

# Charvi Kusuma

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## EDUCATION

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

Aug 2023 - Dec 2024

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

2019 - 2023

## EXPERIENCE

**Amazon Software Development**  
*Software DevOps Intern - [Certificate](#)*

Bangalore, India  
Jan 2023 - June 2023

- Rectified 120+ integration test cases for Amazon Pay to ensure CI/CD, reducing weekly 30 hours of manual efforts.
- Mitigated 15 security risks and automated for future instances by writing bulk action scripts in Python and Java.
- Onboarded access permission sets onto AWS Secrets Manager with Lambda and S3 buckets, resolving all dependencies.

**JP Morgan Chase & Co.**  
*Software Engineering Intern - [Certificate](#)*

Hyderabad, India  
Summer 2022

- Implemented backend solution using Java and Spring Framework, redirecting requests from Splunk with the help of SoapUI, ActiveMQ, and Prometheus.
- Delivered seamless POC for migrating from Splunk to Grafana, demonstrating a 95% effective remodelling strategy.
- Illustrated 5+ data visualizations on Grafana to validate the migration, ensuring successful fetching of previous requests.

**Nanyang Technological Institute (NTU)**  
*Research Intern guided by Prof. Erik Cambria - [Certificate](#)*

Remote  
Jan 2022 - June 2022

- Analyzed 25K+ sentiment trends on Immigration Reforms Sentiments for detailed 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 learning and contributed to API policy improvements.

## SKILLS

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

**Tools:** Git/GitHub, Docker AWS, Android Studio

**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, Strong Communicative Abilities, Agile

## 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

**Automated Monitoring System for Healthier Aquaculture Farming** | ACCAI 2023

[IEEE Link](#)

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

[Springer Link](#)

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

[Springer Link](#)

**A Traffic Control System** | Patent 2023

[Link](#)

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

[Link](#)

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

[Link](#)

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

[Link](#)

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

[Github](#)

*Integrated Ingredient Detection & Customized Recipe Generation with Nutritional Value*

*Jan - May 2024*

- Tokenized 2.2M recipes for high quality inputs to LLMs - BART and ChefTransformerT5 models for custom meal planning.
- Assessed fluency with BLEU score for 100 ingredients detection 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 of crime dynamics, Ongoing Research*

*Sept - Dec 2023*

- Applied 14 different ML classifiers, 7 clustering algorithms, Latent Dirichlet Allocation (LDA) for topic modeling and LSTM.
- Presented the end to end solution using Flask framework on [CSE Demo Day](#), selected among 90 projects.

### **Aquatic Surveillance: Innovative UAV Monitoring System for Dead Fish Detection**

*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.