

# Deepanshu Malhotra

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## EDUCATION

**University of Illinois Urbana-Champaign**

*Ph.D. in Information Sciences*

2022 - present

**University School of Information, Communication and Technology**

**Guru Gobind Singh Indraprastha University**

*B.Tech, Computer Science and Engineering*

**Honor: Gold Medal (B.Tech CSE Rank 1)**

New Delhi, India

August 2015 - May 2019

GPA: 8.5/10

## PUBLICATIONS

- **Deepanshu Malhotra**, Raluca Gera, and Akshati Saxena. *Community Detection using Semilocal Topological Features and Label Propagation Algorithm*, International Conference on Computational Data and Social Networks (CSoNet), 2021. DOI: [https://doi.org/10.1007/978-3-030-91434-9\\_23](https://doi.org/10.1007/978-3-030-91434-9_23).
- **Deepanshu Malhotra** and Anuradha Chug. *A modified label propagation algorithm for community detection in attributed networks*, IJIM Data Insights, Elsevier. DOI: <https://doi.org/10.1016/j.jjime.2021.100030>.
- **Deepanshu Malhotra** and Rinkaj Goyal. *Supervised-Learning Link Prediction in Single layer and Multiplex networks*, Machine Learning with Applications, Elsevier. DOI: <https://doi.org/10.1016/j.mlwa.2021.100086>.
- **Deepanshu Malhotra** and Rinkaj Goyal. *Link prediction in complex networks using information-theoretic measures*, Journal of Complex Networks, Oxford University Press (**SCI (E) indexed**). DOI: <https://doi.org/10.1093/comnet/cnaa035>.
- **Deepanshu Malhotra**. *Community Detection in Complex Networks using Link Strength based Hybrid Genetic Algorithm*, SN Computer Science, Springer. DOI: <https://doi.org/10.1007/s42979-020-00389-4>.
- **Deepanshu Malhotra** and Rahul Katarya. *A Survey of Different Methods in Finding Latent Relationships among Complex Networks*, International Conference on Information Systems and Computer Networks (ISCON), 2019, IEEE.

## EXPERIENCE/ PROJECTS

**Guide: Prof. Jodi Schneider & Prof. George Chacko**

University of Illinois at Urbana-Champaign

*Research Collaborator*

January 2024 - Present

- Creating a claim-specific network using extracted claims from research papers and their citations. Furthermore, analyzing the network for potential citation bias.

**Guide: Prof. Nigel Bosch**

University of Illinois at Urbana-Champaign

*Research Collaborator*

May 2023 - August 2023

- Worked on time series data that measured blood alcohol levels through wrist band device. Aim was to predict blood precise alcohol levels with ground truth levels measured by breathalyzer.
- Implemented data selection, cleaning, and feature engineering processes, to identify and address potential data inconsistencies. Implemented a 1D convolutional neural network model regression analysis of blood alcohol levels.

**Navyug**

New Delhi

*Software Engineer*

January 2022 - April 2022

- Implemented, and managed an AWS Lambda-based framework for efficient deployment of applications, leveraging cloud infrastructure to streamline development workflows and enhance scalability, reliability, and cost-effectiveness of deployed solutions.

**Guide: Prof. Raluca Gera (Naval Postgraduate School, Monterey, CA 93943, USA)**

Remote

*Research Collaborator*

June 2021 - November 2021

- Proposed a novel solution for detecting communities by utilizing semilocal structural features for a label propagation based algorithm. Our algorithm showed improved performances on a variety of data sets for detecting disjoint communities.

## TEACHING & ADVISING

**Teaching Assistant**

University of Illinois at Urbana-Champaign

*IS 527 Network Analysis*

January 2024 - Present

- Plan assignments and provide solutions to the assignments. Evaluate and grade student submissions according to established criteria. Facilitate student understanding by addressing conceptual inquiries and clarifying doubts.

**Teaching Assistant**

University of Illinois at Urbana-Champaign

*IS 206 Introduction to Database Concepts & Applications*

August 2023 - December 2023

- Instructed a weekly lab section for explaining the concepts necessary for assignment completion.. Plan assignments and provide solutions to the assignments. Evaluate and grade student submissions according to established criteria. Facilitate

student understanding by addressing conceptual inquiries and clarifying doubts.

**Teaching Assistant**

University of Illinois at Urbana-Champaign

*IS 206 Introduction to Database Concepts & Applications*

*January 2023 - May 2023*

- Evaluate and grade student submissions according to established criteria. Facilitate student understanding by addressing conceptual inquiries and clarifying doubts.

**Teaching Assistant**

University of Illinois at Urbana-Champaign

*IS 507 Data, Statistical Models and Information*

*August 2022 - December 2022*

- Evaluate and grade student submissions according to established criteria. Facilitate student understanding by addressing conceptual inquiries and clarifying doubts.

**RELEVANT COURSEWORK**

**Spring 2024:**

- IS 557 : Applied Machine Learning: Team Project
- IS 589 : Independent Study

**Fall 2023:**

- IE 434 : Deep Learning: Mathematics and Applications
- IS 537 : Theory & Practice of Data Cleaning
- IS 567 : Text Mining

**Summer 2023:**

- IS 407 : Introduction to Data Science
- IS 439 : Web Development Using Application Framework

**Spring 2023:**

- CS 473 : Algorithms
- IS 517 : Methods of Data Science
- IS 519 : Research Design in Information Science

**Fall 2022:**

- IS 445 : Data Visualization
- IS 509 : History and Foundations of Information Science
- IS 597 : Programming & Quality in Data Analytics

**PROGRAMMING SKILLS**

**Languages:** C, C++, Python, Java, MATLAB, HTML, MY SQL, NetLogo, L<sup>A</sup>T<sub>E</sub>X.

**Areas:** Social Network Analysis, Artificial Intelligence, Machine Learning, Algorithms, Databases, Mathematics.

**Achievements and Extracurricular activities**

- **Reviewer** for International Journal of Information Technology & Decision Making, World Scientific (SCI (E) indexed).
- Awarded **Gold Medal** for standing **First** in the order of merit in B.Tech. Computer Science and Engineering.
- Qualified for ACM ICPC Multisite Regionals 2018 at the Kanpur site.
- Qualified for ACM ICPC Multisite Regionals 2016 at the Coimbatore site.
- Qualified IPU CET in the top 2% of the candidates to secure a seat in the most prestigious college under Guru Gobind Singh Indraprastha University.