Sourav Chakraborty (web)

Address: 1300 30th St. Boulder, CO.

Email: sourav.chakraborty@colorado.edu
Phone: +17209805863

Education

Doctor of Philosophy, *Computer Science*, University of Colorado Boulder, *USA*. **2022–Present**
- Research in the field of theoretical reinforcement learning. Advised by Prof Lijun Chen.

Master of Science, *Computer Science*, University of Colorado Boulder, *USA*. **2019–2022**
- Advisor: Prof Lijun Chen; GPA 4.0/4.0
- Thesis: Incentivized exploration in stochastic bandits. (document / slides)
- Coursework: Algorithms, Game Theory, NLP, Machine Learning, Reinforcement Learning, Probabilistic Models, Object Oriented Design.

Skills

Programming Languages: C, C++, Java, Python, Julia.   **Frameworks**: Django, Flask, Cascading(Java), PySpark, pytest

Work Experience

Software Engineer, *Flipkart*, Bangalore, India. **2016–2019**
- Related Searches and Shopping Ideas - Designed and implemented a product to recommend users to different search queries by the typed query, which boosted the query coverage by 3x.
- Predicted Search Ranking Signals - Implemented a machine learning model to predict the signals, increasing the coverage of the entire query space resulting in 4% sale increase.
- Pluggable DataStore Backup Service - Developed an interface for the backup service where various data stores can plug their implementations of drivers for backing them up in Flipkart Cloud and the corresponding drivers for the 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.

Selected Relevant Projects

Inverse Reinforcement Learning via Maximum Entropy Formulation, *Reinforcement Learning*, report, code. **Spring 2022**
- Implemened a web-based interface for the end-users to enter and generate expert trajectories which can be fed to the Inverse Reinforcement Learning algorithm (Max Entropy) to learn the reward function of an test environment.

Contextual vectorized representation of words, *NLP*, report, code. **Summer 2020**
- Implemented a word embedding model based on the skip-gram architecture by altering the scoring algorithm to give more weightage to the context words closer to the target word in a skip-gram sliding window.

Solving Games using Q-learning and Regret Matching Methods, *Reinforcement Learning*, report, code. **Spring 2020**
- Implemented a local no-regret algorithm (LONR) Kash et al., to relax which internally uses a Q-learning-like update rule to games which do not have terminal states or perfect recall.

Research

Graduate Student Researcher, *Chen Research Group*, University of Colorado Boulder. **2020-Present**
- Working with Prof Lijun Chen on developing algorithms with provable theoretical guarantees on sequential decision making under uncertainty. Currently exploring the area of reinforcement learning.
- **Manuscript Under Review**: Incentivized Exploration in Non-Stationary Stochastic Bandits, *Uncertainty In Artificial Intelligence 2022*

Awards & Honors

September 2022: Recipient of the Early Career Development Fellowship from the department of computer science.

May 2022: Recipient of the Lloyd Botway Award for Outstanding Master's Student for outstanding academics, teaching, research and service to the department of computer science.

April 2022: Recipient of the CU Research Expo Annual Award for the "work in progress" segment for the annual year 2021-2022.

May 2022: Selected for the departmental Lead Teaching Assistant for the annual year 2022-23.

Teaching

Instructor, University of Colorado. **Boulder, CO**
- Fall 2021: CSCI 1200 - Introduction to Computing with Python
- Summer 2020: 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 and managing a team of instructional staff of size 10, including TAs, Lecture Assistants and graders.

Graduate Teaching Assistant, University of Colorado. **Boulder, CO**
- Spring 2022, Fall 2022: CSCI 2270 - Data Structures
- Fall 2020, Spring 2021, Summer 2021: CSCI 1300 - Starting Computing