

Durga Sharma

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EDUCATION

Guru Gobind Singh Indraprastha University

June 2026

Bachelor of Technology in Artificial Intelligence and Machine Learning

PUBLICATION

Cyberbullying Trends in Indian Sports - A Sentiment Analysis of Twitter Feeds

Durga Sharma, Rahul Johari

Springer's Advances in Data and Information Sciences @ ICDIS, 2024

RESEARCH EXPERIENCE

International Institute of Information Technology, Hyderabad

June 2025 - Present

Research Intern

- Working on prosody disambiguation in speech using LLMs, LSTMs, and GRUs, to distinguish between various types of intonations, under the guidance of Jhansi Mallela and Dr. Chiranjeevi Yarra.

Indian Institute of Technology (BHU), Varanasi

July - September 2025

Summer Research Intern

- Working on classifying bird species from audio calls using CNN models under the supervision of Dr. Chiranjit Pal and Dr. Sanjay Kumar Singh.

Guru Gobind Singh Indraprastha University

February - September 2024

Research Assistant

- Worked on sentiment analysis of code-mixed and code-switched datasets using large language models (LLMs) under the guidance of Dr. Rahul Johari.

SELECTED RESEARCH PROJECTS

Investigating Prosody-Driven Semantic Disambiguation in Spoken Inputs

June 2025 - Present

With: **Jhansi Mallela** and **Chiranjeevi Yarra** | *IIT Hyderabad*

- Designed and compiled a dataset of 1,200 spoken utterances to study prosodic cues distinguishing declarative and interrogative intonation.
- Conducted comparative analysis of LLaMA 3, Qwen 2, and Gemini 1.5 by converting audio inputs into pitch values and evaluating model performance on prosodic classification tasks based on accuracy.
- Designed a LSTM model with better accuracy at classification than LLMs. Also applied the Momel algorithm to understand the pitch curve.

Keyless Cipher Decryption Using Neural Networks

October 2025 - Present

With: **Rahul Johari** | *USAR*

- Designed and evaluated neural architectures (MLP, Char-CNN, LSTM, Transformer) on six classical ciphers to analyze how architectural inductive biases affect structured pattern learning.
- Established classical ciphers as a controlled testbed for model bias evaluation by demonstrating architecture strengths, failure modes, and learnability limits under fixed vs randomized key settings, for natural and constructed languages

Bird Species Classification using Audio Recordings

July - September 2025

With: **Chiranjit Pal** and **Sanjay Kumar Singh** | *IIT BHU*

- Designed and implemented a deep learning model for automated bird species identification, successfully classifying 182 distinct species from audio recordings.

Exploring AI Safety - Model Diffing for Capability Shifts in Multilingual NLP

August 2025

- Fine-tuned XLM-RoBERTa on XNLI (NLI) tasks in English and Hindi to analyze multilingual performance trade-offs.
- Applied model diffing to track capability shifts, identifying where improvements in one language led to regressions in another.

Translation of Code-Mixed and Code-Switched Tweets Using LLMs

July - September 2024

With: **Rahul Johari** | Poster @ CODS-COMAD 2024 | *USAR*

- Evaluated Hugging Face models, OpenAI and Anthropic for translating and analyzing code-mixed and code-switched tweets, enhancing sentiment accuracy.
- Benchmarked LLMs to determine the best model for accurate sentiment analysis of mixed-language content.

Social Media Sentiment Analysis Using Graph Neural Networks

February - May 2024

With: **Rahul Johari** | *USAR*

- Compiled and analyzed 30,000 tweets about Indian athletes over six months, using 'googletrans' to translate non-English tweets and 'nltk' for sentiment analysis, scoring each tweet from -1 to +1.
- Created sentiment vs. time and average sentiment vs. time graphs to track and visualize changing public sentiments towards athletes.

SKILLS

Languages: C/C++, Python

ADDITIONAL ACADEMIC EXPERIENCE

IIIT's Advanced Summer School on Natural Language Processing

June 2025

Multi-modal NLP: Bridging Speech and Text, IIIT Hyderabad

CODS-COMAD 2024 | *Poster Presentation*

December 2024

Presented a poster on my research, held at IIT Jodhpur

ACM India Winter School

December 2023

Data Science for Social Good, SRM Chennai

ACM India Summer School

June 2023

Cybersecurity, SSN Chennai

POSITIONS OF RESPONSIBILITY

USS ACM Student Chapter | *Vice Chair*

December 2022 - August 2025

Actively contributed as an Executive Member and Content Head, before taking on as the Vice Chair, fostering community engagement and technological innovation.

Google Developer Student Club | *Core Team Member*

November 2023 - August 2024

Served as a Core Team Member, facilitating workshops and initiatives to empower students in technology.

VOLUNTEER EXPERIENCE

Aashray Foundation | *Teaching Volunteer*

September 2024 - November 2025

Volunteer at Foundation's Pathshala, teaching Maths, English, and other subjects to young children.