

SWETA PATI

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EDUCATION

George Mason University

Aug. 2023 – May 2025

Masters in Computer Science specializing in Machine Learning; GPA: 3.89

Fairfax, VA

Kalinga Institute of Industrial Technology

May 2016 – May 2020

Bachelors in Computer Science; GPA: 3.60

Odisha, India

RESEARCH AND PROJECTS

Event Extraction

Advisor: Prof. Ziyu Yao [2024]

Enhancing Event Extraction using instruction-tuned LLMs to achieve superior performance on unseen Domains. (Ongoing)

- Synthesized comprehensive guidelines for 13 datasets involving 500+ event and 4000+ arguments, achieving a 8% absolute increase in F1-score through LLaMA-3.1 8B with LoRA and several regularization techniques.
- Engineered preprocessing step to transform unstructured natural language text into structured code prompts across 13 datasets, enhancing evaluation and reducing hallucination by leveraging implicit prompt optimization.
- Constructed an ontology for events and arguments in code prompt applicable to 3 different EE tasks across 8 domains.
- Fine-tuned and evaluated LLaMA-3.1 8B model for EAE, ED, and E2E tasks using a custom-designed evaluation script.

Prompt Optimization

Advisor: Prof. Ziyu Yao [2024]

Prompt Optimization in Event Extraction (Ongoing)

- Compared different prompt engineering techniques such as zero-shot, few-shot, CoT, and prompt optimization.
- Explored Monte Carlo Tree Search-based and fine-tuning approaches to prompt optimization on 3 datasets.
- Aiming to deliver clearer, more actionable inputs that improve the overall functionality and reliability of LLMs in identifying and classifying events

PROFESSIONAL EXPERIENCE

George Mason University

Jun. 2024 – Present

Research Assistant

Fairfax, VA

- Working with Prof. Ziyu Yao on diverse NLP topics such as Event Extraction and Prompt Engineering.

Highradius Technologies Private Limited

Sep. 2020 – Aug. 2023

Data Scientist

Odisha, India

- Implemented an end-to-end imbalance classification ML model - Deduction Validity Predictor(DVP) for 25 Fortune 500 clients like Nestle, Kraft Heinz, Clorox, with 85% average accuracy, increasing their recovery rate by 12% in US dollars.
- Conceptualized and productionized ML regression model pipeline aimed at Payment Date Prediction (PDP) for 20 Fortune 500 clients like Uber, AstraZeneca, Kellogs, successfully reducing their Days Sales Outstanding (DSO) by 30%.
- Reduced DVP implementation timeline by 48% and PDP by 57% by automating the ML and deployment pipeline.
- Developed a digital assistant - Freeda used by Fortune 500 companies to realize the intent behind hundreds of thousands of user questions providing appropriate response to the AR analyst for multiple Highradius cloud products.
- Mentored over 15 interns in critical data science and business concepts for the 2021 and 2022 internship program.

Research Intern

Jun. 2018 – Jun. 2018

Indian Institute of Technology, Kharagpur

West Bengal, India

- Implemented BCH error correction code and compared existing test suites in OpenSSL with the proposed authentication protocol, published a research paper titled “[An OpenSSL Extension for PUF based Authentication](#)” in [IEEE DSP 2018](#).

TECHNICAL SKILLS

Languages: Python, Java, SQL

Data Science, Machine Learning, Deep Learning, and NLP: Statistics, Classification, Regression, Ensemble Methods (Bagging, Boosting), Clustering, Time Series, Scikit-Learn, PySpark, Spark, Hugging Face Transformers, YOLO, ML Ops, Neural Networks, CUDA, HPC, Natural Language Processing, Large Language Models, Fine Tuning, RAG, Generative AI

General Technical Skills: Tableau, Data Visualization, Scripting, Modeling, Predictive Modeling, Data Mining, Data Analysis, Advanced Analytics, Problem-Solving, Experimental Design, Databricks

Cloud, Frameworks and Tools: Pytorch, Dialogflow, GIT, GitHub, Jira, Docker, AWS Cloud

AWARDS AND CERTIFICATION

- Oracle Cloud Infrastructure 2024 Generative AI Certified Professional, Oracle, (Aug 2024)
- Awarded as Best Performer of the Team for 3 quarters, Highradius Technologies (Q3 2020, Q1 and Q4 2021)
- Winner at Smart India Hackathon 2019, Government of India (Mar 2019)