

Dhruv Agarwal

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RESEARCH INTERESTS

Responsible AI (LLMs/GenAI), Human-Centered AI, Human-AI Interaction

EDUCATION

Cornell University | ITHACA, USA

PhD in Information Science | 2022–Present

Advisor: Aditya Vashistha

Ashoka University | SONIPAT, INDIA

BS in Computer Science | 2016–2020

CGPA: [3.84](#) / 4.0 | Major: [3.98](#) / 4.0 | **Magna cum laude**

Thesis: Incentivizing Drivers to Collect Off-Route Pollution Data

EXPERIENCE

Microsoft Research | RESEARCH FELLOW

Jun 2020 – Jul 2022 | Bangalore, India

- Developed Turn2Earn, a novel way of improving data coverage using vehicular crowdsensing.
- Mixed-effects modeling of air pollution using wind dispersion models and NASA pollutant data.
- Developed PollutionMapper, a system to analyze large-scale geospatial data and visualize it.

Microsoft Research | RESEARCH INTERN

May 2019 – Aug 2019 | Bangalore, India

- Designed a greedy algorithm to maximize city coverage for drive-by sensing.
- Library open-sourced by Microsoft: github.com/microsoft/Modulo
- Implemented by Ola Cabs (Uber's key competitor in India) — 300% coverage improvement.

Mirabilis Design | SOFTWARE ENGINEERING INTERN

Dec 2018 – Jan 2019 | Chennai, India

- Generated execution traces of ARM executables from QEMU source code for VisualSim software.

Ampersand Design | UI DEVELOPMENT INTERN

Jul 2017 – Aug 2017 | Gurgaon, India

- UI design and development of interaction-heavy web pages for the State Bank of India.

PAPERS

1. AI Homogenizes Writing Within and Across Cultures.
D. Agarwal, M. Naaman, A. Vashistha. [under preparation]
2. AI Agents Mitigate Covert Bias in Large Language Models.
D. Agarwal, T. Kim, M. Saha, J. Ackerman. [under preparation]
3. 'One Style Does Not Regulate All': Moderation Practices in Public and Private WhatsApp Groups.
F. Shahid, **D. Agarwal**, A. Vashistha. [under review]
4. Conversational Agents to Facilitate Deliberation on Harmful Content in WhatsApp Groups.
D. Agarwal, F. Shahid, A. Vashistha. ACM CSCW 2024.
5. "If it is easy to understand then it will have value": Examining Perceptions of Explainable AI with Community Health Workers in Rural India. ACM CSCW 2024.
D. Agarwal*, C. T. Okolo*, N. Dell, A. Vashistha.

6. PollutionMapper: Identifying Global Air Pollution Sources. ACM COMPASS 2023.
D. Agarwal, P. Kumar, S. Iyengar.
7. India's "Aadhaar" Biometric ID: Structure, Security, and Vulnerabilities. Financial Crypto 2022.
D. Agarwal*, P.R. Tiwari*, P. Jain, S. Dasgupta, D. Gupta. (21% acceptance rate)
8. Understanding Driver-Passenger Interactions in Vehicular Crowdsensing. ACM CSCW 2021.
D. Agarwal, S. Agarwal, V. Singh, S. Iyengar, M. Jain. **Methods Recognition Award**.
9. Modulo: Drive-by Sensing at City-scale on the Cheap. ACM COMPASS 2020.
D. Agarwal, S. Iyengar, M. Swaminathan, et al. **Best Paper Award**.
10. Poster: An Alternative to India's Reservation Policy. ACM COMPASS 2020.
D. Sinha, O. Sahasrabudhe, **D. Agarwal**, D. Gupta.
11. Poster: System for Vehicle Selection in Drive-by Sensing. ACM SenSys 2019.
D. Agarwal, S. Iyengar, M. Swaminathan.

