

Charvi Kusuma

kcharvi01@gmail.com +1 7168032646 [Linkedin](#) [Portfolio](#) [Github](#) [Leetcode](#)

EDUCATION

University at Buffalo, The State University of New York

Aug 2023 - Jan 2025

MS, Computer Science and Engineering; GPA: 3.96/4.0 (AI/ML Track)

Graduate Student Assistant - Data Intensive Computing (Machine Learning, Hadoop, MapReduce, Spark) for Fall 2024.

Vellore Institute of Technology

Jul 2019 - Jun 2023

Bachelor of Technology, Computer Science; GPA: 9.58/10.0

Honored with Chancellor's Gold Medal for best outgoing student and Academic Excellence Award for securing 2nd rank. [Link](#), [Link](#)

EXPERIENCE

Amazon Development Center

Jan - Jun 2023

Software Development and Operations Intern - [Certificate](#)

Bangalore, India

- Developed and rectified 120+ integration test cases, ensuring CI/CD and reducing weekly 30 hours of manual effort.
- Mitigated 20 security risks & built pipeline with bulk action scripts (Python), enhancing data protection for future instances.
- Onboarded 3000+ user permission sets to AWS Secrets Manager with Lambda functions and automated workflows.

JP Morgan Chase & Co.

Jun - Jul 2022

Software Engineering Intern - [Certificate](#)

Hyderabad, India

- Delivered 85% effective remodeling POC for migrating from Splunk to Grafana, reducing 60+ hours of integration time.
- Devised backend solution in Java to redirect 3 service requests, using metric monitoring tools (Prometheus, Elasticsearch).
- Illustrated 5 customized visualizations on Grafana to validate migration, ensuring accurate retrieval of previous requests.

Nanyang Technological University (NTU)

Jan - Jun 2022

Research Intern, Advisor Prof. Erik Cambria - [Certificate](#), [Github](#)

Remote

- Analyzed 25K+ tweets on Immigration Reforms, providing error analysis and performance improvements for [SenticNet APIs](#).
- Identified changes in APIs comparing 3 NLP tools (TextBlob, VADER, Gensim) for concept parsing and polarity of sentiments.
- Implemented Semantic Similarity Analysis using unsupervised ML solution, improving the policy strategy for 2 APIs.

SKILLS

Programming Python, Java, SQL, JavaScript, HTML, CSS, R, C/C++

Tools Git, GitHub, CUDA, Docker, AWS, Postgres, MYSQL

Libraries PyTorch, Scikit-learn, TensorFlow, Keras, SpaCy, Word2Vec, NLTK

Frameworks Flask, Flutter, React, Node.js, Material-UI, Bootstrap, Streamlit

Courses Deep Learning, Computer Vision, Reinforcement Learning, Natural Language Processing, Algorithms, DBMS

People Skills Active Listening, Cooperative Mindset, Curious to optimize, Insist on high-quality, Strategic Initiative

PROJECTS

PIC-LoRA: Pedestrian Intention Classification

Jun - Sep 2024

Low Rank Adaptation Technique on Pedestrian Object detection & Intention Classification

Ongoing Research

- Reduced trainable parameters to 0.68% of ViT backbone with 94% classification accuracy for 4 intention adapters.
- Processed 346 HD video clips from JAAD Dataset, extracted Region of interests (ROIs) with YOLOv8 as pedestrian detector.

F.E.A.S.T - Food & Ingredient AI Suggestion Technology

Jan - May 2024

Integrated Ingredient Object Detection & Customized Recipe Generation with Nutritional Insights

[Github](#)

- Tokenized 2.2M recipes, annotated 100 ingredients with Zero-Shot detector and fine-tuned BERT and ChefTransformerT5.
- Achieved 70% fluency (BLEU) and presented an end-to-end solution, selected from 150+ projects at [CSE Demo Day](#).

RxRovers: Roaming for Rapid Relief

Feb - May 2024

Simulated Medicine Delivery with Path Optimization and Dynamic Obstacle Avoidance

[Github](#)

- Solved Multi-Agent problem with 6 Deep RL algorithms, comparing Value Based, Asynchronous Actor Critic and PPO.
- Improved policy for stochastic environments, achieving 95% target success with tuned rewards and hyperparameters.

Optimized Transformers for Precise Data Insights

Feb - Apr 2024

Autoencoders and Transformer for advanced anomaly detection & text classification

[Github](#)

- Achieved 91.76% text classification accuracy in transformers, applying regularization techniques for robustness.
- Strengthened anomaly detection for Apple Inc.'s Twitter data by experimenting with 5 methods through Autoencoders.

PUBLICATIONS

Mapping Crime Dynamics: Integrating Textual, Spatial, and Temporal Perspectives | *UEMCON 2024*
Applied LSTM model and 7 clustering algorithms for informed crime prevention strategies.

Automated Monitoring System for Healthier Aquaculture Farming | *ACCAI 2023*
Implemented reliable model for UAV surveillance, experimented in local fish farm with 90% detection rate.

Attention based Discrimination of Mycoplasma Pneumonia | *ICCIDE 2021*
Differentiated Mycoplasma Pneumonia with 81% accuracy, comparing transfer learning techniques.

Journey of Letters to Vectors through Neural Networks | *ICDAM 2021*
Evaluated 4 architectures and variations for text vectorization and image captioning.

A Traffic Control System | *Patent 2023*
Designed traffic clearance strategy by prioritizing waiting time for 5 different users.

Snake Detector and Alerting Gadget for Rural India Using Yolo | *Patent 2022*
Incorporated YOLO with IoT devices for 2x faster object localization and instant alerting at 52.8 FPS.

Python Based Motion Sensing Digital Writing Pad | *Patent 2021*
Developed motion-sensing digital writing pad with Python and OpenCV.

[IEEE Link](#)

[IEEE Link](#)

[Springer Link](#)

[Springer Link](#)

[Link](#)

[Link](#)

[Link](#)