

Reva Hirave

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Research Interests

My primary research interest lies in using computational techniques to explore how digital forms of communication influence our thinking. I'm eager to apply these insights to better social media platforms, aiming to foster more meaningful online interactions and raise awareness of the biases that such technologies can instill.

Keywords: *Computational social science, Natural Language Processing, Social Media, Public Discourse*

Education

Princeton University

Fully-funded MSE Computer Science

Fall 2025 – Spring 2027

George Mason University

BSc in Applied Computer Science: Software Engineering

Fall 2021 – Spring 2025
(Expected)

- **GPA:** 3.81/4.0
- **Minors:** Computational and Data Sciences, Web Design
- **Academic Programs:** Honors College, Combined Bachelors/ Accelerated MS CS, CS Departmental Honors, Undergraduate Research Scholars Program, George Mason NLP Group
- **Extracurriculars:** Society of Asian Scientists and Engineers (SASE), Mason Taekwondo

Research Experience

NLP Research Intern

KaDSci, LLC

Fairfax, VA

Aug 2024 - December 2024

Under the direction of Dr. Daniel Maxwell

- **Fine-grained Reddit Discourse Analysis with LLoM**
 - Developed and evaluated fine grained combined topic modeling and sentiment analysis techniques to evaluate public discourse on NASA's Project Artemis using LLM-assisted concept induction, LDA, and VADER
- **Intent-Based Orchestration in Command & Control**
 - Modeled the workings of complex Air Force operations using a Protege-based ontology and Allen's Interval Algebra to reduce redundant computation and optimize system performance.
 - Led the integration efforts, building wrappers around the ontology using the OwlReady2 Python package to enable seamless system interaction.

Data Science Intern

Center for Speech and Language Processing, Johns Hopkins University

Baltimore, MD, Remote

Jun 2024 - August 2025

Under the direction of Dr. Jason Eisner

- **AI-Curated Democratic Discourse**
 - Developed a full-stack social media platform aimed at reducing political polarization by using AI as a part of a multidisciplinary team.
 - Implemented and optimized a large-scale, multi-threaded data mining pipeline to harvest articles and comments from Fox News and The New York Times, simulating discussions between sources.

Undergraduate Researcher

Natural Language Processing Group, George Mason University

Fairfax, VA

Aug 2023 - May 2025

Advised by Dr. Antonis Anastasopoulos

- **An Evaluation of Viewpoint Diversity Metrics for Social Media**
 - Independent research project that is an extension of summer work. Examines computational methods of quantifying polarization across social media platforms to better understand how the design of such platforms can affect how its users communicate
 - Funded by GMU Undergraduate Research Scholars Program.
- **Evaluating Linguistic Relativity Through the Grammatical Gender of Inanimate Nouns and their Co-occurring Adjectives**
 - Funded by GMU Undergraduate Research Scholars Program, accepted to 2024 Network for Undergraduate Research in Virginia (NURVa) Conference, and presented at GMU Spring 2023 end-of-semester celebration for

student research.

Teaching Experience

Teaching Assistantships

Industry-Sponsored Senior Design Project [CS 491]	Fall 2024
Data Structures and Algorithms [CS 310]	Spring 2023
Intro to Computational and Data Sciences Lab [CDS 102]	Fall 2022

Peer Mentorships

GMU LGBTQ+ Resources Center	Fall 2023
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Industry Experience

IT Specialist Intern

RP Professional Services, LLC Remote
Feb 2024 - May 2024

Software Architecture Intern

Zeta Associates, Inc Fairfax, VA
Jun 2023 - Aug 2023

Design and Front-end Development Intern

Argot Nova, LLC Remote
Dec 2022 - Aug 2023

UI/UX Intern

Nexus 8 International, LLC Remote
Jun 2022 - Dec 2022

Awards and Honors

Computer Science Departmental Honors

First student to complete all the requirements outlined by the GMU CS Department Spring 2025

Dean's List

Maintained a GPA of 3.5 or higher each semester Fall 2021 - Spring 2025

Undergraduate Research Scholars Program Grant

Awarded research funding for independent projects by GMU for three semesters Spring 2023 - 2025

Break Through Tech AI Fellowship

Selected for a competitive AI-focused fellowship program for women in tech Summer 2024

Outstanding BAM Student

Sole recipient of academic excellence award in the BS / Accelerated MS program Spring 2024

Goldwater Nominee

Nominated by GMU for Goldwater Scholarship for research in computational sociolinguistics February 2024

Deltek Software Engineering Scholarship

Awarded a merit-based scholarship in software engineering by Deltek, Inc. January 2023

Technical Skills

- **Programming Languages:** Python, Java, C, R
- **NLP Tools & Libraries:** HuggingFace, WordNet, Stanza, scikit-learn, Keras, PyTorch, NLTK
- **Data Analysis & Visualization:** Pandas, NumPy, Matplotlib
- **Computational Social Science Techniques:** Sentiment Analysis, Data Mining (Selenium, Selenium-wire)
- **Databases:** SQL, MongoDB

Projects

Ditto, Ditto: A Multilingual Re-Implementation of a Simple and Efficient Approach to Improve Sentence Embeddings

Spring 2024

- Re-implemented a diagonal attention pooling approach to sentence embeddings, extending it to four additional languages and benchmarking performance on machine-translated STS datasets.

AI Text to Image Generator

Fall 2023 - Spring 2024

- Developed a full-stack web app for generating 2D images from text inputs using large language models for corporate client, implemented semantic information retrieval using vector database and embedding model.

Publications

Conferences attended: SouthNLP 2024, MASC-SLL 2024, MASC-SLL 2025, EMNLP 2024
No publications yet. Working on manuscripts!