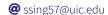
Shubham **Singh** Ph.D. Student

≥ 3832088/shubhamsingh



f shubhams.github.io





RESEARCH INTERESTS

Algorithmic Fairness Machine Learning Privacy and Security Computational Social Science



EDUCATION

Doctor of Philosophy, Computer Science, University of Illinois at Chicago (UIC) 2019 - Present

Bachelor of Technology, Computer Science, Indraprastha Institute of Information Technology (IIIT), Delhi 2016



PUBLICATIONS

- Tanya Berger-Wolf, Allison Howell, Chris Kanich, Ian A. Kash, Moniba Keymanesh, Barbara Kowalcyk, Gina Nicholson Kramer, Andrew Perrault, and Shubham Singh. Open problems in (un)fairness of the retail food safety inspection process. In Proceedings of the Responsible Decision Making in Dynamic Environments Workshop, Proceedings of Machine Learning Research. PMLR, 2022. to-appear.
- Shubham Singh, Bhuvni Shah, and Ian A. Kash. Fair decision-making for food inspections. arXiv preprint, September 2021.
- Mohammad Taha Khan, Christopher Tran, Shubham Singh, Dimitri Vasilkov, Chris Kanich, Blase Ur, and Elena Zheleva. Helping users automatically find and manage sensitive, expendable files in cloud storage. In 30th USENIX Security Symposium (USENIX Security 21). USENIX Association, August 2021.
- Rishabh Kaushal, Shubham Singh, and Ponnurangam Kumaraguru. NeXLink: Node Embedding Framework for Cross-Network Linkages Across Social Networks. In Proceedings of NetSci-X 2020: Sixth International Winter School and Conference on Network Science, pages 61–75, Cham, 2020. Springer International Publishing.
- Shubham Singh, Rishabh Kaushal, Arun Balaji Buduru, and Ponnurangam Kumaraguru. KidsGUARD: Fine Grained Approach for Child Unsafe Video Representation and Detection. In Proceedings of the 34th ACM/SIGAPP Symposium on Applied Computing, SAC '19, page 2104–2111, New York, NY, USA, 2019. Association for Computing Machinery.



RESEARCH

May 2022 Present

Research Intern, Max Planck Institute for Software Systems, Germany

Mentors: Dr. Oshrat Ayalon, Dr. Elissa M. Redmiles

Conducting online and in-lab studies to understand people's value of their digital accounts using behavioral economics and qualitative analysis.

January 2020 Present

Research Assistant, University of Illinois at Chicago, USA

Mentors: Prof. Chris Kanich, Prof. Blase Ur

- > Analysing the effect of ML-based decision making from the lens of algorithmic fairness for public health
- Analysed and coded user study data to understand how do users store sensitive and useful files on online cloud storage. Developed ML-based system to help users remove sensitive files from online cloud storage and reducing their risk of breach by 26%. Live app: of cloudsweeper.app

October 2017 July 2019

Research Associate, PRECOG RESEARCH LAB, New Delhi

Mentors: Prof. Ponnurangam Kumaraguru, Prof. Arun Balaji Buduru

- Applied deep learning models to detect unsafe content on video streaming platforms, making them 30% more safe for children.
- Created node embedding framework for efficient cross-network representation of user profiles, beating the then state-of-the-art approach by 20%.
- Studied the discriminative features of entity-specific sensitive information on the internet.

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June 2016 September 2017

Full Stack Developer, TAPZO (ACQUIRED BY AMAZON PAY), Bengaluru

Mentor: Adarsh Pandey

- > Saved hundreds of hours in development cycle by building a generic cross-category coupons module for Android application, that was used by 7 other teams. Also, developed food, bill payment and hotel categories from scratch and launched to 5M users.
- > Wrote back-end services to track transaction state changes and user actions for providing better user reinforcements that improved user's post-transaction experience.

May 2015 July 2015

Application Developer Intern, МовіКwік, Gurgaon

2015 | Mentor: Atul Goyal

- Migrated Android build environment from Maven to Gradle for better dependency management and faster build times.
- Rewrote the application network layer for multi-thread performance and error handling to support low-bandwidth users.



TEACHING

August 2019 May 2021

Graduate Teaching Assistant, CS 361: COMPUTER SYSTEMS PROGRAMMING, University of Illinois at Chicago Mentor: Prof. Chris Kanich

- Designed, instructed, and evaluated programming labs and assignments for Computer Systems Programming course, taken by 180+ undergraduate students in both in-class and remote environments.
- > Received an average 4.48/5.0 in the evaluation feedback.

June 2018

Lab Instructor, SUMMER SCHOOL ON SOCIAL COMPUTING, IIIT-Hyderabad

- ➤ Conducted lab sessions for 50+ summer school participants on data collection using APIs, data analysis and constructing network graphs.
- ➤ Made the tutorial code public at precog-iiitd/social-computing-18 .

January 2016 May 2016

Teaching Assistant, CSE 501: DESIGNING HUMAN CENTERED SYSTEMS, IIIT-Delhi

Mentor: Prof. Ponnurangam Kumaraguru

- ➤ One of the select few undergraduate teaching assistants, for a class taken by 80+ undergraduate and graduate students.
- > Assisted in defining the course structure, designed and evaluated assignments and course projects.



SERVICE

NeurIPS 2021 Algorithmic Fairness through the Lens of Causality and Robustness External - Reviewer Workshop

CSCW 2022 Reviewer



Talks

July 2019 **Cybersafety for Kids on Video Streaming Platforms**, ACM Summer School on Cybersecurity and Data Analytics, IIIT-Delhi



AWARDS & HONORS

June 2021 Graduate Student Service Award, UIC CSGSA. Received a certificate and award money.

Feb 2017 **Employee of the Month**, Tapzo (Acquired by Amazon-Pay). Received a certificate, public recognition, and a gift.

May 2016 Best Student Mentor, IIIT-Delhi. Received a certificate.



SKILLS

Programming Languages Python, R, MATLAB, Java, JavaScript, C, C++

Frameworks PyTorch, Keras, Numpy, Scikit, Flask, NodeJS, Celery, Android

Databases MongoDB, MySQL, PostgreSQL

Tools Git, Docker, VSCode, Vim, Sublime, Jupyter, IntelliJ, ŁTĘX

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ACTIVITIES AND VOLUNTEER WORK

2021-2022 **Volunteer**, Greater Chicago Food Depository

Food repacking volunteer at one of the largest food banks in Chicagoland.

2020-2022 Treasurer, CSGSA, UIC

Treasurer and organizer for various events for Computer Science graduate students at UIC.

2016 **Student Mentor**, IIIT-Delhi

Mentored 10+ freshman students for the academic and non-academic issues faced by them.

Received the **Best Student Mentor Award**.

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