

Soham De

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EDUCATION

Ashoka University

DIPASR (ASHOKA SCHOLARS PROGRAM) IN COMPUTER SCIENCE

- Completing an Advanced Major in Computer Science (Undergraduate Thesis)

BSc (HONS) IN COMPUTER SCIENCE | 3.89/4.0

- Graduated Magna cum Laude with a Gold Medal in Computer Science

Delhi Public School, Ruby Park

HIGH SCHOOL DIPLOMA | 95%

- Graduated in 2019 (AISSCE)

Sonepat, India

Aug 2022 - May 2023 (exp)

Aug 2019 - May 2022

Kolkata, India

Aug 2017 - May 2019

WORK EXPERIENCE

Microsoft Research

RESEARCH INTERN

- Studying quantitative characteristics of propaganda networks in real-life social networks
- Used a mix of statistical analysis and qualitative interviews to study disinformation and effectiveness of fact-checks

Bangalore, India

Jul. 2022 - Present

University of Michigan

RESEARCH INTERN

- 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

Remote

Nov. 2021 - Jun. 2022

Pint AI (formerly Mediacred)

ML RESEARCH INTERN

- 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 $\mathcal{O}(1)$ time

Bangalore, India

May. 2021 - Oct. 2021

MPhasis Lab (ML2CT)

RESEARCH INTERN

- 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

Sonepat, India

May. 2021 - Aug. 2021

Ashoka University

2X UNDERGRADUATE TEACHING ASSISTANT

- 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)

Sonepat, India

Fall 2020, Fall 2021

RESEARCH EXPERIENCE

IN PROGRESS/ IN SUBMISSION

[8] Towards defining and quantifying Twitter formality

SOHAM DE, ANIRBAN SEN, MONOJIT CHOUDHURY, JOYOJEET PAL, DEBAYAN GUPTA

In Progress

- Conducting user studies to arrive at an objective definition of perceived formality of text on Twitter
- Using various linguistic features and state-of-the-art language models to quantify formality and study its applications in corporate communication, propaganda and discourse

[7] The Troll's Toolkit: A mixed-methods study on how journalists are trolled on Twitter

SOHAM DE*, SUKHNIDH KAUR*, JOYOJEET PAL

submitted Sep. 2022

- Studied trolling of journalists on Twitter using large-scale analysis of their tweets and responses received on them, along with quantitative interviews of 20+ highly-visible journalists in India

[6] Trends in Online Propaganda: A Comparative Study

ANIRBAN SEN, **SOHAM DE**, JOYOJEET PAL

submitted Sep. 2022

- Compared quantitative features of 3 different socio-political events of varying levels of propagandist content on Indian Twitter

[5] Hierarchical Association, Harmonized Aggravation, and Hashtag Assemblies: A Dogma Community keeping its Twitter Candle Lit

ANIRBAN SEN, **SOHAM DE**, JOYOJEET PAL

submitted Jul. 2022

- Studied methods of sustaining discourse around rumours and conspiracy theories on social media
- Introduced the framework of dogma communities and quantitatively explored formations of de-facto hierarchies within such communities

[4] Catch, Corroborate and Communicate: The Contours of Professional fact-Checking In India

ARSHIA AARYA, **SOHAM DE**, SALONI DASH, JOYOJEET PAL

submitted Jul. 2022

- Studied mechanisms of professional fact-checking and the effectiveness of online dissemination using network analysis and qualitative interviews of prominent fact-checkers

PUBLICATIONS

[3] Closed Ranks: The Discursive Value of Military Support for Indian Politicians on Social Media

ICTD 2022

AGRIMA SETH*, **SOHAM DE***, ARSHIA AARYA, SUSHANT SINGH, STEVEN WILKINSON, JOYOJEET PAL

- Studied institutional capture of defence accounts by politicians and the nature of their interactions using network analysis

[2] Drawing Lines: The #HijabBan discourse on Twitter

ACM COMPASS 2022

SOHAM DE, ANMOL PANDA, JOYOJEET PAL

- Explored narratives and themes in the #HijabBan debate on Twitter using multilingual word embeddings and unsupervised hierarchical clustering

