Aatman Vaidya

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LinkedIn / GitHub / Portfolio / Google Scholar

EDUCATION

- **Ahmedabad University** — July 2019 – June 2023
  Bachelor of Technology in Computer Science and Engineering; *GPA*: 2.87/4

EXPERIENCE

- **Software Developer Engineer - I** — August 2023 - Present
  Tattle Civic Technologies — **Tech -** [Reactjs, Nodejs, Javascript, Python, PyTorch, MySQL]
  - I work on an **open-source** browser extension called Uli that redacts abusive content, archives problematic content, and collectively pushes back against **online gender-based violence**.
  - Programmed a feature that allows users to crowdsource slurs. Engineered RESTful APIs, designed and implemented the front end, and managed the end-to-end development of the feature.
  - Analysed state-of-the-art OCR techniques, including Large Vision Models (LVMs), to detect text in images. Provided insights to advance **claim extraction** methodologies for detecting fake news in images with text in Indian languages.
  - Helped in data analysis, performed review of literature for a research paper on collaborative data annotation exercise with activists and researchers on the receiving end of online gender-based abuse
  - Building an open-source configurable engine for analysing **multi-lingual** and **multi-modal** content called Feluda. Writing production-ready images, video, and audio operators for analysing and providing information about multi-modal content to aid fact-checker's in combating misinformation.
  - My work on Feluda is being used as the back-end analysis engine on a national deepfake Whatsapp helpline by the Misinformation Combat Alliance for 2024 Indian Lok Sabha elections. [**Media**: Meta Press Release | Mashable | Qunit]

- **Software Developer Intern** — June 2022 - July 2022
  Genuin Inc. — **Tech -** [CameraX API, Kotlin, Coroutines, Work Manager]
  - Responsible for engineering a resilient method which captures video buffers reliably from live camera input.

- **Undergraduate Research Fellow** — May 2021 - March 2022
  School of Engineering and Applied Science, Ahmedabad University
  - **Image Quality Index** - Worked with Dr. Keyur Joshi to build a Perceivable Image Blur Quality Index, aiding image classification using SSIM, MSE, and PSNR.
  - **Analysing COVID-19 Second Wave** - Worked with Dr. Shilpa Pandit to study people's psychological and physiological effects and experiences in the second wave of COVID-19 with the help of data analysis. This work is published in the Journal of Psychological Research.

- **Teaching Assistant** — Nov 2022 - Mar 2023
  School of Engineering and Applied Science, Ahmedabad University
  - Graded tests, assignments and took tutorial sessions for the course of Discrete Mathematics with a class size of 75+ students.

PUBLICATIONS

S=In Submission, C=Conference, J=Journal

[C.2] **Analysing the Spread of Toxicity on Twitter** [paper]
Aatman Vaidya, Seema Nagar, Amit Nanavati
ACM International Conference on Data Science and Management of Data — [**CODS-COMAD 2024**]

[C.1] **Forecasting the Spread of Toxicity on Twitter** [paper]
Aatman Vaidya, Seema Nagar, Amit Nanavati
IEEE International Conference on Cognitive Machine Intelligence — [**IEEE CogMI 2023**]

[S.1] **The Uli Dataset: An Exercise in Experience Led Annotation of oGBV** [paper]
Arnav Arora, ..., Aatman Vaidya, Tarunima Prabhakar et al.
In Submission at Workshop on Online Abuse and Harms — [**NAACL**]

[C.3] **Overview of the 2023 ICON Shared Task on Gendered Abuse Detection in Indic Languages** [paper]
Aatman Vaidya, Arnav Arora, Aditya Joshi, Tarunima Prabhakar
International Conference on Natural Language Processing — [**ICON 2023**]

[J.1] **Coping Resources of Young People Experiencing COVID-19 Second Wave, in India: A Preliminary Study** [paper]
Shilpa Pandit, Aatman Vaidya, Aangi Shah, Eshva Shah et al.
Journal of Psychosocial Research — [**JPR 2022**]

Undergraduate Thesis

Advised by - Prof. Amit Nanavati (Ahmedabad University) and Dr. Seema Nagar (IBM Research Lab India)
Analysing the Spread of the Toxicity on Twitter - Proposed a novel model to capture the spread of hate speech on Twitter. Found that toxicity in a network is not conserved. To capture this spread of toxicity, I categorised users as Amplifiers, Attenuators, or Copycats. The model successfully replicated the increase in toxicity on simulated (Barabási–Albert graphs) and real-world Twitter networks.

