, S. Jagannathan: HiSaRL: A Hierarchical Framework for Safe RL

Skills

- Language: Python, Java, C, C#, R, JavaScript, Scala
- ML Frameworks: PyTorch, TensorFlow, Keras, Open AI Gym, Mujoco
- Tools & Frameworks: Jupyter, Git, GNU Debugger, Java Profilers, Tomcat, Maven, Docker, Postman
- Big Data Technologies: Spark, Hadoop, Airflow

Experience

Research Scientist Intern - IBM Research   **May 2024 - Aug 2024**
Interning in the Conversational AI Model Development team. Developed new techniques to measure informativeness of data samples for active learning to efficiently fine-tune LLMs on instruction tuning data.

Research Assistant - UIUC   **August 2022 - May 2024**
RA in Professor Hanghang Tong's IDEA Lab@UIUC. Working on three projects: (1) active graph anomaly detection (GAD), (2) efficient multi-armed bandits (MABs) for classification, and (3) an intersection between active GAD and efficient MABs.

ML Engineering Intern - Apple   **May 2023 - Aug 2023**
Implemented a distributed training process for TensorFlow Ranker model used in the Apple Maps Search platform. Improved data generation and processing efficiency by 64%. Built feature engineering jobs in Spark.

Software Engineer - Cisco WebEx   **Feb 2022 - Aug 2022**
Handled customer cases by debugging meeting issues and deploying fixes. Improved meeting features and mentored incoming summer interns. Trained coworkers in different teams on how to develop an internal debugging tool.

Research Assistant - Purdue University   **May 2021 - Feb 2022**
RA in Professor Suresh Jagannathan's Lab. Worked on developing efficient and safe reinforcement learning algorithms for hierarchical agents. Submitted a workshop paper to SafeAI @ AAAI 2021.

Software Engineer Intern - Cisco WebEx   **June 2021 - Aug 2021**
Improved the internal logging and debugging tool for WebEx meetings which displays meeting records. Implemented a filtering feature on top of existing code and revised flow design to improve memory bottlenecks for large meeting records.

Software Engineer, Summer Intern - Promega Corporation   **June 2020 - Aug 2020**
Designed and developed a scheduling system for the COVID-19 testing machine. Built a generic scheduling library for cloud backend or embedded systems. Wrote libraries in C# .NET, with 100% unit-test coverage, and integrated it in the UI.