ANUSHA SARRAF

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EDUCATION

Purdue University West Lafayette, IN

- MS, Major: Computer Science, Track: Machine Intelligence Jan 2025 – Dec 2026
- Research thesis

Purdue University West Lafayette, IN

- BS, Major: Computer Science, Track: Machine Intelligence Aug 2020 – May 2024
- Minor: Philosophy

RESEARCH EXPERIENCE

CAMP Lab, Purdue University West Lafayette, IN

Research Assistant with Dr. Joseph Campbell Jan 2025 – Present

- Designed framework to predict model performance on OOD data using sparse autoencoder activations (pre-print under revision)
- Modelling intention-driven behavior prediction on everyday egocentric data within an offline reinforcement learning formulation, leveraging CI/CD pipelines for scalable experimentation and deployment

Carnegie Mellon University Remote

Research Assistant with Dr. Min Xu Sep 2024 – Dec 2024

- Assisted in developing a counterfactual explanation framework for deep model prediction visualizations
- Reproduced baseline XAI methods and benchmarked across multiple architectures
- Converted models between Keras and TensorFlow to enable interoperability testing

Meta – IDEAS Lab, Purdue University West Lafayette, IN

Lead Researcher with Dr. Aniket Bera July 2024 – Aug 2024

- Multimodal egocentric data capture of user's perspective using Project ARIA (Augmented Reality Intelligent Assistant) to identify patterns in individualistic human behavior
- Using post-processing SLAM, Multi-SLAM, Eye Gaze, and Hand Tracking derived data outputs to inform future product development strategies and advance research in machine perception and augmented reality

Duality Lab, Purdue University West Lafayette, IN

Research Assistant with Dr. James Davis May 2023 – Aug 2023

- Contributed to ONNX model converter testing in a Cisco-sponsored bug study; co-authored ACM SIGSOFT publication
- Automated data collection from GitHub and Stack Overflow using RestAPI, Graph QL, and OpenAI API
- Built tf2onnx converter and assisted in implementing test coverage systems to analyze compatibility across major deep learning frameworks

Discovery Park, Purdue University West Lafayette, IN

Research Assistant with Dr. Gaurav Nanda and Dr. Romila Pradhan Jan 2023 – May 2023

- Training and testing classification models on Occupational Safety and Health Administration data to determine accuracy of occupational hazard descriptions
- Hybridized combination of one-word, two-word, and three-word history models with binomial and multinomial logistic regression models on 10,000+ balanced and unbalanced data entries to observe F1, recall, and precision metrics

Sandia National Laboratories Albuquerque, NM
Machine Learning Research Intern with Dr. Mark Stevens Jun 2022 – Jul 2022

- Automated chemical structure-to-ML pipeline using RDKit and MoleculeNet
- Designed high-speed structure sorting mechanism for fatty acids to accelerate compound discovery
- Disseminated research process by presenting to 50+ scientists, students, and professors

Discovery Park, Purdue University West Lafayette, IN
Research Assistant with Dr. Nadia Gkritza Feb 2022 – May 2022

- Built a geospatial sentiment database to for EV adoption using 300+ Twitter discussions across all U.S. states
- Categorized user feedback across 12 industry dimensions to derive regional and thematic insights

Dr. Erik Hoel Research Group, Tufts University Remote
Research Intern July 2019 – Oct 2019

- Conducted comparative linguistic analysis on Twitter data of world leaders using logistic regression models
- Built and cleaned custom datasets to study neural network behavior on real-world text

TEACHING EXPERIENCE

Department of Philosophy, Purdue University West Lafayette, IN
Teaching Assistant, Ethics of Data Science Aug 2023 – Dec 2023

- Led weekly recitation sections and graded coursework for 50+ students
- Collaborated with four other TAs to ensure alignment with instructional goals and communicated student feedback post-course

FELLOWSHIPS AND AWARDS

Archival Presentation Posters (third place) April 2023
Spring Undergraduate Research Conference, Purdue University
Dean's List, Purdue University Fall 2023, 2022, 2021, 2020 and Spring 2023
Semester Honors, Purdue University Fall 2023, 2022, 2020

PUBLICATIONS

Sarraf, A. (2022). Understanding of Public Discuss on Equity Issues in Transportation Electrification Using Social Media Crowdsourcing Data. https://docs.lib.purdue.edu/duri/21

Jajal, P., Jiang, W., Tewari, A., Kocinare, E., Woo, J., Sarraf, A., ... & Davis, J. C. (2024, September). Interoperability in Deep Learning: A User Survey and Failure Analysis of ONNX Model Converters.

