Sourav Chakraborty Email Website LinkedIn Scholar +1-720-980-5863

Research Interests

Multi-Agent Reinforcement Learning (MARL), Bandit Algorithms and Online Learning. My work focuses on developing scalable decision-making frameworks that leverage locality and structural constraints in large-scale networked systems.

Education

University of Colorado Boulder, Colorado, USA
Ph.D. Computer Science, May 2026 (Expected).
M.Sc. Computer Science, May 2022; GPA: 4.0.
Thesis: *Incentivized Exploration in Non-stationary Stochastic Bandits* (thesis)
Advisor: Lijun Chen

Birla Institute of Technology, Mesra, Ranchi, India
B.E. Information Technology, June 2016.

Work Experience

University of Colorado Boulder, Colorado, USA
Graduate Student Researcher & Instructor. 2019–Present

- Conducted **independent research** in the fields of Multi-Agent Reinforcement Learning and online learning, bridging rigorous **theoretical analysis** with **implementation**.
- **E**mployed as **Instructor of Record** (2 semesters), **Graduate TA** (10+ semesters), and Departmental **Lead TA** (3 consecutive years), overseeing instructional operations and mentoring a cohort of 280+ staff members.

Flipkart, Bangalore, India
Software Engineer 2016–2019

- Engineered an end-to-end query suggestion pipeline serving **50M+ daily sessions**, boosting query coverage by **3x** and product discovery **CTR by ∼15%** using Java and Cascading.
- Developed **5+ ranking signals** (recency, semantic similarity, etc.) improving top-5 retrieval precision by **∼12%** for a 10M-query benchmark.
- Architected the **BRaaS**(Backup-as-a-Service) platform adopted by **20+ microservices**, reducing manual recovery time by **40%** and eliminating single-point-of-failure risks.
- Collaborated across infrastructure and product-search teams on engineering efforts spanning discovery quality and system reliability at scale.

Research and Publications

Working Papers Under Review *(*Denotes equal contribution)*

1. **S. Chakraborty***, A. K. Rege*, C. Monteleoni, L. Chen, Provably Efficient Networked MARL with Correlated Policies, 2026.
2. **S. Chakraborty***, A. K. Rege*, C. Monteleoni, L. Chen, Decentralized Learning in Continuous Multi-Agent Bandits, 2026.
3. **S. Chakraborty***, A. K. Rege*, C. Monteleoni, L. Chen, Learning from Local Walks on Dynamic Graphs with Bandit Feedback, 2026.

Peer-Reviewed Conference Publications *(*Denotes equal contribution)*

1. **S. Chakraborty***, A. K. Rege*, C. Monteleoni, L. Chen, Multi-Agent Lipschitz Bandits, *International Conference on Artificial Intelligence and Statistics* (**AISTATS 2026**), Tangier, Morocco. (arXiv: 2602.16965)
2. **S. Chakraborty***, A. K. Rege*, C. Monteleoni, L. Chen, Flickering Multi-Armed Bandits, *Learning for Dynamics & Control Conference* (**L4DC 2026**), Los Angeles, USA. (**Oral Presentation; Top 10%**). (arXiv: 2602.17315)

3. **S. Chakraborty***, A. K. Rege*, C. Monteleoni, L. Chen, A Unified Framework for Locality in Scalable MARL, *Learning for Dynamics & Control Conference* (**L4DC 2026**), Los Angeles, USA. (arXiv: 2602.16966)
4. **S. Chakraborty***, A. K. Rege*, C. Monteleoni, L. Chen, Bandit Learning on Dynamic Graphs, ***ARLET Workshop*** *at Neural Information Processing Systems* (**NeurIPS 2025**), San Diego, USA.
5. **S. Chakraborty***, A. K. Rege*, C. Monteleoni, L. Chen, Incentivized Lipschitz Bandits, *IEEE Conference on Decision and Control* (**CDC 2025**), Rio de Janeiro, Brazil. (arXiv: 2508.19466)
6. **S. Chakraborty** and L. Chen, Incentivized Exploration in Non-stationary Stochastic Bandits, *IEEE American Control Conference* (**ACC 2024**), Toronto, Canada. (arXiv: 2403.10819)

Honors and Awards

- Recipient, **Graduate Research Assistant Fellowship** (2026).
- Recipient, **Outstanding Teaching Assistant Award** (CS Department).
- Recipient, **Outstanding Service Award** (CS Department).
- Recipient, **Outstanding Research Paper Award** (CS Department).
- Recipient, **Full Conference Travel Fellowship** (IEEE ACC 2024 at Toronto, Canada and IEEE CDC 2025 at Rio de Janeiro, Brazil).
- Recipient, CU Research Expo **Poster Award** (AY 2021–22 and AY 2023–24).
- Recipient, **Publication Recognition Award** (AY 2023–24).
- Recipient, **Early Career Development Fellowship** (CS Department).
- Recipient, **Lloyd Botway Award for Outstanding Master's Student**.
- Selected as **Lead Teaching Assistant** (department lead; 2022–2025).

Teaching

University of Colorado Boulder, Colorado, USA

- **Instructor of Record** 2020 – 2021
  - Introduction to Computational Thinking (∼**200** students) and Introduction to Data Science (∼**50** students).
  - Managed end-to-end course delivery, including lecture planning, assessments, and coordination of instructional staff.
- **CS Department Lead Teaching Assistant** 2022 – 2025
  - Selected via performance review to lead department-wide instructional quality.
  - Managed TA hiring, onboarding, and training of **280+** instructional staff.
- **Graduate Teaching Assistant** 2020 – 2025
  - Facilitated recitations, office hours, and grading for courses like Algorithms, Data Structures, and Introduction to Computing across **10+ semesters**.

Professional Service

Peer Reviewer: ICML, NeurIPS, IEEE CDC, and ACC.

Technical Skills

Languages: Python, C++, Java, Shell, R, Julia, JavaScript, MySQL
Machine Learning: PyTorch, Pandas, NumPy, Matplotlib, Seaborn.
Systems & Tools: Docker, Kubernetes, PySpark, Cascading, Flask, Django.

Relevant Coursework

High-Dimensional Probability, Convex Optimization, Theory of Machine Learning, Deep Learning, Advanced Algorithms, Quantum Computation, Natural Language Processing, Decision-Making Under Uncertainty, Algorithmic Game Theory.