Arunima Maitra

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Education

University of Colorado Boulder **Boulder, Colorado**
MS in Computer Science (GPA: 3.8/4) *Sep. 2023 – May 2025*
Advisors: Prof. Katharina von der Wense, Prof. Amir Behzadan

R V College of Engineering **Bangalore, India**
BE in Computer Science *Sep. 2018 – July 2022*

Experience

University of Colorado Boulder **Boulder, Colorado**
***Research Assistant**, Connected Informatics and Built Environment Research (CIBER) Lab* *Nov. 2024 – Present*
Advisor: Prof. Amir Behzadan

- Designed and implemented an LLM-driven disaster alert system using Gemini 1.5 to generate personalized emergency messages while ensuring compliance with IPAWS standards, in collaboration with FEMA.
- Implemented an RCT using Qualtrics survey to analyze user responses to personalized versus traditional alerts for 1000+ participants, with ongoing statistical analyses of key quality dimensions such as trust, clarity, and influence on proactive behavior.

***Graduate Researcher**, Natural Language Processing Group (NALA)* *Jan. 2024 – May 2025*
Advisor: Prof. Katharina von der Wense

- Conducted a large-scale analysis of dialogue acts in human–LLM interactions, evaluating conversational coherence and pragmatic alignment between human and model-generated responses.
- Developed a quantitative evaluation framework combining dialogue act distributions, perplexity metrics, and contextual variation to measure LLM adherence to human conversational norms.
- Implemented experiments on Llama-2 and Mistral models using the Switchboard Dialogue Act Corpus, revealing how dialogue act patterns serve as a diagnostic lens for conversational competence in LLMs.

***Graduate Research Assistant**, Computational Language and Education Research (CLEAR) Lab* *Nov. 2023 – July 2024*
Advisor: Prof. Susan Windisch Brown

- Supported DARPA's Active Interpretation of Disparate Alternatives (AIDA) program by extracting and categorizing critical entities from over 200 written documents.
- Enhanced cross-document event consistency detection and contributed actionable analysis for decision-making processes.

Oracle Cerner **Bangalore, India**
System Engineer 1 *Sept. 2022 – July 2023*

- Tested automated alerting protocols that reduced average response time to critical incidents from over 30 minutes to less than 10 minutes, improving client satisfaction and system reliability.

Digital Sherpa **Kolkata, India**
Data Science Intern *Apr. 2022 – Sept. 2022*

- Built an NLP-driven automation tool for scrutinizing court orders, reducing manual oversight time by approximately 60 hours per month within the Income Tax Department of India.
- Engineered an information extraction framework using Gensim, Flair, TextBlob, and Tesseract OCR, addressing key workflow inefficiencies.

Publications

1. Arunima Maitra, Dorothea French, and Katharina von der Wense. **Dialogue Acts as a Lens on Human–LLM Interaction: Analyzing Conversational Norms in Model-Generated Responses.** *Workshop on Bridging Human–Computer Interaction and Natural Language Processing, EMNLP 2025.*

2. Subashree Dinesh, Arunima Maitra, Mary Angelica Painter, and Amir Behzadan. **Public perception of AI-generated disaster alerts: Evidence from a randomized controlled trial study.** *In preparation for International Journal of Disaster Risk Reduction, 2025.*

3. Amir Behzadan, Arunima Maitra, and Subashree Dinesh. **The FLOODPERCEP Dataset: Flood Hazard Maps and Imagery for Studying Human Perception of Flood Risk.** *Scientific Data, 2025.(Under Review)*

4. Arunima Maitra, Amir Behzadan, and Subashree Dinesh. **The ALERTSENSE Dataset: Comparing Human Perception of AI-Generated Disaster Alerts and Conventional Warnings.** *In preparation for Scientific Data, 2025.*

Teaching

CSCI 1300: Starting Computing, University of Colorado Boulder *Fall 2024*
Instructor: Rhonda Hoenigman
Created quizzes and assignments, graded and held office hours for 500+ undergraduate students.

CSCI/LING 5832: Natural Language Processing, University of Colorado Boulder *Spring 2024*
Instructor: Maria L. Pacheco
Mentored and graded a class of 60+ graduate students.

Talks

Exploratory Study on Using Large Language Models for Personalizing Disaster Alerts
Annual Natural Hazards Research and Applications Workshop *July 2025*
Advancing the Science and Practice of Innovative, Relatable, and Engaging Disaster Risk Communication (ASPIRE) Workshop *Apr. 2025*

Additional Projects

Do LLMs 'Get' Medical Ethics? Probing Knowledge and Reasoning Through Multiple-Choice Evaluation

- Evaluated large language models' ability to reason about medical ethics using multiple-choice questions.

The Noun Down: Categorization of Nouns based on Grammaticality and Semantic Tests

- Analyzed how noun forms are categorized by grammatical and semantic properties in language data.

Comparing Grammatical Error Patterns Between Large Language Models and Preschoolers

- Compared preschoolers' grammatical errors with LLM-generated errors to study language acquisition patterns.

Leveraging Discourse Relations for TalkMove Dataset Analysis

- Analyzed dialogue discourse relations to understand conversational moves in educational datasets.

Service

Student Volunteer *July 2025*
Annual Natural Hazards Research and Applications Workshop

Director of Special Events *2024–2025*
Society of Women Engineers (SWE), CU Boulder

Graduate Peer Mentor *2024–2025*
Department of Computer Science, CU Boulder

Joint Director, Literary Services *2020–2021*
Rotaract Club of RVCE

Relevant Coursework

- Natural Language Processing
- Computational Models of Discourse
- Computational Lexical Semantics
- AI for Science
- Deep Natural Language Understanding
- Database Systems

Skills

Languages: English, Bengali, Hindi, Italian
Programming: Python, C, C++, Java, R, HTML, CSS, JavaScript, MATLAB, SQL
Libraries/Platforms: PyTorch, TensorFlow, scikit-learn, Keras, Pandas, NumPy, OCR, MySQL, MongoDB, AWS, Docker, Git, GitHub, Qualtrics, LaTeX, VS Code, Eclipse, Google Cloud Platform