

# Aatman Vaidya

## SDE | Tattle Civic Tech

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## Education

Jul 2023	<b>Ahmedabad University</b>	Ahmedabad, India
Aug 2019	B.Tech in Computer Science & Engineering (CSE) Thesis: Modelling the spread of Hate Speech on Twitter Advisor: <i>Dr. Amit Nanavati</i>	

## Experience

Present	<b>Tattle Civic Tech</b>	Remote
Aug 2023	Software Development Engineer - I and Data Engineer   Advisors: <a href="#">Tarunima Prabhakar</a> , <a href="#">Denny George</a> → I help build citizen centric open-source tools and datasets to understand and respond to <b>inaccurate</b> and <b>harmful</b> content. → I help build a browser extension <b>Uli</b> , that redact's slurs and abusive content, archive's problematic content, and collectively pushes back against <b>online gender-based violence</b> . Uli de-normalizes everyday violence that people of marginalized genders experience online in India.   [Media: <a href="#">UNFPA Report</a> ] → I lead the development of <b>Feluda</b> , a configurable engine for analyzing multilingual and multimodal content. Feluda helps fact-checkers and researchers in combating misinformation.   [Media: <a href="#">UNDP</a> ] → Feluda is being used as the back-end analysis engine on a national Deepfake detection <b>WhatsApp helpline (Deep-fakes Analysis Unit)</b> by the <b>Misinformation Combat Alliance</b> for <b>2024 Indian Lok Sabha elections</b> . This helpline is funded by Meta. [Media: <a href="#">Nirman Lab</a>   <a href="#">The Hindu</a>   <a href="#">Financial Express</a>   <a href="#">Mashable</a> ] → I build data pipelines to cluster large amount's of Audio and Video data into social media thematic labels like politics, humor, memes, devotional content etc. This work helps fact-checker's better understand, visualize and analyze the content received on their helpline. → Tattle engaged with a company to develop an <b>AI safety benchmark dataset</b> for hate and sex related crimes. As a part of this project, I also conducted a survey on evaluating Indic LLM's for natural language tasks and online harms.	
May 2022	<b>Ahmedabad University</b>	Ahmedabad, India
May 2021	Undergraduate Research Fellow   Advisors: <a href="#">Prof. Shilpa Pandit</a> , <a href="#">Prof. Keyur Joshi</a> Projects: Analysing people's psychological and physiological effects and experiences in the second wave of COVID-19, Perceivable Image Blur Quality Index	

## Publications

S=In Submission, C=Conference, W=Workshop, P=Preprints, J=Journal

[S.3]	<b>Improving Content Moderation for Indian Languages using Related Tasks</b> <a href="#">Aatman Vaidya</a> , <a href="#">Dipankar Srirag</a> , <a href="#">Aditya Joshi</a> [In Submission at WWW'25]	
[S.2]	<b>Strategies to Mitigate Spread of Toxicity on a Social Network</b> <a href="#">Aatman Vaidya</a> , <a href="#">Harsh Bhagat</a> , <a href="#">Seema Nagar</a> , <a href="#">Amit Nanavati</a> [In preparation]	
[S.1]	<b>Indic LLM Landscape Analysis</b> <a href="#">Aatman Vaidya</a> , <a href="#">Denny George</a> , <a href="#">Swair Shah</a> , <a href="#">Tarunima Prabhakar</a> [In preparation]	
[W.1]	<b>The Uli Dataset: An Exercise in Experience Led Annotation of oGBV</b> <a href="#">Arnav Arora</a> , <a href="#">Maha Jinadoss</a> , <a href="#">Cheshta Arora</a> , <a href="#">Denny George</a> ,..., <a href="#">Aatman Vaidya</a> , <a href="#">Tarunima Prabhakar</a> Workshop on Online Abuse and Harms at North American Chapter of the Association for Computational Linguistics ★ <b>Outstanding Paper Award</b>	[NAACL'24]
[C.3]	<b>Analysing the Spread of Toxicity on Twitter</b> <a href="#">Aatman Vaidya</a> , <a href="#">Seema Nagar</a> , <a href="#">Amit Nanavati</a> ACM International Conference on Data Science and Management of Data	[CODS-COMAD'24]
[C.2]	<b>Forecasting the Spread of Toxicity on Twitter</b> <a href="#">Aatman Vaidya</a> , <a href="#">Seema Nagar</a> , <a href="#">Amit Nanavati</a> IEEE International Conference on Cognitive Machine Intelligence	[IEEE CogMI'23]
[C.1]	<b>Overview of the 2023 ICON Shared Task on Gendered Abuse Detection in Indic Languages</b> <a href="#">Aatman Vaidya</a> , <a href="#">Arnav Arora</a> , <a href="#">Aditya Joshi</a> , <a href="#">Tarunima Prabhakar</a> International Conference on Natural Language Processing	[ICON'23]