Extended this work by looking at toxicity as a time series and used Transformers along with Graph CNN to forecast the spread of toxicity on Twitter. Graph CNNs performed better than most transformer-based models, suggesting that network structure matters, but the presence of explicit connections may not always imply influence.

Talks & Shared Task

Invited Talk, Digital Citizen Summit *Speaker* Nov 2023
> Panel discussion on "Building tools to respond to Online Gender Based Violence".

Shared task on Gendered Abuse Detection in Indic Languages *Organizer* Nov 2023 - Dec 2023
> Organised a shared task at 20th International Conference on Natural Language Processing (ICON) - India's flagship NLP conference. [summary paper]

Invited Speaker, ACM Winter School on Network Science *Speaker* Dec 2023
> Talked on how to build an NLP classifier to detect hate speech. Conducted a hands-on tutorial for 25+ students.

Achievements

- **Bosch Future Mobility Challenge** @ BOSCH Headquaters, Cluj, Romania -
  - Programmed and Engineered an **autonomous driving car** to navigate a miniature city. One of the 24 teams out of 118, and **only team** to **represent India** for the finals in Cluj, Romania.
  - As the lead programmer, I designed the architecture, devised path planning algorithms, optimised YOLOv5 for object detection and wrote code to facilitate multi-threading and multi-processing.

- **Ingenious Hackathon 3.0** -Built an end-to-end website for peer-to-peer file transfer and won the Open Source track.

Projects

- **Ambutrack** - Uber for Ambulances. Helps an ambulance reach faster to a patient. Made using Java and Android Studio.
- **Sentiment Analysis of Online Harassment Towards Women Wrestlers** - Created a YouTube Dataset to track gender-based violence using a crowd-sourced slur list. Used string matching algorithms and ML models for Indic languages to analyse text.
- **Coronary Artery Disease Prediction** - Developed a supervised machine learning model using k-NN and Logistic Regression classifiers to predict an individual's 10-year future risk of Coronary Artery Disease.
- **Connected by Misery, Separated in Space** - Created a Visual Space Intervention Art depicting the atrocities on Dalits in Gujarat (2001-2013) using graphs, showcasing their links (as edges) to districts and interactions between atrocities.

Skills

Languages:	Python, JavaScript, C/C++, Kotlin, Java, GraphQL
Frameworks/ Libraries:	PyTorch, Tensorflow, Nodejs, OpenCV, networkx, CameraX, Elasticsearch, Sequelize
Databases and Developer Tools:	MySQL, MongoDB, git, GitHub, Android Studio, Firebase, Docker

Extra-Curricular Activities

- Android Study Jams Facilitator - Conducted 3 sessions teaching Android Development in Kotlin to 40+ students.

- Content Head and Event Organiser at Programming Club - Co-organized and curated 30+ Web Development, Machine Learning, and Technology events.

- Student Volunteer - Worked under Dr. Tejaswini Niranjana in a project called Usable Pasts, Sustainable Futures. Participated in discussions with experts to understand how historically effective practices around Food, Clothing and Housing *(roti-kapda-makan)* can help mitigate climate change and public health issues. Book-length report.

- Teacher at Center for Learning Empowerment - I taught 20+ secondary school kids mathematics for an entire academic year, at a tribal village in Jharkhand, India.

- Student Ambassador - Worked at the Office of Undergraduate Admissions, assisted in campus tours and admission events.

- Volunteer at Humankind - Created educational content for underprivileged people in Ahmedabad on Hygiene and Investing.