Miles Stanley

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Education

University of Washington — Seattle, WA
Bachelor of Science in Computer Science (GPA: 3.95/4.0) — *Expected June 2026*

Awards & Honors

REU Conference Travel Grant, *Rochester Institute of Technology* ($2,980) — 2025

Annual Dean's List, *University of Washington* — 2023 – 2025

Research Interests

Robust Machine Learning, Explainable AI, Natural Language Processing, AI for Healthcare and Social Good.

Research Experience

Undergraduate Research Assistant — Nov. 2024 – Present
UW School of Medicine, NEST Program — *Seattle, WA*

- *Advisor: Prof. Rachel Umoren*
- Evaluated signal denoising techniques to improve neonatal heart rate measurement during ambulance transport.
- Developed multithreaded Python scripts using Tesseract OCR to automate data extraction from medical reports, achieving a 75% reduction in execution time.
- Developing an NLP system using LLMs (Llama 3.1) to evaluate medical simulation transcripts for automated scoring and feedback.

REU Researcher — May 2025 – August 2025
Rochester Institute of Technology — *Rochester, NY*

- *Advisor: Prof. Ashiqur KhudaBukhsh*
- First author on a project investigating "vaccine buyer's remorse" in a large corpus of YouTube comments.
- Implemented a multi-stage hybrid pipeline to quantify nuanced, politically charged sentiment at scale.
- Created a novel benchmark dataset of 2,000 comments, annotated by a politically diverse panel to mitigate subjectivity and rater bias.
- Fine-tuned and evaluated multiple LLMs (e.g., Llama 3, Mixtral) to classify 600k+ comments based on narrative perspective and the presence of regret.

Undergraduate Research Assistant — Oct. 2024 – May 2025
University of Washington, Make4All Group — *Seattle, WA*

- *Advisors: Prof. Jennifer Mankoff, Brianna Wimer (Ph.D. Student)*
- Collaborating on the development of generative AI tools to create accessible flowcharts.
- Performed rigorous quality assurance and error analysis on 200+ model-generated code outputs (Mermaid.js) to identify systematic model failures and guide improvements.

Publications & Presentations

Stanley, M.*, Datta, S., Kumar, A., & KhudaBukhsh, A. R. (2025). Investigating Vaccine Buyer's Remorse. *To appear in the Proceedings of the AAAI Conference on Artificial Intelligence (AAAI).*

Wimer, B. L., **Stanley, M.***, Ack, H., Haley, S., Metoyer, R. A., & Mankoff, J. (2025). AccessFlow: From Diagram Images to Structured Access. *Manuscript in preparation.*

Investigating Vaccine Buyer's Remorse. Oral presentation at the RIT Undergraduate Research Symposium, Rochester, NY. (July 2025)

Improved Neonatal Heart Rate Measurement During Ambulance Transport. Poster presented at the UW Undergraduate Research Symposium, Seattle, WA. (May 2025)

Independent Research

Generative Rationale-Guided Training (GRGT) Sept. 2025 – Present
CSE 493S: Advanced Machine Learning *Seattle, WA*

- Architected a novel teacher-student framework to instill robust reasoning in smaller models by leveraging LLM-generated rationales.
- Created a dual-objective loss (Cross-Entropy and KL Divergence) to reduce reliance on spurious correlations.
- Outperformed baseline accuracy by 10% (77% vs 70%) on out-of-distribution Twitter data and improved causal sufficiency by 21% (0.61 to 0.74).

Teaching & Mentorship Experience

First-Year Interest Group (FIG) Co-Leader Autumn 2025
University of Washington *Seattle, WA*

- Co-led weekly seminar for 25 first-year students to ease their university transition and build a learning community.

Outreach Volunteer, Hour of Code Dec. 2024
University of Washington, COM^2 *Seattle, WA*

- Led two "Hour of Code" workshops on programming and computer vision for middle and high school students.
- Mentored students through hands-on learning challenges, including training a model to recognize gestures.

Technical Skills

Languages: Python, Java, JavaScript, TypeScript, C, Bash | **Tools**: Git, Docker, VS Code
AI/ML: PyTorch, Hugging Face, Scikit-learn, Pandas, NumPy, Matplotlib
Spoken: English (Native), French (Fluent)

Relevant Coursework

CS & AI: Advanced Machine Learning, Natural Language Processing, AI, Data Structures & Parallelism
Math & Stats: Matrix Algebra, Intro to Probability & Statistics, Calculus I-III