[1] DISMISS: Database of Indian Social Media Influencers on Twitter

AAAI ICWSM 2022

ARSHIA AARYA*, **SOHAM DE***, DIBYENDU MISHRA*, GAZAL SHEKHAWAT*, ANKUR SHARMA, ANMOL PANDA, FAISAL LALANI,

PARANTAK SINGH, RAMARAVIND KOMMIYA MOTHILAL, RYNA GROVER, SACHITA NISHAL, SALONI DASH, SHEHLA SHORA, SYEDA

ZAINAB AKBAR, JOYOJEET PAL

- DISMISS is the largest sample of social media influencers on Twitter, curated using snowball sampling in conjunction with various robustness checks

MISCELLANEOUS/ PRIOR RESEARCH

Privacy Preserving Machine Learning

ML2CT

SOHAM DE*, KUBER SHAHI*, SUBHASHIS BANERJEE, MAHAVIR JHAWAR

May. 2021 - Aug. 2021

- 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

Alternative Approaches for Modelling COVID-19: High-Accuracy Low-Data Predictions

medRxiv

DEWANG KUMAR AGARWAL*, **SOHAM DE***, OJAS SHUKLA, ARCHIT CHECKER, APOORVI MITTAL, ANKITA BORAH, DEBAYAN GUPTA

Jul. 2020

- Analysed COVID-19 data using novel curve-fitting and ML-based techniques to make low data-reliant predictions in R and Python

BHARATSIM

Thoughtworks

ADIT SHAH*, **SOHAM DE***, GAUTAM MENON, DEBAYAN GUPTA

Jun. 2020

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

* means equal contribution

HONORS & AWARDS

2022 **Gold Medallist**, Department of Computer Science, Ashoka University

2022 **Undergraduate Research Excellence Award**, Department of Computer Science, Ashoka University

2022 **Service Excellence Award**, Department of Computer Science, Ashoka University

2022 **Recognition for Outstanding Contribution**, Department of Computer Science, Ashoka University

2019-22 **Dean's List (every semester)**, Dean of Academic Affairs, Ashoka University

2017 **National Finalist**, ICPC for Schools

2017 **All India Rank 7**, ICSE Board Exams

OTHER ACTIVITIES

Social Media and Society Conference 2023

STUDENT ORGANISER

- Organising the call for papers, poster presentation session and guest invites for an upcoming conference

University of Michigan

Apr. 2023

ACM CSCW 2022

STUDENT VOLUNTEER AND REVIEWER

- Reviewed manuscripts and currently volunteering for the virtual CSCW conference on Nov 8-12, 2022

Virtual

Nov. 2022

The CrossThink Journal

GENERAL CHAIR

- Started Ashoka's first (and only) interdisciplinary CS Journal with a team of 12 student reviewers

Ashoka University

Aug. 2022 - present

CANDID Research Group

FOUNDER AND STAFF RESEARCHER

- Started and helped secure funding for a new CS research group at Ashoka for Analysis on Social Networks

Ashoka University

Apr. 2022 - present

Academic Affairs Board

CS REPRESENTATIVE

- Worked with the Department of Computer Science, Ministry of Academic Affairs (SG) and the Academic Advisory Board

Ashoka University

Fall 2021, Spring 2021

The CS Society

INTERIM PRESIDENT, HEAD OF DEVELOPMENT

- Conducted bi-weekly Workshops and Events for 70+ active members on Development and Machine Learning

Ashoka University

Feb. 2020 - Jun. 2022

WiCS Research Reading Group

MEMBER, PRESENTER

- Presented multiple ML papers (from NIPS, ICLR, PRML etc) to senior undergraduate and PhD Students at Ashoka University

Ashoka University

Aug. 2020 - Jun. 2022

SKILLS

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|--------------------|---|
| Programming | Python, C/C++, JavaScript, \LaTeX , R, Markdown, Assembly, SQL |
| Frameworks | React, Express, Flask, git, Keras, Tensorflow, OpenCV |
| Softwares | Gephi, NetworkX, Tableau, Atlas.ti, MS Excel |
| Languages | English, Bengali, Hindi |

REFERENCES

JOYOJEET PAL

JOYOJEET@UMICH.EDU

Advisor and collaborator on multiple studies

DEBAYAN GUPTA

DEBAYAN.GUPTA@ASHOKA.EDU.IN

Capstone project/thesis advisor at Ashoka University

ANIRBAN SEN

T-ANIRBANSEN@MICROSOFT.COM

Advisor and collaborator at Microsoft Research, India

MAHAVIR JHAWAR

MAHAVIR.JHAWAR@ASHOKA.EDU.IN

Research advisor at ML2CT, Ashoka University