Shreeya Sharda
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RESEARCH GOAL

I aim to leverage **natural language processing** (NLP) techniques and **responsible AI** (transparency, risk management, safety) frameworks to develop user-friendly and trustworthy interfaces for **human-robot** (HRI) task communication.

EDUCATION

The George Washington University - Master of Science, May 2026

- Major: Computer Science; GPA: 3.85/4.00
- Thesis Topic: A Comparative Analysis Between Combinations of Model Architectures (rule-based, deep learning, machine learning) & Dataset Types (original, synthetic) for Sentiment Analysis Tasks
- Thesis Advisor: Dr. Ayah Zirikly

The George Washington University - Bachelor of Arts, December 2024

- Major: Computer Science; Minor(s): Business, Sustainability; Cum Laude

RELEVANT COURSEWORK

Computer Vision (*planned* for Spring 2026), Machine Learning, Usable Security & Privacy For Human Computer Interaction, Natural Language Understanding, Data Mining

RESEARCH EXPERIENCES CORE TO HRI

Collaborative Research Projects
The School of Engineering & Applied Sciences — Washington, DC
Master's Thesis in **Natural Language Processing** — Aug 2025 - Present

- Developing a **Thesis report (15-20 pages)** on the relationship between different combinations of model architectures (TextBlob, Vader, BERT, RoBERTa, Gemini, logistic regression) and dataset types (original, synthetic) for Sentiment Analysis tasks, across diverse domains (tourism, product reviews); **This thesis is applicable to HRI because it directly tackles improving a robot's ability to understand and effectively respond to a human's overall intent via NLP**

The Institute of European, Russian, and Eurasian Studies Washington, DC
Undergraduate **Natural Language Processing** Research Assistant Feb 2021 - Present

- Directed a 3-year NLP research project applying sentiment analysis to human-centered social issues, resulting in a **first-author article** for December 2025 submission
- Provided NLP-driven insights on overcrowding in Juneau, resulting in a research **poster** for the **NSF-funded** Navigating the New Arctic (NNA) **conference**, a **research grant from GWU**, and NSF funding to **expand internationally** to Bergen and Norway

The MITRE Corporation Washington, DC
Computer Vision (CV) & Trustworthy AI Research Engineer May 2023 - May 2024

- Designed and evaluated the impact of different bounding box strategies, measured by the Intersection over Union (IoU) metric, for CV object detection models (YOLO, Faster R-CNN), **developing methodologies transferable to NLP evaluation tasks**; resulting in a **co-author white paper** for the National Geospatial Intelligence Agency (NGA)
- Authored 6 recommendations to strengthen the NIST Trustworthy AI framework, focusing on user-trust and explainability in CV systems – **principles directly applicable to HRI**; resulting in a **research paper** for the AI governance department

Independent Research Projects

- Multimodal Integration in Robots (HRI) February 2021 - May 2021
- Bayesian networks for ambiguous natural language (NLP) May 2023 - October 2023
- Designing a large language model (LLM) from scratch (NLP) May 2025 - Present

PROFESSIONAL COMMUNICATIONS

Journal Articles

- Shreeya Sharda, Zoe Garbis, Hannah Besly, Robert Orttung, "The Variables Impacting Tourists in Overcrowded Regions: A Case Study of Juneau, Alaska", Advised by Dr. Robert Orttung, Submitting for peer review in December 2025

Reports: White Papers + Research Papers

- “Evaluating Computer Vision Object Detection Strategies for Commercial Geospatial Intelligence”, The MITRE Corporation, May 2024 - August 2024, **white paper** for National Geospatial Agency (NGA)
- “Advancing Transparency & Explainability of Object Detection Computer Vision Models”, The MITRE Corporation, May 2023 - August 2023, **research paper** for AI Governance Department
- “Evaluating AI Governance Strategies for High Risk Vs Low Risk Use Cases in National Security”, The School of Engineering & Applied Sciences, January 2024 - May 2024, **semester-long research paper** for Information Policy course

- "Using Python To Implement ML + Data Mining Techniques To Clean, Analyze, & Interpret Unstructured Datasets To Increase Capital Bikeshare Revenue", The School of Engineering & Applied Sciences, August 2023 - December 2023, **semester-long research paper** for Data Mining course

Research Posters

- Shreeya Sharda, Miah Vesotsky, Thalia Navia, Hannah Besly, James Powell, Robert Orttung, **"Navigating Impacts of the Arctic Tourism Industry on Nature, Commerce, and Culture in North Communities"**, National Science Foundation (NSF) Navigating the New Arctic (NNA) Conference, March 2024

RESEARCH GRANTS

- Awarded. Shreeya Sharda, Zoe Garbis, Robert Orttung (PI), Elliot School Of International Affairs (ESIA) Mining Grant, **"Navigating Impacts of the Arctic Tourism Industry on Nature, Commerce, and Culture in North Communities"**, January 2022
    - **Role:** Aided in grant proposal writing and contributed **NLP-driven insights**, **reflecting my ability to organize R&D to leverage NLP to improve HRI task communication**

TEACHING EXPERIENCES

- Teaching Assistant for Algorithms in Python, The School of Engineering & Applied Sciences, Computer Science, August 2021 - May 2022
- Coding Instructor, Code Advantage, January 2025 - Present

HONORS & AWARDS

- School of Engineering & Applied Sciences (SEAS) Honor Award (25% Tuition Reduction), The George Washington University, January 2025 - May 2026
- Dean's List, The George Washington University, August 2020 - September 2021

MEMBERSHIPS

- GW Robotics Team, Member, August 2025 - Present
- Association for Computing Machinery, August 2022 - Present

TECHNICAL SKILLS

- **Electronic Prototyping Kits:** Arduino Uno, Raspberry Pi
- **Robotics Software & Tools:** ROS1 (Linux), ROS2 (MacOS), Gazebo
- **Computer Vision Tools & Libraries:** CUDA, YOLO, MATLAB, openCV, PyTorch, Keras
- **NLP Tools:** Hugging Face (Transformers library)