

# Maleeha Masood

*Ph.D. Candidate*

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📄 <https://maleehamasood.github.io>

## Interests

Vision Language Models for Video Streaming, Recommender Systems, Content Distribution Networks, Satellite Networks

## Education

2021 – **Ph.D. in Computer Science**, University of Illinois Urbana-Champaign

Advisors: Profs. Indranil Gupta and Deepak Vasisht

2017 – 2021 **BS in Computer Science**, Lahore University of Management Sciences

Advisors: Profs. Ihsan Ayyub Qazi and Zafar Ayyub Qazi

GPA: 3.96/4.0, On Dean's Honor List

## Publications

Under Review Counting How the Seconds Count: Understanding TikTok Behavior via ML-driven Analysis of Video Content

**Maleeha Masood**, Shreya Kannan, Zikun Liu, Deepak Vasisht, Indranil Gupta

Under Review SILC: Lookahead Caching for Short-form Video Delivery Systems

**Maleeha Masood**, Shreya Kannan, Om Chabra, Deepak Vasisht, Indranil Gupta

MobiCom Transmitting, Fast and Slow: Scheduling Satellite Traffic through Space and Time

2023 Bill Tao, **Maleeha Masood**, Indranil Gupta, Deepak Vasisht

JMIR 2021 Technology, Privacy, and User Opinions of COVID-19 Mobile Apps for Contact Tracing: Systematic Search and Content Analysis

Mahmoud Elkhodr, Omar Mubin, Zainab Iftikhar, **Maleeha Masood**, Belal Alsinglawi, Suleman Shahid, Fady Alnajjar

## Research Experience

**University of Illinois Urbana-Champaign**

2022 – **Short Video Delivery Applications and Systems**

Identified new insights in short video delivery systems to build a specialized CDN design focused on improving cache hit rate and reducing midgress

Conducted a user study in-person and online via Prolific to get user engagement scores from video sessions and build user profiles for experimentation

Design a new system of analyzing video content that does not rely on user provided descriptions and CV models, and instead uses LLMs that can understand videos

2021 – **LEO Satellites**

Currently designing a distributed CDN architecture that can sustain delivery of content to users via LEO satellite constellations

Analyzed earth imagery via satellites to design a new downlinking strategy that performs better than the state-of-the-art greedy approach; published at MobiCom 2023

2021-2023 **Mobile Models**

Explored the splitting of several ML models across heterogeneous GPUs

**Lahore University of Management Sciences**

2021 – 2021 **Social Acceptance of Agricultural Innovation**

Analyzed local Pakistani farmers on Social Media Platforms adopting a new method of agriculture to obtain information about social acceptance of innovative techniques

2020 – 2021 **COVID-19 Contact Tracing Apps**

Built a database of different contact tracing apps across the globe; published at JMIR 2021

2019 – 2021 **Heterogenous and Inclusive Federated Learning**

Modified models using reduction techniques to facilitate the participation of slow and heterogenous devices in the Federated Learning Framework

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## **Awards**

2021 – Sohaib and Sara Abbasi Computer Science Fellowship

2023, 2024 Travel Grant to SOSP

2024 Attendee at the 2024 CRA-WP Grad Cohort for Women

2023 N2 Women Travel Grant to Mobicom

2023 Travel Grant to NSDI

2022 Travel Grant to OSDI

2021 Erasmus Mundus Joint Master Degrees Student Scholarship (received but declined)

2018 – 2021 LUMS Merit Scholarship

2017 – 2021 Dean's Honor List

2017 100 Best Applications to LUMS

2017 Outstanding Cambridge Learner Award

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## **Teaching Experience**

**University of Illinois Urbana-Champaign**

Fall 2024 Lead Coursera TA of CS425 Distributed Systems (Indranil Gupta)

Spring 2024 CS438 Communication Networks (Deepak Vasisht)

- Fall 2023 Lead Coursera TA of CS425 Distributed Systems (Indranil Gupta)  
**Lahore University of Management Sciences**
- Spring 2021 Head TA of CS382 Network-Centric Computing (Zafar Ayyub Qazi)
- Fall 2020 CS334 Principles and Techniques of Data Science (Ihsan Ayyub Qazi)
- Spring 2020 CS202 Data Structures (Ihsan Ayyub Qazi)
- Fall 2019 CS210 Discrete Mathematics (Imdad Ullah Khan)

## Selected Course Projects

### University of Illinois Urbana-Champaign

- Spring 2022 Block Devices – CS598 Cloud Storage Systems  
Worked with block storage devices to improve write latency in ext4 file system

## Service

- Program 2023: ACM S3 Workshop  
Committee
- Mentorship 2023 - 2024: Shreya Kannan (UIUC Undergraduate)  
2023 - 2024: Colin Lane (UIUC Undergraduate, now UIUC Masters Student)  
2023: Eric Magutu (UIUC iCAN Student)  
2023: Sarah Tanveer (LUMS Undergraduate, now UW-Madison Masters Student)  
2023: Ananya Anand (UIUC Undergraduate)
- Community May 2024 - present: Graduate Student Volunteer at SysNet Women @ UIUC  
Nov 2023: Organized and Moderated Faculty Session at the SysNet Retreat at UIUC  
May 2023: Organized and Moderated Student Session at the SysNet Retreat at UIUC  
May 2019 - 2021: Batch Representative at LUMS Student Council