

SOHAM DE

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EDUCATION

ASHOKA UNIVERSITY | SONEPAT, IN

BSc (*Magna cum Laude*) in Computer Science | 3.89/4.0 | 05/2019 - 05/2022

WORK

MICROSOFT RESEARCH | BENGALURU, IN

RESEARCH INTERN | 06/2022 -

- Studying quantitative characteristics of propaganda networks in real-life social networks

UNIVERSITY OF MICHIGAN | REMOTE

RESEARCH INTERN | 12/2021 - 05/2022

- Analysing nature of interactions, polarisation and discourse among political influencers on Indian Twitter
- Actively using word embeddings, PCA, LDA, regression, clustering and tools like Gephi in research

MEDIACRED | BANGALORE, IN

MACHINE LEARNING INTERN | 05/2021 - 10/2021

- Conducted exploratory research into ML interventions for fake-news detection
- Worked on Credibly - Mediacred's flagship news credibility analyser
- Implemented a novel Twitter-based article recommendation engine that generates a curated news feed in $O(1)$ time

MPHISIS LAB (ML2CT) | REMOTE

SUMMER RESEARCH SCHOLAR | 05/2021 - 08/2021

- Implemented end-to-end PPML systems in C++ and Python on multiple large datasets
- Designed a novel algorithm for securely evaluating non-linear functions using arithmetic shares

ASHOKA UNIVERSITY | SONEPAT, IN

UNDERGRADUATE TEACHING ASSISTANT | 08/2020 - 12/2020 | 08/2021 - 12/2021

- TA for FC-0309 (Foundations of Computer Programming) and CS-1216 (Computer Organisation and Systems)
- Conducted weekly discussion sections and office hours. Was responsible for designing and evaluating assignments as well as conducting the Puzzle Day event
- Student feedback: 4.75/5.0 (180+ enrolled students)

SELECTED RESEARCH

DRAWING LINES: THE #HIJAB BAN DISCOURSE ON TWITTER

SUPERVISORS: JOYOJEET PAL | 02/2022 - Present

- Explored narratives and themes in the #HijabBan debate on Twitter using multilingual word embeddings and unsupervised hierarchical clustering (presented as a [blog article](#), appearing in [ACM COMPASS 2022](#))

LANGUAGE, POLARITY AND PROVOCATIVE SPEECH IN THE POPULARITY OF INDIAN JOURNALISTS' FEED

SUPERVISORS: JOYOJEET PAL | 01/2022 - 02/2022

- A qualitative study on the overall stagnation of popular journalists in Twitter and their polarisation towards political parties (presented as a [blog article](#))

CLOSED RANKS: THE DISCURSIVE VALUE OF MILITARY SUPPORT FOR INDIAN POLITICIANS ON TWITTER

SUPERVISORS: JOYOJEET PAL | 12/2022 - 03/2022

- Studied institutional capture of defence accounts by politicians and the nature of their interactions using network analysis (presented as a [blog article](#), appearing in [ICTD 2022](#))

SECURE STABLE MATCHING

SUPERVISORS: ABDELREHMAN ALY , DEBAYAN GUPTA | 09/2021 - 02/2022

- Working on using secure comparison techniques (from SecureNN and Rabbit) to further improve efficiency of secure (privacy-preserving) implementations of Gale-Shapley's stable matching algorithm.

PRIVACY PRESERVING MACHINE LEARNING

SUPERVISORS: MAHAVIR JHAWAR, SUBHASHISH BANERJEE | 05/2021 - 02/2022

- Implemented various PPML frameworks (such as SecureML and BLAZE) from scratch in C++
- Designed and implemented a novel protocol for securely evaluating non-linear activation functions (such as the sigmoid) using arithmetic circuits in a constant field-size.

BHARATSIM | BILL & MELINDA GATES FOUNDATION

SUPERVISORS: DEBAYAN GUPTA, GAUTAM MENON | 06/2020 - 10/2020

- Implemented ETL pipelines and synthetically replicated the Indian population using GANs
- Also added polygon-based querying on the synthetic population in $O(n \log n)$ by optimising function calls for the visualisation engine

COVID-19 DATA ANALYSIS

SUPERVISOR: DEBAYAN GUPTA | 05/2020 - 08/2020

- Analysed COVID-19 data using novel curve-fitting and ML-based techniques to make low data-reliant predictions in R and Python (available on [medRxiv](#))

HONOURS

- **GOLD MEDAL IN COMPUTER SCIENCE** | Highest CS CGPA in the graduating batch of 2022
- **UNDERGRADUATE RESEARCH EXCELLENCE AWARD** | 2022
- **SERVICE EXCELLENCE AWARD** | 2022
- **SPECIAL RECOGNITION FOR OUTSTANDING CONTRIBUTION** | 2022
- **DEAN'S LIST** (Every Semester) | Signals a superior level of academic performance
- **ICPC NATIONAL FINALIST** | Finished 5th in ICPC for Schools 2017 (Gwalior Regionals)
- **NATIONAL TOPPER** | Scored 7th in India in ICSE 2017 (Board Exams)

SKILLS

- **LANGUAGES**
Python | C++ | JavaScript | LaTeX | C | R
- **FRAMEWORKS & OTHER TOOLS**
git | Gephi | React | Express | Flask | Keras | TensorFlow | OpenCV

OTHER ACTIVITIES

- **GENERAL CHAIR | THE CROSSTHINK JOURNAL, ASHOKA UNIVERSITY**
Started Ashoka's first (and only) interdisciplinary CS Journal with a team of 12 student reviewers
- **FOUNDER & STAFF RESEARCHER | CANDID, ASHOKA UNIVERSITY**
Started and helped secure funding for a new CS research group at Ashoka for Analysis on Social Networks
- **CS REPRESENTATIVE | ASHOKA UNIVERSITY**
As the CS Student Representative, I work with the Department of Computer Science, Ministry of Academic Affairs (SG) and the Academic Advisory Board
- **CS SOCIETY | ASHOKA UNIVERSITY**
I conduct bi-weekly Workshops and Events for 70+ active members on Development and Machine Learning

- **WiCS RESEARCH READING GROUP | ASHOKA UNIVERSITY**

I've presented multiple ML papers (from NIPS, ICLR, PRML etc) to senior undergraduate and PhD Students at Ashoka University

LINKS

- **GitHub**/actuallysoham
- **LinkedIn**/soham-de
- **Twitter**/actuallysoham

REFERENCES

- JOYOJEET PAL | Associate Professor, School of Information, University of Michigan
- DEBAYAN GUPTA | Assistant Professor, Department of CS, Ashoka University
- MAHAVIR JHAWAR | Assistant Professor, Department of CS, Ashoka University