Mriganka Basu Roy Chowdhury

Email: mriganka_brc@berkeley.edu
Website: https://mriganka.xyz/
Github: github.com/mbrc12
Mobile: +1−(510)-717-7396

Education

University of California at Berkeley — Berkeley, California
Ph.D. in Statistics — Fall 2021 –

- 3rd year PhD candidate working on probability and theoretical statistics, **Current GPA:** 4.0

Indian Institute of Technology, Guwahati — Guwahati, Assam, India
B.Tech. in Mathematics and Computing, **GPA:** 9.96/10 — 2017–2021

Research interests

- Random graphs and their spectra
- Gibbs measures and random interface models
- Spin systems
- Nonparametric and variational inference.

Publications

Regular subgraph counts in sparse Erdős–Rényi graphs — Berkeley, CA
https://arxiv.org/abs/2304.01162 — 2022-23

- Tail behavior of triangle counts in sparse ($p_n = c/n$) Erdős–Rényi graphs have been the focus of a lot of recent activity.
- My paper extends these achievements to the case of arbitrary regular graphs (for the appropriate choice of p_n), using several novel techniques which completely bypass the need for special properties satisfied by the triangle.

Characterizing Gibbs states for area-tilted Brownian lines — Berkeley, CA
https://arxiv.org/abs/2310.06817, joint work with: **Shirshendu Ganguly, Pietro Caputo** — 2023

- Area-tilted ensembles have been the focus of a wealth of recent research since they are expected to be the scaling limit of entropically repulsed Ising level curves. These ensembles are specified by their local behavior, called a *Gibbs property*.
- Our work produces a complete characterization of all possible Gibbs states with the area-tilted Gibbs property, uncovering a parametric infinite family of area-tilted ensembles.

Professional Work

Sprinklr — Work from Home
Product Engineering Intern — Summer 2020

- Developed algorithms for auto-completion and phrase prediction, using ideas from linguistics. My implementation has been deployed by the company for real-time usage. **Github:** https://github.com/mbrc12/auto-suggest/

Google Summer of Code *with* Typelead — Remote
Intern — Summer 2018

- Developed and implemented algorithms in Haskell to analyze real-world code and predict functional purity / nullability properties using smart heuristics and control-flow analysis. **Github:** https://github.com/mbrc12/etanol/

Academic Achievements

- Received the **President of India Gold Medal**, which is awarded to the student with the highest cumulative grade point (CGPA) amongst all students graduating that year from all departments with the degree of Bachelor of Technology or Bachelor of Design.
- Selected to represent IIT Guwahati at the **44th ICPC World Finals** held in Moscow, Russia (ICPC 2019-2020), team **I_See_AC**. **Rank 6** in online round, **3** in Kanpur regionals, **5** in Amritapuri regionals in India.
- Cleared the **Indian National Mathematical Olympiad** (invited for the IMO Training Camp, ~ 35 students are selected each year across classes 8-12) in **2015**.
- Ranked **64**th in **Asia-Pacific Informatics Olympiad** in **2015 (Bronze Medal)**.
- Cleared the **Indian National Olympiad in Informatics** (invited for the IOI Training Camp, ~ 35 students are selected each year across classes 8-12) in **2014, 2015, 2016**.
- Ranked **345** (out of ~ 1.3 million) in **JEE Mains, 2017** (All India Engineering Entrance Examination), and **1012** (out of ~ 0.22 million) in **JEE Advanced, 2017** (next stage after JEE Mains, all India entrance examination for the IITs).

Other Achievements

- Ranked **287** in **Round 2** of **Google CodeJam (2019)**, an annual global algorithmic competition organized by Google. Ranked **423** in **Round 3** in **2018**.
- Ranked **15** and **1** (globally) in **Microsoft Q# Contest** (finals and warmup, respectively), a **Quantum Computing** competition. See https://codeforces.com/contest/1002/standings and https://codeforces.com/contest/1001/standings. Username: **mbrc**
- Ranked **8**th in **Codechef Snackdown 2015** (an annual algorithmic competition organized by Codechef), among both highschool and college participants, and selected to appear for the **Snackdown World Finals**.

Coursework

- **Probability**: STAT 205B (Graduate probability), STAT 206 (Topics in probability: Statics and dynamics of random interface models), MATH 279 (Topics in PDEs: Stochastic PDEs and Regularity structures), CS 271 (Randomness and computation)
- **Statistics**: STAT 210A and STAT 210B (Graduate sequence in theoretical statistics), STAT 241B (Topics in statistical learning).
- **Mathematics**: STAT 222A (Graduate PDEs).