## Select Research Projects

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### Modelling Spread of Hate Speech

Aug'22 - Present

Advisors: [Dr. Amit Nanavati](#), [Dr. Seema Nagar](#) (IBM Research India)

- > Worked on a novel model to capture the spread of hate speech on Twitter. Our model is based on user behaviour and captures two important factors: a) toxicity exists as a spectrum, i.e. hate is not binary, and b) toxicity is not conserved in a network. [Full Paper@CODS-COMAD'24]
- > We extended this work by studying toxicity as a time series and forecasted it using transformer-based models and graph CNNs. While network structure matters, we found that explicit connections may not always imply influence. [Full Paper@IEEE CogMI'23]
- > An in-depth empirical analysis led us to find users change behaviour with time and is impacted by its neighborhood. Developing a model that captures this finer phenomenon gives insights into creating strategies to mitigate hate speech. [In Submission]

### Tracking Online Gender Based Abuse

May'23 - Present

Advisors: [Tarunima Prabhakar](#)

- > Tracking **online harassment** that Women Politicians are facing in the 2024 Lok Sabha elections. Performing a cross-platform study across YouTube, Instagram and Facebook to understand the engagement that women politicians receive on their social media. Mapping how does harassment spread across online platforms? What kind of content posted by women candidates is commonly targeted?
- > Created a YouTube [Dataset](#) to track gender-based violence using a crowd-sourced slur list by [Gender Right Researchers and Activists](#). String matching algorithms and NLP models were used to analyse text in Indic languages. [🔗]
- > Improved NLP systems to understand coded language (dog-whistle or double-meaning words).

### Content Moderation for Indian Languages

Jul'23 - Present

Advisors: [Aditya Joshi](#)

- > Improving NLP systems for content moderation in Indian languages by breaking down the task into key sub-tasks, like hate speech, toxicity, sarcasm, sexism, cyberbullying, and gender-based violence detection.
- > Adding context to models to reduce social biases helping in improving content moderation.

## Talks

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### “Modelling Hate Speech on a Social Network”

- > Social Network Analysis Class (CSE533) *Invited Guest Lecturer* [🔗]

Apr'24 (Ahmedabad University, India)

### “Building NLP classifiers to detect Hate Speech”

- > ACM Winter School on Network Science *Invited Speaker*

Dec'23 (Ahmedabad University, India)

### “Tools to respond to Online Gender Based Violence”

- > [Digital Citizen Summit](#) *Invited Speaker*

Nov'23 (Remote)

## Achievements

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**Bosch Future Mobility Challenge | Semi-Finalist** [🔗] 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. [📺] [🎥]

**Outstanding Paper Award** Workshop on Online Abuse and Harms at NAACL'24

**Ingenious Hackathon 3.0 | Winner** Open Source Track

## Academic Service

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**Shared Task Organiser** ICON'23 (Gendered Abuse Detection in Indic Languages) [🔗]

**Reviewer** ACL Rolling Review'24

## Teaching and Leadership Roles

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**Discrete Mathematics (MAT 101), Ahmedabad University** *Teaching Assistant*

Nov'22 - Mar'23

- > Responsibilities included evaluating assignments, and helping students with the coursework.

**Center for Learning and Empowerment (NGO)** *Volunteer Teacher* [🔗]

Jul'23 - Apr'23

- > Taught 20+ secondary school kids mathematics for an entire academic year, at a tribal village in Jharkhand, India.

- Reading Group, Ahmedabad University** *Organiser* [🔗] Dec'21 - May'22  
 > Organized a weekly Reading Group focused on reading recent and classical papers in Computer Science.
- Programming Club, Ahmedabad University** *Content Head and Event Organiser* [🔗] Jul'20 - May'22  
 > Co-organized and curated events around Web Development, Machine Learning and Competitive Programming.
- Google Android Study Jams Facilitator** *Instructor* [📺] [🔗] Dec'21 - Jan'22  
 > Conducted 3 sessions teaching Android Development in Kotlin to 40+ students.
- Usable Pasts, Sustainable Futures** *Student Volunteer* [🔗] [📺] [📄] Jan'23  
 > Worked under Dr. Tejaswini Niranjana to understand how historically effective practices around Food, Clothing and Housing (*roti-kapda-makan*) can help mitigate climate change and public health issues.

## Skills

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<b>Languages</b>	Python, JavaScript, Elixir C/C++, Kotlin, GraphQL
<b>Frameworks/ Libraries</b>	PyTorch, Tensorflow, Nodejs, OpenCV, networkx, CameraX, Elasticsearch, Sequelize
<b>Databases and Developer Tools</b>	MySQL, PostgreSQL, Docker, AWS (S3, EKS, EC2), aws-cli, Kubernetes (kubectl), CI/CD, Android Studio, Firebase