In *Proceedings of the 33rd ACM SIGSOFT International Symposium on Software Testing and Analysis*(pp. 1466-1478). https://dl.acm.org/doi/abs/10.1145/3650212.3680374

SERVICE

Reviewer AAAI'26
Society of Women Engineers Mentor Spring 2025

PRESENTATIONS

"Odiff: Differential Testing of ONNX Model Converters". Research talk delivered at Summer Undergraduate Research Symposium, Purdue University, West Lafayette, IN, Aug 2023

"Investigating Explainability of ML Model Decisions for Injury Surveillance". Poster presentation delivered at Spring Undergraduate Research Conference, Purdue University, West Lafayette, IN, April 2023

"Optimization of discovery of chemical compounds". Virtual poster presentation delivered at Summer Undergraduate Research Symposium, Purdue University, West Lafayette, IN, July 2022

"Inputting chemical structure in Machine Learning Codes". Research talk delivered at Center for Integrated Nanotechnologies, Sandia National Laboratories, Albuquerque, NM, July 2022

"Understanding of Public Discuss on Equity Issues in Transportation Electrification Using Social Media Crowdsourcing Data". Poster presentation delivered at Spring Undergraduate Research Conference, Purdue University, West Lafayette, IN, May 2022

PROJECTS

Food For Thought| *AI Chatbot* July – Aug 2024

- Built LLM-based restaurant FAQ chatbot using Ollama in Langflow with Retrieval-Augmented Generation (RAG) powered by Astra DB

Sign2Text| *Group Project* June – Aug 2024

- Converts ASL symbols to real-time text using OpenCV and PyAutoGUI

Optical Character Recognition (OCR) | *Group Project* Oct 2023 – Nov 2023

- Used OpenCV and NLTK to extract objects/text from entity-relationship diagrams
- Evaluated k-means clustering on stemmed vs unstemmed text embeddings

Pacman Jan 2023 – May 2023

- Implemented DFS, BFS, A*, minimax, and expectimax for adversarial maze solving

Shell Project Sep 2022 – Nov 2022

- Developed a Unix-style shell supporting wildcards, subshells, environment variable expressions, redirection, and piping using low-level system calls

Malloc Aug 2022 – Sep 2022

- Built a custom `malloc()` and `free()` using `sbrk()`, managing dynamic memory via free lists and block coalescing; debugged with GDB, Valgrind, and tested via CUnit

BoilerGram | *Group Project, Social media app* Sep 2020 – Dec 2020

- Real-time Java-based social media app with GUI

Flask Chat App | *Web App* Jun 2019 – July 2019

- Enables secure and private real-time communication by using only one-time read text message features across multiple user platforms using Python Flask, JavaScript, CSS, Heroku

Indian Premier League (IPL) | *Database Management* Nov 2018 – Dec 2018

- Built a database using binary files in C++ with user identification features

SKILLS

Languages: Python, C/C++, Java, JavaScript, Rust, XML, HTML/CSS, R, SQL, GraphQL, Assembly, Bash
Frameworks/Tools: PyTorch, TensorFlow, ONNX, OpenCV, Langflow, Flask, Neo4J, RDKit, MongoDB, Astra DB, AWS, GCP, Docker, Git, Valgrind, NLTK, PyAutoGUI, pipenv
Concepts: LLMs, Explainability, Counterfactuals, SLAM, Graph-based ML, Interoperability, Human-AI Collaboration

COURSEWORK

Computer Science: Deep Learning, ML & Data Mining, Robot Learning, XR, Systems Programming, Compilers, AI, Databases, Web Information Search and Management, Information Security, Motion Planning
Philosophy: Ethics, Philosophy of AI, Mind, Ancient Philosophy, Persuasion
Other: Scientific Writing & Communication, Probability, Statistics, Linear Algebra

REFERENCES

Available upon request.