Anjali Gupta

Google PhD Fellow
Computer Science and Engineering
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Areas of Interest

Data Mining, Fairness, Bias in Algorithms, Machine Learning, Graph Neural Network, AI for social good, and Computational social choice

Education

Indian Institute of Technology, Delhi 2020 - Cont.
PhD in Computer Science and Engineering
Area : Algorithmic Fairness in Allocation Problems
CGPA - 9.6/10
Advisor: Prof. Sayan Ranu, Prof. Amitabha Bagchi

Delhi Technological University (Formerly Delhi College of Engineering), Delhi 2012 - 2014
M.Tech in Computer Science
CGPA - 8.7/10
Advisor: Prof. Daya Gupta, Dr. A.K. Bhateja (Director, DRDO)

Ajay Kumar Garg Engineering College, Ghaziabad 2008 - 2012
Affiliated to UP Technical University, Lucknow
B.Tech in Computer Science & Engineering
Percentage - 75.30%

Publications

"FairFoody: Bringing in Fairness in Food Delivery", Anjali Gupta, Rahul Yadav, Ashish Nair, Abhijnan Chakraborty, Sayan Ranu, and Amitabha Bagchi, AAAI, 2022 (AR=4%, Oral Presentation).
"Gigs with Guarantees: Achieving Fair Wage for Food Delivery Workers", Ashish Nair, Rahul Yadav, Anjali Gupta, Abhijnan Chakraborty, Sayan Ranu, and Amitabha Bagchi, IJCAI, 2022.
"Empirical Validation of Website Quality Using Statistical and Machine Learning Methods", Poonam Dhiman, and Anjali, IEEE 5th International Conference on Confluence The Next Generation Information Technology, 2014.

Experience

Data Scientist at Affle/RevX, Bangalore, (Jan 2016-Sep 2019).
Developed various business projects using Big Data and Machine learning techniques.
Performed multiple analysis on big data using R, shell scripting, xl, pig, hive etc.
Worked on the development of a model to predict app installs.
Participated in design discussions, training and code reviews.

Software Engineer at Arvind Ltd, Bangalore, (Sep 2015-Jan 2016)
Developed a tool for bulk conversion of product images in various sizes and to upload them with associated product in Hybris and AWS Glacier/S3.

Software Engineer at Nagarro, Gurgaon, (Jun 2014-Aug 2015)
Involved in design and development of e-commerce application for a well known electronic retailer using Hybris and J2EE.
Developed Ticketing System (Customer care service module) from scratch for e-commerce application.

Software Engineering Intern at C-DOT, Delhi, (Jun 2011-Jul 2011)

Projects

Fair Allocation of products among Re-sellers in Social Commerce *Project at IIT Delhi in collaboration with Flipkart/Shopsy*
We aim to provide a fair recommendation scheme to assign products provided by sellers to re-sellers so that each seller and each re-seller are treated fairly in terms of opportunity and also try to optimize the revenue for both parties and hence for the e-commerce platform.

Efficient and fair distribution of food orders among restaurants and delivery agents *Project at IIT Delhi in collaboration with Dominos*
I am studying a different model of food delivery business, where an order may be serviced by any restaurant in the city. This work is funded by Dominos pizza, which adopts this model. To elaborate, Dominos has multiple restaurants in a city and an order may be serviced by any of these restaurants. How should orders be allocated to a restaurant? This is a complicated decision since the time to service an order depends on the current restaurant load, its infrastructure, proximity to delivery agents etc. Hence, we need to anticipate order volume and distribute these factors as uniformly as possible so that the aggregate delivery time is minimized.

Developed an algorithm to provide income/opportunity guarantees to delivery agents *Project at IIT Delhi*

- Developed an algorithm called Work4Food to provides income guarantees to delivery agents, while minimizing platform costs and ensuring customer satisfaction.
- Work4Food ensures that the income guarantees are met in such a way that it does not lead to increased working hours or degrade environmental impact.
- Work4Food balances supply and demand by controlling the number of agents in the system and providing dynamic payment guarantees to agents based on factors such as agent location, ratings, etc.

Developed an algorithm to fairly distribute income/opportunity among delivery agents *Project at IIT Delhi*

- Performed analysis on data derived from a real-world food delivery platform across three large cities from India (along with their large graph of Road Network).
- Showed that there is significant inequality in the money delivery agents earn.
- Developed novel matching algorithm called FairFoody for fair income distribution among agents while also ensuring timely food delivery.

Programming Skills/Tools

Pig, Hive, Scala, Spark, R, C/C++, Java, Matlab, Python, Integer Linear Programing(ILP)

Key-Courses

Data Mining, Machine Learning, Graph Neural Network, Artificial Intelligence, Advanced Distributed Systems, Approximation Algorithms, Cryptography

Miscellaneous

Received **Received Google PhD Fellowship 2022**.
Received **Chandruka doctoral fellowship**.
Received **Best Teaching Assistance Awards**(2 times) for **Data Mining**, and **Introduction to Computer Science** Courses at IIT Delhi.
Teaching assistant (Data Mining, Database systems, Introduction to Computer Science) at IIT Delhi, 2020 - Cont.
Sub/External Reviewer: VLDB, KDD, TKDE, NeurIPS and ICDM.
Qualified **UGC NET** June-2013.

References

Prof. Sayan Ranu, Associate Professor, IIT Delhi sayanranu@iitd.ac.in
Prof. Rohit Vaish, Assistant Professor, IIT Delhi rvaish@iitd.ac.in
Prof. Abhijnan Chakraborty, Assistant Professor, IIT Delhi abhijnan@iitd.ac.in
Prof. Amitabha Bagchi, Professor, IIT Delhi bagchi@cse.iitd.ac.in