Charvi Kusuma

kcharvi01@gmail.com Linkedin Github Portfolio Leetcode

Education

University at Buffalo, The State University of New York Aug 2023 - Dec 2024
MS, Computer Science and Engineering; GPA: 3.96/4.0 (AI/ML Track)

Vellore Institute of Technology 2019 - 2023
Bachelor of Technology, Computer Science; GPA: 9.58/10.0 (Chancellor's Gold Medalist - Best Outgoing Student)

Experience

Amazon Software Development Bangalore, India
Software DevOps Intern - Certificate *Jan 2023 - June 2023*

- Rectified 120+ integration test cases in Java to ensure CI/CD, reducing weekly manual efforts by 30 hours.
- Mitigated 15 security risks and built creative pipeline for future instances using action scripts in Python, improving efficiency.
- Onboarded access permission sets onto AWS Secrets Manager, applying Lambda and S3 buckets and automated workflows.

JP Morgan Chase & Co. Hyderabad, India
Software Engineering Intern - Certificate *Summer 2022*

- Worked on backend solution using Java and Spring framework, redirected 3 service requests using metric monitoring tools.
- Delivered seamless POC for migrating from Splunk to Grafana, demonstrating a 95% effective remodeling strategy.
- Illustrated 5+ data visualisations on Grafana to validate the migration, ensuring successful fetching of previous requests.

Nanyang Technological Institute (NTU) Remote
Research Intern, guided by Prof. Erik Cambria - Certificate, Github *Jan 2022 - June 2022*

- Analysed 25K+ tweets on Immigration Reforms, providing error analysis and performance improvements for SenticNet APIs.
- Compared multiple NLP tools (TextBlob, VADER, SenticNet APIs) for concept parsing and polarity sentiment analysis.
- Implemented Semantic Similarity Analysis using unsupervised ML technique, contributed to 2 API policy improvements.

Skills

Programming: *Python, Java, JavaScript, HTML, CSS, SQL, R, C/C++*
Tools: *Git/GitHub, Docker, AWS*
Frameworks: *Flask, Hadoop, Flutter, React, Nodejs, Material-UI, Bootstrap, Streamlit*
Libraries: *PyTorch, PySpark, Scikit-learn, TensorFlow, Keras, Spacy, Gensim, Word2Vec, NLTK, Gymnasium*
Courses: *ML, Deep Learning, Reinforcement Learning, Data Intensive Computing, Natural Language Processing, CV*
People Skills: *Inquisitive nature to drive improvements, Collaborative Aptitude, Insist on high-quality, Agile methods*

Projects

F.E.A.S.T - Food & Ingredient AI Suggestion Technology *Github*
Integrated Ingredient Object Detection & Customized Recipe Generation with Nutritional Value *Jan - May 2024*

- Tokenized 2.2M recipes for quality inputs to LLMs (BART and ChefTransformerT5 models), assessed fluency with BLEU score.
- Annotated 100 classes dataset with Grounding DINO, using YOLOv7 and v9 models achieving 0.8mAP score.

RxRovers: Roaming for Rapid Relief *Github*
Simulated Medicine Delivery with Path Optimization and Dynamic Obstacle Avoidance. *Feb - May 2024*

- Solved Multi-Agent problem with 6 Deep RL algorithms, including Value Based (QLearning, DQN), Actor Critic and PPO.
- Improved policy for stochastic environment with optimal reward structure, avoiding obstacles and choosing shortest path.

CrimsonEye: Predictive Crime Analysis *Github*
Mapping Spatial - Temporal and Textual features with Machine Learning, ***Ongoing Research*** *Sept - Dec 2023*

- Applied 14 ML classifiers, 7 clustering algorithms with optimized model training, NLP for topic modeling and LSTM.
- Presented the end to end solution using Flask framework on CSE Demo Day, selected among 90 projects.

Automated Monitoring System for Healthier Aquaculture Farming | ***ACCAI 2023*** IEEE Link
Acclaimed through a prestigious IEEE publication *Apr - Sept 2022*

- Implemented Deep Learning model for UAV surveillance, experimented real-time in fish farm with 90% effective detection.
- Trained and fine-tuned 6 different YOLO architectures for IoT device integration and alerting mechanism.

Achievements

2023 Chancellor's Gold Medal: Honored as the Best Outgoing Student among 1500+ Graduating Students - Link

2022 & 2021 Academic Excellence Award: Secured 2nd Rank among BTech CSE - Link

Publications

Attention based Discrimination of Mycoplasma Pneumonia | *ICCIDE 2021* Springer Link

- *Implemented deep learning models to differentiate Mycoplasma Pneumonia strains.*

Journey of Letters to Vectors through Neural Networks | *ICDAM 2021* Springer Link

- *Explored neural network-based methods for text vectorization and image captioning.*

A Traffic Control System | *Patent 2023* Link

- *Designed a traffic control system using ML algorithms to reduce traffic congestion.*

System And Method To Extract And Analyse Textual Features From An Image | *Patent 2023* Link

- *Implemented computer vision techniques to extract and analyze textual features from images.*

Snake Detector and Alerting Gadget for Rural India Using Yolo | *Patent 2022* Link

- *Integrated a YOLO-based snake detection system with IoT devices for real-time alerts.*

Python Based Motion Sensing Digital Writing Pad | *Patent 2021* Link

- *Developed a motion-sensing digital writing pad using Python and OpenCV.*