Sharaj Kunjar **(they/them/theirs)**

Personal Information

PhD Student
232H, Network Science Institute
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Google Scholar
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Affiliations

Network Science Institute (NetSI), Experiential AI Institute (EAI), Communication Media and Marginalization lab (CoMM)

Education

PhD in Network Science (Social Science track) — September 2023 - present
Northeastern University — (GPA: **4.0/4.0**)
Advisors: Dr. SV Scarpino and Prof. BF Welles

Bachelor of Science (Research) with major in Physics — August 2018 - April 2022
In first class with distinction — (CGPA within major: **9.1/10**)
Indian Institute of Science, Bangalore — (CGPA overall: **8.6/10**)

Professional Experience

Graduate Research Assistant — September 2023 - present
Network Science Institute, Boston
Dissertation project
Combining qualitative and computational text analysis methods to study online political discourse surrounding epidemics

Technical Assistant — July 2022 - July 2023
Max Planck Institute of Animal Behavior, Konstanz
Independent study associated with the CCAS project
Data processing, statistical modelling and social network analysis of collective movement and communication in foraging meerkats using acoustic and GPS datasets

Project assistant — July 2021 - April 2022
Collective Behavior Cluster (CASCB), Konstanz
Assisting the project "How to reach consensus?"
Mean-field modelling and simulations to study how communication strategies affect collective decision-making in online social networks

Research intern — January - April 2022
Cancer Systems Biology lab, IISc Bangalore
Thesis project on stochastic modeling of opinion dynamics

Publications

Kunjar, S.*, Strandburg-Peshkin, A., Giese, H., Minasandra, P., Sarkar, S., Jolly, M. K., & Gradwohl, N. (2023). Link updating strategies influence consensus decisions as a function of the direction of communication. Royal Society Open Science, 10(6), 230215 (DOI: https://doi.org/10.1098/rsos.230215).

Fellowships

Recipient of the Kishore Vaigyanik Protsahan Yojana (KVPY) fellowship, Department of Science and Technology, Government of India (2018-22).

Skills

- Programming: R, Python, MATLAB, C, LaTeX, Git
- Network analysis software: Gephi, igraph, networkx, statnet

- Text mining and analysis: Web-scraping, sentiment analysis, thematic analysis, content analysis, language models
- Mathematical modelling: ERGMs, Bayesian and frequentest statistics, markov chain models, evolutionary game theory, logistic regressions, basic information theory.

Conference presentations

IC2S2 2024
Contributed a talk to the Politics and Media panel at the International Conference on Computational Social Science, Philadelphia, U.S.A. (July 18-20 2024)

CompleNet 2023
Contributed a talk at the International Conference on Complex Networks, Aveiro, Portugal (April 25-28 2023).

Projects in Progress

Communicating about Mpox
First author on a study investigating the politicized nature of the national news media coverage of the Mpox epidemic in the United States in 2022-23.

Contagion models of information spreading
Co-author on a study reviewing and critiquing existing contagion models of information spreading on online social networks.

Role specialization in meerkat decision-making
Co-author on a study examining how social structures influence movement decision-making in foraging meerkats by disentangling acoustic interactions.

Courses

Applied mathematics, physics and engineering
Network Science I and II, Graph Machine Learning, Probability and Statistics, Real analysis I and II, Information theory, Dynamical systems theory, Statistical physics I and II, Algorithms and programming, Neural signal Processing, Bayesian inference

Social Sciences
Social Networks, Communication and Inclusion, Philosophy of Science

Biology and Behavioral Sciences
Stochastic and spatial dynamics in biology, Animal behaviour, Quantitative ecology: Research design and inference, Theoretical and mathematical ecology, Dynamical systems biology.

Extra Curriculars

Outreach Manager
Coordinated outreach programs to high schools, managed social media handles and wrote content for IISc's iGEM (international genetically engineered machines) team of 2019, SynShine. Our team won a gold medal for automating optics-regulated optimal growth of bacterial co-cultures.

Artist Manager
Led a team to collaborate with Airbus, PayTM and BookMyShow to organize concerts and comedy shows at Pravega 2019.

Vocalist and Guitarist
Alumni of IISc's Music club - Rhythmica