

SUDHAMSHU HOSAMANE

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EDUCATION

The University of Chicago, Chicago, IL USA – 3.83/4.0

Master of Arts, Computational Social Science, Expected: June 2023

Thesis: “Correcting misperceptions on Indian WhatsApp with experimental adaptation”

Advisor: Professor Molly Offer-Westort

Birla Institute of Technology & Science (BITS), Pilani, India

Bachelor of Engineering, Focus: Electronics and Instrumentation, February 2018

Thesis: “[Building a versatile multi-3G/4G platform to provide seamless QoS for critical real-time mobile applications](#)”

Advisor: Professor Malati Hegde, Indian Institute of Science

RESEARCH EXPERIENCE

The University of Chicago, Chicago, IL, USA

Graduate Student Researcher, Prof. Molly Offer-Westort and Prof Nick Feamster, April 2022 – Present

- Studying the effectiveness of Facebook chatbot-based persuasion on critical societal issues
- Conducted literature survey of retrieval and generative design-based chatbot architectures and relevant evaluation methods
- Built a dialogue action classifier using RASA to identify intent and profanity; Trained a Roberta model to classify granular intents using crowdsourced responses

[Chicago Summer of eXistential Risk \(CSXR\) Fellowship, Chicago, IL, USA](#)

Summer Research Fellow, Prof. Munmun De Choudhury (Georgia Tech), June 2022 – September 2022

- Pursued an independent research project to study misinformation on Indian WhatsApp
- Built React-based web applications to study how people interacted and shared misinformation on WhatsApp and how they perceived different themes
- Learned how religious and nationalistic phrasing, calls for action to share messages, consent forms, and debriefing influence the propensity to disseminate misinformation

Indian Institute of Science, Bangalore

Research Intern, Electrical Communication Engineering Dept – Undergraduate Thesis, June 2017 - December 2017

- Worked on AMBULET - a project aimed at providing good Quality of Service (QoS) on mobile telecom networks for critical health applications
- Conceived and implemented a heuristic adaptive jitter buffer algorithm; demonstrated the algorithm's efficiency on a simulated Constant Bit Rate application traffic. My thesis can be found [here](#)

RECENT RESEARCH PROJECTS

[Quantifying U.S. presidents' uniqueness using multimodal analysis](#) (2022)

Aimed to answer how presidents present themselves differently in different contexts by implementing a multi-modal deep learning pipeline, extracting information from text, audio, and image data from presidential speeches. Built deep learning models for encoding speech information (fasttext and BERT), extracting features from audio (CNN audio classifier, CNN emotion recognition), extracting unique features from images (EfficientNet, CNN emotion recognition), and for multimodal prediction (self-defined RankNet).

[Studying the effect of content moderation on language patterns](#) (2022)

Pursued an independent project to study the impact of mass content moderation on Reddit on the language patterns of users. Analysed manually scraped data collected for seven subreddits over 18 months and found discernible changes in syntactic, semantic and topic discussions in different subreddits after a mass content moderation event.

[Internet censorship in Turkmenistan](#) (2021)

Studied the extent of online censorship and techniques used in Turkmenistan. Our team gathered over 600 million website URLs to test censorship and identified all relevant Autonomous Systems and DNS resolvers in the country. I conducted a thematic analysis of blocked websites using regular expression matching to manipulate DNS requests.

[Interpretable Torque Model Using Symbolic Regression \(Bosch Hackathon - 2021\)](#)

Programmed a genetic algorithm to find an optimum functional expression for the torque demand of a diesel engine. The multi-parameter optimisation approach found a model with lesser memory and computing demand than the model already in production while having similar accuracy.

TEACHING EXPERIENCE

Birla Institute of Technology & Science (BITS) Pilani, India

Undergraduate Teaching Assistant, September 2017 – March 2018

- Acted as Lab Teaching Assistant for the course “Microprocessor Programming and Interfacing”
- Involved with setting questions for the lab, grading and answering queries
- Received a monetary award for being one of the best TAs in the course

PROFESSIONAL EXPERIENCE

Bosch Global Software Technologies, Bangalore

Senior Software Engineer, Bosch Corporate Research, March 2021- August 2021

- Contributed to the development of a Bayesian change-point-based time-series tool that analyses current drawn for fuel injections to forecast various engine-related failures

Software Engineer, Powertrain Functional Safety, March 2019- March 2021

- Developed ASIL-B-compliant software for various functional safety features of the vehicle (Driver Assistance, Transmission and Stability interventions, Starter Control, Brake and Acceleration sensor monitoring, Injection control, Rolling Counter and Checksum algorithms for CAN frames)
- Led team to automate the generation of ARXML configuration files based on the entries in an excel sheet; Reduced workload by 12 hours per project on average
- Received Spot Award six times between 2019 and 2021

Young Leaders for Active Citizenship (YLAC), Bangalore

Mobility Champion, #BengaluruMoving campaign, July 2020 – September 2020

- Selected among 1100 applicants to participate in a paid advocacy campaign run by YLAC, the Department of Urban and Land transport (Karnataka), and the World Resource Institute to help reduce traffic congestion in Bangalore; learnt techniques to conduct successful outreach campaigns. Our policy briefing can be found [here](#)
- Surveyed over 1500 citizens online in Kannada and English to understand their inhibition in using public transport; Developed a codebook of themes for the recorded response
- Analysed citizen's sentiment and behaviour patterns through various social media platforms and presented the findings to the government, advocating for evidence-backed decision-making (i.e., increased cycling trails in Bangalore)

Smarterhomes Technologies Pvt Ltd, Bangalore

Lead Firmware Engineer, April 2018 – January 2019

- Led the new product portfolio team and reported directly to the founder's office; Migrated the company's technology stack from GSM and WIFI to LoRa; Analyzed market requirement in Bangalore and created a range of LoRa-based products
- Improved design of the PCB to remove parasitic current leakages and introduced a routine to use the low power core, reducing the sleep current of the meter to 2uA (lowest level possible in the industry)
- Proposed and implemented a 'Built in Self-Test' for existing meters to find faulty components and aid in quick replacements

Stealth Startup (smart water metering), Bangalore

Founder, November 2017 – April 2018

- Graduated a semester early from college to launch an end-to-end business solution for water usage monitoring and billing in apartment complexes.
- Built an easily pluggable, non-intrusive intelligent meter prototype based on LoRa communication. The product was later incubated at [Smarterhomes Technologies](#).
- Developed a prototype dashboard for the customer to track daily usage patterns, check for leakage detection, enable remote valve operation, and raise an alert in case of excessive water wastage
- Introduced a gamification approach to conserving water which proved to reduce the average daily water consumption

ACTIVITIES & HONORS

- Maroon Scholarship, University of Chicago, 2021-2023 (50% tuition waiver)
- Chicago Summer of eXistential Risk (CSXR) Fellowship Grant - \$9600
- Reviewer - International Conference on Computational Social Science (IC2S2) 2022
- Finalist - SpaceX Hyperloop challenge 2017, Hawthorne, CA (only other team from Asia)
- Volunteer – Indian Red Cross Society, Bangalore, August 2016 – September 2016

SKILLS

- Skills: Machine Learning (ML), Natural Language Processing (NLP), Data Visualization, Information Retrieval and Text Mining, Causal Inference, Bayesian Modelling, Research Methods; CITI Certification - Social & Behavioral Sciences (Human Subjects)
- Technical Proficiencies: C, C++, Python, R, Git, SQL, BASH, Web Development (JavaScript, React, HTML, CSS), GCP