

Amifa Raj

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Education

- 2018-present **Ph.D Computer Science** | Boise State University | Boise, ID
Advisor: Michael Ekstrand | Expected completion 2023 | CGPA 3.85/4.00
- 2013-2017 **BS Computer Science & Engineering** | University of Dhaka | Dhaka, Bangladesh
CGPA 3.52/4.00

Research Experience

- 2018-present **Research Assistant** | People & Information Research Team | Boise State University
- Focusing on addressing algorithmic fairness issues within recommender systems
 - Working on projects related to multiple aspects of review-based recommender systems
 - Developing algorithms in *Python* for *LensKit* open-source recommendation toolkit
 - Supervising undergraduates in research work

Teaching Experience

- 2018 - 2019 **Teaching Assistant** | Boise State University | Boise, ID
- Tutored object oriented programming and data structure course, CS 221, for two terms
 - Engaged with students to foster learning and understanding of course material
 - Graded programming projects and clarified student confusion regarding assignments
- 2018 **Lecturer** | Department of Computer Science & Engineering | State University of Bangladesh
- Taught *Intro to Programming, Algorithms, and Networking* courses
 - Supervised lab sections for courses to support interactive learning

Publications

- 2021 Lawrence Spear, Ashlee Milton, Garrett Allen, **Amifa Raj**, Michael Green, Michael D. Ekstrand, and Maria Soledad Pera. “Baby Shark to Barracuda: Analyzing Children’s Music Listening Behavior”. Presented at *15th ACM Conference on Recommender Systems (RecSys 21)* Late-Breaking Results. DOI 10.1145/3460231.3478856
- 2021 **Amifa Raj**, Ashlee Milton, and Michael D. Ekstrand. “Pink for Princesses, Blue for Superheroes: The Need to Examine Gender Stereotypes in Kids’ Products in Search and Recommendations”. Presented at *KidRec ’21: 5th International and Interdisciplinary Perspectives on Children & Recommender and Information Retrieval Systems (KidRec) Search and Recommendation Technology through the Lens of a Teacher- Co-located with ACM IDC 2021*. arXiv:2105.09296 [cs.IR].
- 2020 **Amifa Raj**, Connor Wood, Ananda Montoly and Michael D. Ekstrand. “Comparing Fair Ranking Metrics”. Presented at *3rd FAccTRec Workshop on Responsible Recommendation at 14th ACM Conference on Recommender Systems (RecSys 20)*. arXiv:2009.01311[cs.IR].

Selected Projects

- 2020 - 2021 **Comparing Fair Ranking Metrics**
- Supervised undergraduate researchers in remote REU

- Describe and compare exposure and rank-fairness metrics in unified framework
- Identify gaps between their original presentation and recommender systems application
- Direct comparison of their outcomes with the same data and experimental setting
- Sensitivity analysis to observe the impact of design choices
- **Tech stack:** NumPy, Pandas, scikit-learn, matplotlib

2020 Exploring Gender Stereotypes Associated with Children’s Products in Information Retrieval Systems

- Explore the existence of gender stereotypes associated with kid’s products in various IR systems
- Investigate the tendency of replicating and propagating existing gender stereotypes through IR systems.
- **Tech Stack:** Numpy, Pandas, NLTK, scikit-learn, Pandas \LaTeX

2021 Kid’s Music Preference Analysis

- Analyze music preferences of kids to generate relevant recommendations for them.
- Compare the music listening behavior based on grade-level and age.
- Investigate user traits and the effect of different music aspects on listening behavior.
- **Tech stack:** Numpy, Pandas, scikit-learn, matplotlib

2020 Review-Based Personalized Recommendations

- Implement advanced language models to identify features from reviews
- Comparison among common feature extraction techniques and modern language models in recommendations
- **Tech stack:** Gensim, Word2Vec, Glove, Doc2Vec, BERT, Pandas, NLTK, scikit-learn

Graduate Coursework

- Intro to Data Science
- Machine Learning
- Recommender Systems
- Intro to Information Retrieval
- Large-Scale Data Analysis
- Advanced Information Retrieval
- Equity & Discrimination in Computing
- Design & Analysis of Algorithm

Conferences Attended

- Nov. 2020 Text REtrieval Conference 2021 (TREC 2021)
- Sep. 2021 ACM Conference on Recommender Systems (RecSys 21)
- June. 2021 ACM Interaction Design and Children (IDC) conference 2021
- Mar. 2021 ACM Conference on Fairness, Accountability, and Transparency (ACM FAccT 2021)
- Nov. 2020 Text REtrieval Conference 2020 (TREC 2020)
- Sep. 2020 ACM Conference on Recommender Systems (RecSys 20)
- Sep. 2019 ACM Conference on Recommender Systems (RecSys 19)

Academic Service

- 2022 **Student Volunteer Co-Chair**, ACM RecSys 2022
- 2022 **Co-organizer**, TREC 2022 Fair Ranking Track
- 2021 **Student Volunteer**, ACM RecSys 2021
- 2021 **Student Volunteer**, ACM FAccT 2021
- 2020 **Co-organizer**, TREC 2021 Fair Ranking Track
- 2020 **Student Volunteer**, ACM RecSys 2020
- 2019 **Student Volunteer**, ACM RecSys 2019