Upasana Dutta

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Research Interests

Network science (methods and applications), social network analysis, computational social science and social computing, data science, statistical methods, complex systems

Education

2022-present	**PhD in Computer and Information Science, University of Pennsylvania**	GPA: 3.81/4.0

Research area: Computational Social Science and Network Analysis

2019-2022	**Master of Science in Computer Science, University of Colorado Boulder**	GPA: 4.0/4.0

Key Courses: Network Analysis and Modeling, Statistical Methods and Applications I and II, Data Science Team, Probability for CS, Integer and Linear Programming, Interdisciplinary Research

2015-2019	**B.Tech in Computer Science and Engg., Heritage Institute of Technology, India**	GPA: 9.36/10

Key Courses: Algorithms, Data Structures, Social Network Analysis, Advanced Probability and Statistics, Operations Research and Optimization, Discrete Mathematics, Number Theory and Algebraic Structures, Databases

Publications and Research

2020 - present   **Upasana Dutta**, Bailey K. Fosdick, Aaron Clauset, "Sampling random graphs with specified degree sequences" [Preprint] [Code]

Designed a method that detects convergence in a double-edge swap Markov chain sampler and generates uniform random graphs from the degree-preserving configuration model.

2020 - present   **Upasana Dutta**, Laurent Hébert-Dufresne, Eleanor A. Power, Daniel B. Larremore, "Ordered Community Detection in Directed Networks" [In preparation] [Code]

Developed an algorithm that identifies ordered communities in directed networks, based on the density of edges between communities.

2019 - 2020   **Upasana Dutta***, Rhett Hanscom*, Jason Zhang, Richard Han, Tamara Lehman, Qin Lv, Shivakant Mishra, "Analyzing Twitter Users' Behaviour Before and After Contact by Russia's Internet Research Agency" [Paper] [Code] [CPR News] [CU Boulder Today]

In Proceedings of the ACM on Human-Computer Interaction, CSCW. PACM-HCI 2021

Analysed changes in user behaviour on Twitter after they engaged with bots employed by the Russian-backed Internet Research Agency (IRA) during the US 2016 presidential election.
(*equal contribution)

Talks

Nov' 2021   **The Mitchell Centre for Social Network Analysis, University of Manchester** "Sampling random graphs with specified degree sequences" [Slides] [Talk]

July 2021   **A Joint Sunbelt and NetSci Conference (Networks 2021)** "Convergence criteria for sampling random graphs with specified degree sequences" [Abstract] [Slides] [Talk]

May 2021   **International Conference on Complex Networks (CompleNet 2021)** "Convergence criteria for sampling random graphs with specified degree sequences" [Abstract] [Slides] [Talk]

Mar' 2021   **CU STEMinar Series Spring 2021, University of Colorado Boulder** "Analyzing Twitter Users' Behaviour Before and After Contact by Russia's Internet Research Agency" [Slides]

Dec' 2020   **Democracy and Technology Workshop Series, University of Colorado Boulder** "Analyzing Twitter Users' Behaviour Before and After Contact by Russia's Internet Research Agency" [Slides] [Talk]

Professional Activities

Spring 2022   **Google CS Research Mentorship Program 2022**

July 2021   **Complexity Interactive 2021** Santa Fe Institute [Slides] [Presentation]

Jan' 2021   **Complex Networks Winter Workshop 2021** University of Vermont and Université Laval [Slides]

May 2020 **Network Epidemiology Workshop Series 2020** University of Maryland and University of Vermont [Slides] [Presentation]

Awards

Apr' 2022 **Abel Lukens Stout Fellowship**, Department of Computer and Information Science, UPenn
Apr' 2022 **Bell Foundation Outstanding Research Award**, Department of Computer Science, CU Boulder
Mar' 2022 **CS Annual Research Expo Award**, Department of Computer Science, CU Boulder [Poster]
Dec' 2021 **Collegiate Award 2022 Finalist**, National Center for Women and Information Technology [Video]
Mar' 2021 **CS Annual Research Expo Award**, Department of Computer Science, CU Boulder [Poster]
Feb' 2021 **CS Publication Recognition Award**, Department of Computer Science, CU Boulder [Publication]
June 2020 **NetSci 2020 Conference Registration Waiver**
Jan' 2019 **Student Travel Grant**, The ACM India Joint International CoDS-COMAD 2019

Technical Projects

Spring 2021 **Underrepresentation of rural undergraduate students in CU Boulder** [Slides] [Report] [Presentation]
Worked with CU Boulder Office of Data Analytics and CU Rural Network to analyse how undergraduate students from rural communities and small towns are underrepresented in CU Boulder.

Spring 2020 **Comparison of Dynamic and Linear Programming using Weighted Job Scheduling Problem** [Slides] [Presentation]
Compared Dynamic Programming and Linear Programming in solving the Weighted Job scheduling problem with increasing jobs and increasing difficulty of the problem.

Fall 2019 **Study of user activity on Question-Answering Platform : Stack Exchange** [Slides] [Report]
Leveraged question-answer activities of users on Stack Exchange platform to study the latent community structure between various Q&A websites using Stochastic Block Modeling.

Fall 2019 **Movie Recommendation System : Kaggle Dataset** [Report]
Utilised user demographics and film-viewing preferences to build a model that recommends new movies to users.

Work Experience

Fall 2021 Graduate Student Staff for CSCI 5352 - Network Analysis and Modeling, CU Boulder
Spring 2020 Graduate Student Staff for CSCI 3352 - Biological Networks, CU Boulder
Fall 2019 Graduate Student Staff for CSCI 2824 - Discrete Structures, CU Boulder
Aug' 2018 Internship at IBM India Private Limited, Kolkata, India
Spring 2018 Instructor for Python, Python Hobby Group, ACM Student Chapter, Heritage Inst. of Tech., India
2017 - 2018 Vice Chair, ACM Student Chapter, Heritage Inst. of Tech., India

Extracurricular Activities

2020-present Chair, International Workers Committee, United Campus Workers Colorado [Press]
Fall 2021 International Student Advisory Board Member, College of Engg. & Applied Science, CU Boulder
Spring 2021 Graduate Student Advisory Board Member, College of Engg. & Applied Science, CU Boulder
Spring 2021 Center of Student Involvement Board Member, Division of Student Affairs, CU Boulder
Spring 2020 On-campus Housing Liaison, Graduate and Professional Student Government, CU Boulder
2004 - 2013 Completed nine years of training in Indian Classical Music and Tagore Songs, India