TECHNICAL SKILLS

Python • JavaScript • React • GeoSpatial tools
Applied AI (Sklearn & PyTorch) • MongoDB • Flask

C/C++ • PHP • Bash • Git • SQL • Android
Photoshop • Raspberry Pi • Arduino • L^AT_EX

AWARDS AND RECOGNITION

Quad Fellow
Cornell University Fellow
Winner – Edge Computing Track
Undergraduate Research Excellence Award
Student Life Excellence Award
Dean's List – All 8 Semesters
Alok Bhatla True Marian Award

Schmidt Futures 2023
Cornell University 2022
Microsoft Global Hackathon 2021
Computer Science Department, 2020
Office of Student Life, 2020
Dean of Academic Affairs, 2016–2020
High School Instituted Award, 2016

SERVICE

Reviewer – ACM CHI
Reviewer – ACM CSCW
Reviewer – ACM COMPASS

2023–2024
2023–2024
2021–2023

MEDIA COVERAGE

The Hindu

Ola, Microsoft to analyse street-level air quality

The Business Insider

Ola and Microsoft come together to measure air quality on the streets of India's national capital

The Economic Times

Ola partners with Microsoft Research to study street-level air quality in Delhi-NCR

PROJECTS

Exploring Human Bias in FIFA Ratings

Prediction of football players' future FIFA ratings from their previous ratings and on-ball actions.

Fake News Challenge

An NLP approach to the Stance Detection problem using a novel "staged" technique.

Beating Facial Obfuscation with ML

Convolutional autoencoder to recreate blurred, pixelated or blocked facial images.

COVID-19 Multilingual Knowledgebase

FAQ website to combat misinformation surrounding the crisis in local Indian languages.

VAHN: Vehicle Accident Hazard Notifier

A real-time smart city system for automatic detection and reporting of road accidents.

Ashoka Menu and Shuttle Bot

Chatbot to inform students about mess menu, shuttle timings. **800 users** and 190k messages.

Energy Sensing System for Dorms

Hardware prototype to monitor real-time energy wastage expressed in monetary loss.

SELECTED COURSEWORK

Math	Discrete Math • Probability & Statistics • Linear Algebra
Systems	Computer Organization • OS • PLDI (PLs) • Networks
Theory	Algorithms • Advanced Algorithms • Theory of Computation
AI/ML	Intro to ML • Advanced ML • Unstructured Information • NLP • How LLMs work
Security	Computer Security • Blockchain
HCI	Data Viz • New Geographies of Information Age • ICTD

TAship Intro to ML • Discrete Math • New Geographies of Information Age

STUDENT ACTIVITIES

University Sports Teams | ASHOKA UNIVERSITY

August 2016 – May 2020

- Lawn Tennis – Gold in men's doubles, vice-captain, U-18 nationals
- Badminton – Gold in team event
- Football – Gold and silver at inter-varsity tournaments

Technology Minister | ASHOKA UNIVERSITY STUDENT GOVERNMENT

March 2017 – March 2018

- Elected into 15-member Student Government. Nominated as Tech Minister by President.
- Introduced apps for campus life; technology consultant for 1500+ students.

Volunteer Instructor | AD-HOC WORKSHOPS

August 2016 – Present

- Photoshop & Web Development – 3 sessions, 80 students
- Python for Physicists – 2 sessions, 30 students
- Google ExploreML – amongst 60 chosen out of 1000+ applicants.
- Computer Science Hepdesk – Weekly walk-in CS doubt sessions

SERVICE & TEAMWORK

Project Muskaan | FOUNDER & HEAD

July 2018 – May 2019

- Instituted a program to teach computers to kids from a rural background.
- The student body's most successful social initiative since Ashoka's inception.

Agneepath – Sports Festival | FOUNDER & FEST SECRETARY

March 2017, November 2017, November 2019

- Curated and organised Ashoka's annual inter-varsity sports festival.
- Led **70-member** team thrice in 4 years: team formation, organisation, delegation of work, execution.

Banjaara – Cultural Festival | HEAD OF TECHNOLOGY

February 2017

- Developed website, digital solutions to organizational issues like entry coupons and certificates.