Sourav Chakraborty (Website) Phone: +1(720)-980-5863

Education

2019–Now **Master of Science**, University of Colorado at Boulder Colorado, USA.
Department of Computer Science, GPA 3.96/4.0
- *Thesis Advisor*: Dr Lijun Chen
- *Interests*: Decision making under uncertainty, Bandit problems, Learning Theory.
- *Coursework*: Deep Learning, Convex Optimization, Algorithmic Game Theory, Algorithms, Natural Language Processing, Theory of Machine Learning etc.

2012–2016 **Bachelor of Engineering**, Birla Institute of Technology, Mesra Ranchi, India.
Information Technology, Department of Computer Science

Research

2020-Now **Chen Research Group**, University of Colorado Boulder, CO.
Working with Prof. Lijun Chen on developing algorithms and performing theoretical analysis on non-stationary multi-armed bandits' environment where we incentivize the users for better exploration.

Industry

2016–2019 **Software Engineer**, Flipkart, Bangalore Karnataka, India.
- Related Searches and Shopping Ideas - The main purpose of this product is to recommend users to different search queries, in accordance with the typed query. Designed and implemented the entire pipeline in Java Cascading framework. This helped in boosting the query coverage by 3x.
- Predicted Search Ranking Signals - Contributed to the implementation of a machine learnt model to predict the signals which would increase the coverage of the entire query space. This overall increased 4% of sales.
- Pluggable DataStore Backup Service - Created an interface for the backup service where various datastores can plug there implementations of drivers for backing them up in Flipkart Cloud. Also, implemented the corresponding drivers for MySQL datastore
- Backup Recovery as a Service (BRaaS) - Contributed to the *new service* written for the backup of various forms of data into the in-house Flipkart Cloud. All services/apps were shifted to this service for backup.

Selected Relevant Projects

Fall 2020 **Bandits/Reinforcement Learning**, *Incentivized Exploration for Multi-Armed Bandits under Reward Drift.*, code.
- Just playing around with the paper by Liu & Wang et al on Incentivized Exploration for Multi-Armed Bandits under Reward Drift where the players receive compensation for exploring arms other than the greedy choice and may provide biased feedback on reward drift.

Summer 2020 **NLP/Deep Learning**, *Contexual vectorized representation of words: Soam word embeddings*, report, code.
- A word embedding model implementation based on the popular skipgram architecture. It involves alterations of the scoring algorithm to give more weightage to the context words that are closer to the target word in a skipgram sliding window.

Spring 2020 **Game Theory/Reinforcement Learning**, *Solving Games using the combination of Q-learning and Regret Matching Methods*, report, code.
- Counterfactual regret minimization (CFR) has been used in games which have both terminal states and perfect recall to minimize regret.
- This project aims to relax those constraints and use a local no-regret algorithm (LONR) by Kash et al, which internally uses a Q-learning like update rule to games which do not have terminal states or perfect recall.

Spring 2020 **Image Reconstruction**, *Occupancy Network based 3D Image Reconstruction using Single-Depth View*, report, code.

- The complete 3D geometry of an object from a single 2.5D depth view was acquired by using deep learning techniques such as generative adversarial networks and 3D convolution neural networks.
- The resolution of the final 3D voxelized output was improved by transforming the voxel representation into another representation called occupancy networks.

Teaching

Fall 2021 **Graduate Instructor**, University of Colorado, CSCI 1200 Boulder, CO.

- *Subject*: CSCI 1200 - Introduction to Computational Thinking.
- *Responsibilities*: Taking lectures, developing homework assignments, projects and content materials along with conducting weekly office hours. Managing a staff team of 10 TAs, LAs and graders.

Summer 2021 **Graduate Teaching Assistant**, University of Colorado, CSCI 1300 Boulder, CO.
Spring 2021
Fall 2020

- *Subject*: CSCI 1300 - Starting Computing
- *Responsibilities*: Taking lectures, developing homework assignments, projects and content materials. Doing interview grading along with conducting weekly office hours.

Summer 2020 **Graduate Instructor**, University of Colorado, CSCI 3022 Boulder, CO.

- *Subject*: CSCI 3022 - Introduction to Data Science with Probability and Statistics.
- *Responsibilities*: Taking lectures, developing homework assignments, projects and content materials along with conducting weekly office hours.

Skills

Languages C, Cpp, Java, Python

Frameworks Django, Flask, Cascading(Java)