

Jahnavi Priya Bommareddy

Atlanta, GA, USA

+1 (706) 240-4968 | jahnavipb37@gmail.com | <https://jahnavip7.github.io/> | <https://www.linkedin.com/in/jahnavipriyab/>

SUMMARY

- Computer Science graduate student skilled in Python, SQL, ETL pipelines, Hadoop Ecosystem and Spark for scalable data processing.
- Experienced in cloud platforms (AWS S3, Lambda, RDS), Docker/CI-CD deployments, and database optimization to ensure reliable, high-performance systems.
- Proficient in data preparation, wrangling, and visualization to deliver actionable business insights.

EDUCATION

University of Georgia

Master of Science, Computer Science **GPA: 3.86/4.00**

Athens, GA

May 2025

Courses: Algorithms, Database Management, Machine Learning, Computer Networks, Software Engineering, Adv Special Topics -Red Teaming on LLMs, Internet of Things Security.

National Institute of Technology (NIT) Patna

Bachelor of Technology, Electronics and Communication Engineering **GPA: 8.83/10**

Patna, India

May 2023

Awarded 3 prestigious merit-based scholarships for academic excellence:

- FFE Scholarship (Foundation For Excellence) - for academic merit.
- AWOO Foundation Scholarship - awarded for top academic performance
- NSP Scholarship (National Scholarship from the Government of India)- merit-cum-means scholarship by Govt. of India

SKILLS

Programming & Databases: Python, SQL, MySQL, NoSQL, DBMS, Excel

Data Engineering & Big Data: Apache Spark, Hadoop Ecosystem (HDFS, MapReduce, Hive), ETL Pipelines, Data Warehousing, AWS (Lambda, S3, RDS)

Data Analysis: Data Cleaning & Preparation, Query Optimization, Feature Engineering, Time Series Forecasting, Sentiment & Topic Analysis

Machine Learning & AI: Machine Learning, Supervised & Unsupervised Learning, Model Evaluation, Computer Vision (CNNs), Model Explainability (LIME, SHAP, Grad-CAM).

Visualization & BI: Plotly, Dash, Seaborn, Matplotlib, Excel (Pivot Tables, VLOOKUP, Advanced Formulas)

Software & Tools: GitHub Actions (CI/CD), Docker, Render Cloud, MS Office Suite

Software Engineering: Object Oriented Programming, SDLC, Agile Methodologies.

WORK EXPERIENCE

Neuro-Symbolic Computing Research Lab, University of Georgia

Athens, GA

Project Researcher (Supervisor: Dr. I. Budak Arpinar)

Aug 2024 – May 2025

- Dashboard Development:** Built an interactive forecasting dashboard using **Dash** and **Plotly** to visualize COVID-19 trends with model selection, timeline filtering, and dynamic graphs.
- Model Integration:** Integrated deep learning models (**PatchTST**, **GRU**, **NLinear**) for real-time, multi-step time-series forecasting using a modular Python backend.
- CI/CD & Cloud Deployment:** Configured **GitHub Actions** for automated deployment and deployed the containerized app on **Render**, leveraging Docker-based cloud hosting.
- Data Engineering:** Preprocessed COVID-19 datasets, performed **feature engineering**, and applied rolling window techniques to generate time-series inputs for deep learning models.

UGA CAES- Agriculture, Leadership, Edu & Communication

Athens, GA

Student Research Assistant

Mar 2024 – May 2024

- Data Collection & Engineering:** Scraped and processed **3,600+** Amazon reviews using Helium 10 and Pandas for NLP analysis.
- NLP & Modeling:** Applied NLTK's Sentiment Intensity Analyzer (SIA) and LDA to improve sentiment/topic modeling by **80%**.
- Visualization & Insight Generation:** Visualized sentiment trends using Seaborn, Matplotlib, and Word Cloud to derive actionable insights.
- Research Collaboration:** Collaborated with Dr. Peng Lu on manuscripts, contributing code, statistical analysis, and insights.

- **Object Detection & Annotation:** Boosted real-time object detection accuracy by **70%** using YOLOv5; annotated **15K+** frames. via Labellmg.
- **Model Explainability:** Enhanced explainability by **20%** using Grad-CAM, SHAP, and LIME to visualize model decisions.
- **Testing & Automation:** Applied metamorphic testing (MR1–MR5) and automated video frame processing with Python.
- **System Reliability:** Reduced false detections by **15%**, improving the robustness of AI-based proctoring systems.

- **Tweet Clustering & Analysis:** Analyzed disaster-related tweets using VEC, KMeans, and DBSCAN to improve extraction accuracy by **10%**.
- **NLP Preprocessing:** Cleaned and tokenized tweet text using NLTK and SpaCy to enhance vector-based representations.

PROJECTS

Cinema E-Booking System | Angular, MySQL, Spring Boot

- Collaborated in an Agile environment to develop a web-based platform for booking movie tickets, featuring a user-friendly interface and admin panel for site management, reducing average response time by **20%**.
- Designed and integrated a MySQL database, enhancing query response efficiency by **15%**.
- Implemented backend functionalities using Spring Boot and enhanced user experience through Angular.

Bike Store Management System | Django, MySQL, Python, HTML

- Built a web-based application for managing customer orders, staff data, and inventory, decreasing manual processing efforts by **20%**.
- Designed and implemented a normalized database schema (BCNF, 3NF), reducing redundancy and improving data integrity by **30%**.
- Integrated MySQL with Django, boosting overall application speed by **15%**.

Red-Teaming Attacks on LLM Agents (Cactus and PaperQA) | LLM Agents, Red Teaming, Vulnerability Analysis

- Designed and executed prompt injection attacks on LLM agents (Cactus and PaperQA), achieving a **50%** attack success rate on Cactus and **40%** success rate on PaperQA by bypassing tool restrictions and manipulating workflows.
- Conducted agent profiling by crafting adversarial prompts, analyzing behaviors, and refining attacks using Jail Judge and custom datasets.
- Achieved **91.3%** evaluation grade through systematic vulnerability assessment and analysis of agent weaknesses.

Brain Tumor Classification using Machine Learning | Python, Keras, Tensorflow

- Devised a Convolutional Neural Network (CNN) model for image classification, detection, and segmentation.
- Leveraged TensorFlow's powerful Image Data Generator to augment and enrich the data set, enhancing model robustness by **15%**.
- Achieved an impressive accuracy rate after meticulously crafting and optimizing the model with the Adam optimizer, reducing training time by **35%**.

CERTIFICATION & ACHIEVEMENTS

- Data Engineering Bootcamp – *Dataexpert.io* (by Zachary Wilson)
- Hadoop Training – *The Ultimate Hands-On Hadoop* (Udemy, Frank Kane)
- AWS Cloud Practitioner (Udemy)
- NPTEL Online Certification – The Joy of Computing Using Python- IIT Ropar.

PUBLICATIONS

- Published research article in Optics (Elsevier): 'Implementing the circularly polarized THz antenna with tunable filtering characteristics' (<https://doi.org/10.1016/j.rio.2023.100377>)